



Memo

To: Mark Pugh, RG
Oregon Dept. of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232

Project: 9-61M-135580
Blue Heron Mill

From: John Kuiper, RG, WSP
Dan Schall, PE, WSP

c: Project File

Date: June 12, 2025

Subject: Response to DEQ Comments on *Stormwater Conveyance System Mapping and Sediment & Stormwater Sampling Results Summary* (dated February 12, 2025)

Dear Mark:

The Confederated Tribes of the Grand Ronde Community of Oregon (CTGR) and WSP USA. (WSP) have received comments from the Oregon Department of Environmental Quality (DEQ) on March 13, 2025 pertaining to the document entitled Stormwater Conveyance System Mapping and Sediment & Stormwater Sampling Results Summary dated February 19, 2025. On behalf of CTGR, WSP has prepared the following responses to each of DEQ's comments and a revised report is included as Attachment A.

DEQ Comment #1

"Include information related to fire, potential impacts to system, BMPs emplaced at the time of the fire response."

Response to Comment #1

The report has been revised to include a Fire Response and Stormwater Impacts section (page 8). This new section summarizes the findings from inspecting the Site after the fire and lists the visibly impacted stormwater features and BMPs following the fire response.

DEQ Comment #2

"Page 3, Last sentence. MH-22 is stated to be "in" Tailrace 1, but on Figure 1 it is some distance away from the TR-1 blue line."

Response to Comment #2

The area between the Hawley Building 33, Sulphite Plant Building 39, and the capped end of discharge line from MH-22, all drains to a large crawlspace beneath the pavement which all drains to Tailrace 1. Refer to Figure 2 – Stormwater Drainage Basins. The text has been revised to be more concise, and is now on Page 4.

DEQ Comment #3

"Page 4. Two "sumps of water" are stated to be in the deink/repulper building, and a large sump is described in building 18. They appear to be represented by dashed lines on Figures 1 and 2, which correspond to "underground collection basin" in the Legend. The dashed area in Building 13 is the only feature described as collection basin in the text. Please clarify terminology and/or figure symbology."



Response to Comment #3

Figure 1 – Stormwater Site Plan symbology has been updated to include the sumps of water located in Building 18, Buildings 49 and 50 (deink/repulper buildings). Building 13 is still shown containing an underground collection basin.

DEQ Comment #4

“Figures 1, 2. Please indicate on these figures the buildings that have been demolished, location of former USTs, and areas where stormwater pipes are collapsed (e.g., add a symbol at location on the line).”

Response to Comment #4

Figure 1 – Stormwater Site Plan has been updated to depict demolished buildings and areas where stormwater pipes are collapsed. The approximate location of known former USTs is shown on Figures 1 and 2 according to the best available information from previous Site investigations.

DEQ Comment #5

“Figures 3 series. Why are some concentrations shown for some analytes at select locations and not others (e.g., do these callouts represent significant exceedances)?”

Response to Comment #5

The callouts with concentrations on the Figure 3 series were data from previous investigations. These concentration callouts have been removed for clarity purposes. These figures were intended as a quick visual of to show previous and current samples with screening level exceedances.

DEQ Comment #6

“Photos 14, 15. Any idea on the cause for the purple staining/residue?”

Response to Comment #5

The cause and source of the apparent purple staining/residue is unknown, and is believed to be spray paint that was illuminated during the flash of the camera while taking the photo.

DEQ Comment #7

“Recommendations should be provided for addressing failing efficacy of tailrace gabion walls, disconnected or missing downspout filters, or other source control BMPs that should be implemented.”

Response to Comment #7

The report has been revised to include a Stormwater BMP Recommendations section which provides additional information for the BMPs implemented on site. Specific recommendations for addressing the gabion filters, downspout filters, and other source control BMPs will be provided to DEQ in a separate memo.



CLOSING

The revised memo report is attached. Please contact John Kuiper (503-704-7793) or Dan Schall (503-501-8672) if you have any further questions.

Sincerely,

WSP USA Inc.

A handwritten signature in blue ink, appearing to read 'John Kuiper'.

John Kuiper, RG
Project Manager

x:\us\uspd\800-por\clientdata\13000\13500\13558 ctgr blue heron\13558\stormwater\wood files\stormwater mapping_july 2024\stormwater mapping and sampling memo\final\blueheron_deq stormwater comment responses.docx

c: Ryan Webb, CTGR
Stacia Martin, CTGR
Heidi Nelson, DEQ

Attachment: Revised Report from DEQ Comments

ATTACHMENT



Memorandum

To: Mark Pugh, RG
Oregon Department of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232

Project: 961M135580

From: WSP USA Inc.

Date: June 12, 2025

Re: **Stormwater Conveyance System Mapping and Sediment & Stormwater Sampling Results Summary**
Former Blue Heron Property
419/427 Main Street
Oregon City, Oregon

Dear Mark Pugh,

On behalf of the Confederated Tribes of the Grand Ronde Community of Oregon (CTGR), WSP USA Inc. (WSP) is submitting the results of the stormwater conveyance system mapping and sediment and stormwater sampling activities conducted at the Former Blue Heron Paper Mill property located in Oregon City (Site).

An initial effort of stormwater conveyance system mapping was conducted in August 2021. This report documents the findings from a second mapping effort conducted from September 24 through November 21, 2024, which was utilized to update the findings from the August 2021 mapping effort. Sediment sampling was conducted on October 2, 2024, and stormwater sampling was conducted on October 16, and October 21, 2024, in compliance with the approved Sampling and Analysis Plan – Stormwater Mapping and Sampling (SAP) dated June 16, 2023. All figures and tables developed from this investigation are included in Attachments A and B, respectively. Attachment C is the photograph log of the Site investigation. Attachment D includes all laboratory analytical data from samples collected during this investigation.

BACKGROUND

WSP conducted an initial Site visit on November 4, 2019, to gain a better understanding of the Site and how its stormwater conveyance systems related to Site stabilization and high priority remedial actions. During the visit, stormwater features throughout the Site (catch basins, manholes, trench drains, outfalls, mixed-media filters, etc.) were inspected to identify opportunities for implementing initial Best Management Practices (BMPs) to improve stormwater quality. In September 2020, sampling of stormwater and sediment occurred at each of the catch basins and drainage features. This was followed by the cleaning of various catch basins and drainage features, street sweeping, and installation of catch basin sediment filters and oil absorption booms between January and February 2021. Maps showing the drainage basins and stormwater conveyance systems at the Site were provided in the Overarching Work Plan (OWP); however, the connections, conditions, and characteristics of the stormwater features were not yet fully understood.

The first stormwater conveyance mapping event in August 2021 consisted of above-ground work at accessible stormwater features which did not require confined space entry or additional safety protocols to investigate. This event focused on utilizing a traceable duct rodding method to map the system and to help determine the level of effort that would be necessary in subsequent and more comprehensive mapping events, which would likely include in-line sediment removal. After this first event, WSP estimated that 75 percent of the Site's stormwater conveyance system, connections, and drainage basin boundaries had been accurately defined with this initial method (WSP, 2022).

In June 2023, WSP developed a SAP to conduct a second round of investigations intended to complete the remaining stormwater mapping that was unable to be completed using only the traceable duct rod method during



the first round. In addition, the SAP outlined collecting sediment samples from the drainage tailraces, and stormwater samples of select downspout media filters and tailrace gabion media filters, including disposal-profile sampling for in-line sediment removal activities.

Investigative mapping techniques were expanded from the original duct rodding approach to include closed circuit television (CCTV) camera scoping, dye testing, smoke testing, and line cleaning with sediment removal. These investigative techniques were included during this effort to perform conveyance system mapping to the maximum extent practicable. Due to unknown conditions of the stormwater system, a decision hierarchy was developed which ordered the investigative techniques from least to most comprehensive (based on observations in the field) so that the most appropriate mapping techniques were utilized at each feature and utilized to the maximum extent practicable.

The sampling portion of the SAP included additional environmental assessment efforts related to the transport of legacy Site pollutants via stormwater. Stormwater which falls on the Site is collected in various stormwater features and is discharged directly to the Willamette River either via the tailraces or through piped outfalls. The stormwater itself or the sediment mobilized by the stormwater has the potential to be polluted by legacy contaminants from former Site operations. The sampling was based off the results of two prior Phase II Environmental Site Assessments (ESAs) that had been completed for the Site; the first in 2012 (ERM, 2012) and another in 2019 (Apex, 2019). These ESAs indicated the presence of pollutants within the stormwater features of the Site, including the natural tailraces underneath the elevated platforms and structures at the Site. The contaminants of concern (COCs) for the Site related to stormwater were determined to be polycyclic aromatic hydrocarbons (PAHs), petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), dioxins/furans, and the 13 priority pollutant (PP) metals (antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc).

In 2020, Wood Environment and Infrastructure Solutions, Inc. (now WSP), sampled sediment from most catch basins at the Site and sampled stormwater at each point of centralized discharge from the Site to the Willamette River (Wood, 2020). In general, the analysis showed exceedances of COC concentrations compared to the screening criteria at each of the discharge locations.

Previous efforts to mitigate the transport of pollutants to the Willamette River through stormwater included the installation of filtration units at multiple roof downspouts and within the tailrace channels. The filtration media consisted of a mix of rock aggregate and compost within each of the units. As of this report, the installed BMPs appeared unmaintained and in various states of disrepair. Potential pollutant sources, such as the locations of former underground storage tanks (USTs) as reported in previous Site investigations, are shown on Figure 1. The Site is in various stages of demolition; therefore, Figure 1 shows which structures were demolished at the time of the work presented in this report.

FIELD WORK

Conveyance Mapping

From late September through November 2024, WSP along with Clean Harbors Environmental Services Inc. (Clean Harbors) completed the second round of stormwater conveyance investigation in accordance with the SAP decision hierarchy, beginning with duct rodding any locations that had not been traced during the initial mapping effort in August 2021.

Smoke and dye testing followed, with each being utilized to the maximum extent practicable. Dye testing was conducted by pouring a small amount of concentrated non-toxic biodegradable fluorescent green dye into the bottom of a catch basin, drain or stormwater pipe, and flushing the dye downstream with water. Visual evidence of the dye would be monitored at accessible downstream features. Smoke testing was conducted using smoke sticks and a blower for smaller diameter lines, and a liquid smoke machine for larger diameter lines, see Photos 1, 2 and 3 in Attachment C. The combination of smoke and dye testing was necessary because certain stormwater features may only allow for visual confirmation of the dye but not the smoke or vice versa. For example, the 'Grotto' (identified on Figure 1, immediately northeast of Building 32) is normally inundated with water, and smoke cannot travel through pipes inundated with water. Therefore, a dye test was conducted because the dye can be transported through inundated pipes; see Photo 4 in the attached photograph log.



Clean Harbors contracted directly with Pacific Int-R-Tek (Int-R-Tek) to perform pre-cleaning and post-cleaning CCTV inspections of the stormwater features. These CCTV inspections were utilized to visually evaluate whether line cleaning/flushing was necessary. This initial pre-cleaning CCTV inspection of the lines and features determined that, in general, most lines were plugged with sediment and could not be inspected prior to being cleaned.

After each known feature had been observed by Int-R-Tek, Clean Harbors cleaned each catch basin, manhole, trench drain, and stormwater pipe deemed to be impassable for the initial camera scoping. Line cleaning was performed utilizing a Vactor truck which was equipped with jetting attachments (Photos 5 and 6) and a vacuum. The jetting attachments utilized pressurized water to break up debris in the pipes and flush the debris to the vacuum. Prior to cleaning, a pneumatic plug (Photo 7) was installed in the most downstream accessible feature to prevent potential contamination from directly discharging to the Willamette River. Confined space entry was required in several deep manholes to install the downstream pneumatic plug (Photo 8).

Clean Harbors prioritized cleaning lines starting from downstream to upstream. However, due to the uncertainty of some stormwater connections, some were cleaned beginning from the upstream end. Once debris was no longer mobilized with the jetting attachments and the flush water ran clear, Int-R-Tek performed the post-cleaning camera inspection. Larger lines were scoped using a crawler-mounted CCTV camera, and smaller lines were confirmed using a push-camera (Photos 12 and 13). The CCTV camera provided the added benefit of identifying connections in areas without above-ground features, otherwise known as 'blind-tee' connections. The pipe diameter, pipe material, deficiencies, and connections were documented by on-Site WSP personnel during CCTV inspections and are included in Table 1.

Stormwater and Sediment Sampling

WSP conducted sediment sampling on October 2, 2024, at Tailraces H, 1, and 2. The field crew utilized stainless steel hand augers, trowels, and a clamshell-type grab sampler to collect sediment from sampling locations. The SAP detailed 13 sample locations with two samples collected at each location: one at the shallow depth interval of 0.0-0.5 feet below ground surface (bgs), and the second at a deeper depth interval of 1.0-1.5 feet bgs (if bedrock or the bottom of concrete basins were not encountered first). Several of the deeper samples were unable to be collected due to encountering refusal which appeared to be bedrock, (proposed samples TRH-1, TR1-2, TR2-1, TR2-2, TR2-3, and TR2-4) and concrete (TR1-1, TR1-4, and TR2-6) and therefore only shallow sediment samples were collected in these locations. No samples were collected at TR2-5 due to an apparent safety risk for the sampling team because the sample location was underneath the foundation of a recently demolished structure and showed evidence of instability.

All used equipment and tools were decontaminated before and after each use at each sampling depth interval or location by using a water rinse/scrub, a deionized water/Alconox® soap wash, and a deionized water rinse. The rinsate was securely stored for disposal following characterization. A rinsate blank sample was collected as well as a duplicate sample at TR1-1 for the shallow interval (0.0–0.5 feet bgs) as quality assurance for the decontamination procedure and laboratory analysis.

WSP conducted stormwater sampling on October 16 and October 21, 2024. Legacy stormwater filtration media units remain on-Site; the discharge from Tailrace 1 and H is filtered through gabion units and the roof discharge from several remaining structures is filtered through downspout units in select locations. Three downspouts and two tailrace locations were analyzed for an influent 'pre-treatment' sample, and an effluent 'post-treatment' sample for a total of ten stormwater samples. Samples were collected on separate days due to different amounts of rainfall being required to generate discharge at each location.



EVALUATION AND RESULTS

Conveyance Mapping

The stormwater feature inventory table and Site map developed for the initial mapping effort was updated with the new findings (Table 1 and Figure 1). Following this second round of conveyance investigation, an updated drainage basin delineation map was developed (Figure 2). The drainage basins were delineated based on assumed historic drainage patterns where storm lines were capped, or unable to be confirmed due to pipe collapses. The boundary of Drainage Basin A was expanded east to include portions of the Former Kraft Tank and surrounding areas to reflect field observations verifying the flow direction. During field investigation, MH-22 was discovered to be capped on the downstream end and would backfill with water from the Intake Basin. The capped discharge line from MH-22 appeared to be directed toward Tailrace 1 and therefore this contributing area was shifted from Drainage Basin B to Drainage Basin C. Drainage Basin B was updated to only include Tailrace H. During conveyance mapping, it was also determined that the line connecting CB-31, CB-38, CB-42, CB-43, and CB-35, flows northwest directly into Tailrace 1 as opposed to flowing east towards Tailrace 2 as previously assumed. The Drainage Basin C boundary was updated to reflect this discovery and to encompass other confirmed connections on the northern side of the basin, including the pipe tunnel and buildings which are assumed to drain into the large sump in Building 18. The field crew was unable to determine to where the sump in Building 18 drained, however, since no laterals were observed in the mainline to Outfall C, this sump presumably drains towards the pipe tunnel and then to Tailrace 1.

It was previously hypothesized that discharge to Outfall C was solely from off-Site contributions. Conveyance mapping was able to confirm that this is correct and discharge from Highway 99 enters the Site which flows through to Outfall C with no incoming laterals and is solely off-Site stormwater from the City and Oregon Department of Transportation (ODOT) properties. No stormwater features were discovered from the railroad line which parallels Highway 99.

Drainage Basin D was updated to include all connections to MH-12. It was previously thought that the cluster of catch basins directly east of MH-12 drained to the City Outfall via MH-13, but field efforts determined that MH-13 serves as an overflow for MH-12 and would not drain MH-12 under normal circumstances. An overflow pipe was observed in MH-14 (directly downstream of MH-12) and was determined to be the only outlet from MH-14 and flowed towards Tailrace 2. The line between MH-12 and MH-14, as well as MH-14 itself, serves as detention for stormwater until MH-14 eventually accumulates enough water to drain through the overflow. The location where the line discharges into Tailrace 2 was not able to be confirmed.

Drainage Basin E was determined to encompass primarily City sanitary sewer, and its boundary area was reduced to reflect the changes in Drainage Basin D. Drainage Basin F remained the same as previous iterations of the drainage delineation, draining the historic Water Filter Plant via Outfall 2.

The following is a list of the newly discovered stormwater features since the initial mapping. These features are shown on Figure 1.

- Stormwater line upstream/southwest leading into MH-12. Estimated to extend at least 400 feet southwest (upstream) of MH-12 under the rail tracks along the main corridor.
- Underground Collection Basin located along Tailrace 2, see Photos 14 and 15;
- MH-3 leads to above mentioned Underground Collection Basin and Tailrace 2;
- Main line on Main Street flows southwest and ends in Tailrace 1; and
- Two sumps of water located in the Deink Repulper Building, connected via pump and drains to MH-11.

Sediment Sampling

Sediment samples were collected at multiple locations in each tailrace to characterize the extent and prevalence of the COCs. Each sample was analyzed for TPH by NWTPH-HCID with NWTPH-Dx and NWTPH-Gx as follow-up, PCBs by EPA 8082A, total metals by EPA 6020B, PAHs by EPA 8270E, and dioxins/furans by EPA 1613B. All analytical testing was performed by Apex Laboratories (Apex) in Tigard, Oregon, except for dioxins/furans which were analyzed by Enthalpy Analytical Laboratory, Inc. (Enthalpy) in El Dorado Hills, California. Sediment sample



results were compared against standard screening criteria as shown in Table 2 (EPA, 2022, DEQ, 2023, DEQ, 2020, DEQ, 2019, CFR, 2024). The following results summaries detail the findings at each sample location. Figures 3A through 3C document the sampling locations and which COCs, if any, exceeded applicable screening criteria for the shallow or deep interval.

Tailrace H

A total of five sediment samples (of the proposed six samples) were collected in Tailrace H. The only sample not collected was the deep interval (1.0–1.5 feet bgs) for BH-TRH-1 due to refusal. BH-TRH-1 is the most downstream sediment sample of Tailrace H and the sample results exceeded applicable screening criteria for some PP metals and the toxic equivalency quotient (TEQ) for dioxins/furans. BH-TRH-2 was collected near the centerline of the main tailrace channel and both shallow and deep interval samples were collected. Both shallow and deep interval sample results were similar to each other and exceeded applicable screening criteria for some PP metals and the TEQ for dioxins/furans. BH-TRH-3 is the most upstream sample location for Tailrace H and both the shallow and deep intervals were able to be collected. The shallow interval results only exceeded applicable screening criteria for the TEQ for dioxins/furans. Alternatively, the deep interval results exceeded multiple applicable screening criteria including some PP metals, TPH, PAHs, and the TEQ for dioxins/furans. Most notably, the shallow interval sample was non-detect for TPH while the deep interval sample had the highest concentration of TPH from the entire investigation (42,500 milligrams per kilogram [mg/kg]).

To summarize the findings from the sediment sampling of Tailrace H:

- The concentrations and the variety of COCs generally increase with distance upstream into the tailrace;
- The differences in COC concentrations between the shallow interval and deep interval samples is not consistent; and
- No PCBs were detected during the current round of sampling at Tailrace H. [Previous sediment sampling performed by Apex in 2019 (Apex, 2019) detected PCBs (1.19 mg/kg) in a sediment sample within 20 feet of BH-TRH-3.]

Tailrace 1

A total of five sediment samples of the proposed eight samples were collected in Tailrace 1, not including a field duplicate which is discussed later in this section. Of the five samples, four were collected at the shallow depth (0.0–0.5 feet bgs) and one was collected at the deeper depth (1.0–1.5 feet bgs) at location BH-TR1-3. Not all proposed samples were collected due to insufficient thickness of sediment. BH-TR1-1 is the most downstream sample location of Tailrace 1 and the shallow interval sample results exceeded applicable screening criteria for some PP metals and the TEQ for dioxins/furans. The BH-TR1-2 location is at the effluent channel of the ‘Grotto’ and was only collected for the shallow interval. The results exceeded applicable screening criteria for TPH-Dx, some PP metals, and the TEQ for dioxins/furans. BH-TR1-3 included samples at both the shallow and deep intervals and is the furthest upstream sample within Tailrace 1. Both intervals exceeded applicable screening criteria for some PP metals, PAHs, and the TEQ for dioxins/furans, but only the deep interval exceeded for total PCBs. The shallow interval sample showed higher results than the deep interval sample for PP metals and PAHs. The BH-TR1-4 location is only a shallow interval sample from the thin layer of sediment (less than an inch thick) within the northern end of the Pipe Tunnel structure. The sample results exceeded applicable screening criteria for some PP metals, PAHs, and the TEQ for dioxins/furans.

To summarize the findings from the sediment sampling of Tailrace 1:

- The data indicates that the concentrations of COCs generally increase with distance upstream into the tailrace;
- The deeper sample at BH-TR1-3 generally had less significant exceedances than the shallow sample (notable exception being PCBs); and
- All COCs of this investigation were detected within the sampled sediments from Tailrace 1. Significant exceedances include BH-TR1-3 for total arsenic and BH-TR1-2 and BH-TR1-3 TEQ for dioxins/furans, all of which exceeded some DEQ Risk Based Concentrations (RBCs).



Tailrace 2

A total of five sediment samples of the proposed ten samples were collected in Tailrace 2. Of the five samples, all were only sampled from the shallow depth interval (0.0–0.5 feet bgs); no deep interval samples (1.0–1.5 feet bgs) were collected due to the limited thickness of the sediment. BH-TR2-1 and BH-TR2-4 were located within the main tailrace channel near the discharge point of Tailrace 2. Both samples exceeded applicable screening criteria for some PP metals, TPH, PAHs, and the TEQ for dioxins/furans. BH-TR2-2 and BH-TR2-3 were located along the north and south banks of the main tailrace channel. Both samples exceeded applicable screening criteria for some PP metals, PAHs, and the TEQ for dioxins/furans. Most notably, the main channel sediment samples exceeded screening criteria for TPH while the bank samples did not exceed. BH-TR2-6 was the most upstream sediment sample for Tailrace 2 and exceeded applicable screening criteria for most COCs.

To summarize the findings from the sediment sampling of Tailrace 2:

- The concentrations and the variety of the COCs increase with distance upstream into the tailrace and towards the centerline of the channel; and
- Most of the COCs of this investigation were found within the sampled sediment of Tailrace 2. Exceedances of the listed occupational RBC include BH-TR2-6 for total arsenic, and all sampled locations for the dioxins/furans TEQ.

Quality Assurance Samples

A field duplicate sample was collected for the BH-TR1-1 location shallow interval to provide quality assurance of the laboratory analytical methods. The duplicate sample was collected in accordance with the methods detailed in the SAP (WSP, 2023). Apex Laboratories and Enthalpy Laboratories were both provided a duplicate field sediment sample. The percent difference is calculated between each analyte's result for each of the samples for each of the labs. The maximum percent difference in the analytical results provided by Apex was 32.97% and by Enthalpy was 41.05%.

A rinsate sample was collected in the field by the WSP sediment sampling team following a typical decontamination procedure between sediment samples to provide quality assurance in the mitigation of cross-sample-contamination. The sample was collected from the hand sampling tools using deionized water in accordance with the methods detailed in the SAP (WSP, 2023). Apex and Enthalpy were both provided a rinsate sample. The rinsate sample was analyzed for dioxins/furans, TPH-Dx, total lead, and PAHs. The results were non-detect for dioxins/furans and TPH-Dx. For PAHs, the calculated TEQ of benzo(a)pyrene shows as detected in Table 3, however all the PAH analytical results utilized to calculate this TEQ are below laboratory reporting limits. For total lead, the rinsate sample result was 0.210 micrograms/liter (ug/L), barely exceeding the laboratory report limit of 0.200 ug/L. For comparison, the minimum detection of total lead within the tailrace sediment samples was 8.83 milligrams per kilogram (mg/kg). Because the trace levels of COCs detected in the rinsate blank were well below screening levels, all sampling data are considered valid for use.

Stormwater Sampling

Samples were collected and analyzed for TPH by NWTPH-HCID with NWTPH-Dx and NWTPH-Gx as follow-up, PCBs by EPA 8082A, total and dissolved metals (RCRA-8) by EPA 6020B, PAHs by EPA 8270E, dioxins/furans by EPA 1613B, and total suspended solids (TSS) by SM 2540D. Downspout unit samples were only analyzed for total and dissolved metals. All analytical testing was performed by Apex except for dioxins/furans which were analyzed by Enthalpy. All locations were analyzed for pH, temperature, and conductivity in the field via a calibrated hand-held meter. Stormwater samples results were compared against screening criteria as shown in Table 3 (DEQ, 2024, DEQ, 2023, DEQ, 2021, EPA, 2024).

Downspout Filter Units

The three sampled downspout units were Downspout #14 (DS-14), DS-24, and DS-8, as shown on Figure 1 dated January 2025. These downspout units have since been removed in preparation for demolition of the buildings along the south side of Main St. as shown on the updated Figure 1. The results of the influent or 'pre-filter' samples (direct roof runoff) for all three downspouts show exceedances of applicable screening criteria (i.e., DEQ Freshwater Chronic RBCs) for some total metals and some dissolved metals. Most notably, the influent sample to



DS-14 had significantly higher concentrations for total zinc and total copper than the other downspout influent samples. This indicates that the roof area which contributes stormwater flow to DS-14 (potentially from the roofs of Buildings 42 and 43, as shown on Figure 1) is most likely a significant pollutant source to Tailrace 2.

The effluent or 'post-filter' sample results for all three downspouts show exceedances of applicable screening criteria for some total metals and some dissolved metals. Collecting influent and effluent samples from the downspout filter units allows for analysis of their current treatment efficiency. The average percent dissolved metals fraction of the total metals for influent samples is 75.7% which indicates that the majority of the metals pollutants in the stormwater are in the dissolved phase. The average percent dissolved metals for effluent samples from the downspout filters is 86.1%. This increase in percentage indicates the downspout filters are ineffective at removing dissolved-phase metals which is typically the predominant COC for industrial facility roof runoff. The average total metals removal efficiency for the sampled downspout units (only for metal analytes detected in the samples) is 48.5%. The lack of maintenance of the downspout filter units has most likely decreased their treatment efficiency but the filters remain partially effective.

Gabion Filter Units

The two gabion filter units are located near the discharge location of Tailrace H (TRH Gabion) and within the pipe tunnel that discharges to Tailrace 1 (TR1 Gabion), as shown on Figures 3A and 3B. The results of the influent or 'pre-filter' samples for the TR1 Gabion units show exceedances of applicable screening criteria for some PP metals, some dissolved-phase PP metals, PCBs, PAHs, and the TEQ for dioxins/furans. The effluent or 'post-filter' samples for the TR1 Gabion units show decreases in concentrations for PCBs, PAHs, the TEQ for dioxins/furans, total copper, lead, and zinc compared to the influent samples. Most notably, the TR1 Gabion units remain partially effective at removing heavy metals from the stormwater; the treatment efficiency was calculated at 56.1%. The average percent dissolved-phase metals in comparison to the total metals concentrations of the influent samples was 78.1%.

The influent sample to the TRH Gabion units shows exceedances of the applicable screening criteria for some total metals, some dissolved-phase metals, and the TEQ for dioxins/furans. The effluent samples for the TRH Gabion units show no significant decreases in the concentrations of the COCs which exceeded applicable screening criteria, in fact in some cases the effluent sample concentration for a COC was greater than the influent sample concentration. Using total metals removal efficiency as a metric, the TRH Gabion units averaged only 4.8% removal efficiency. This poor removal efficiency could be due to failure of the treatment filter media or a partial or complete bypass of the TRH Gabion units.

DISPOSAL

Stormwater conveyance mapping and line cleaning generated waste materials which filled three 30 cubic yard (CY) solids containers and three 21,000-gallon aqueous containers. This translates into an estimated 50 tons of solid materials and approximately 50,000 gallons of water. Each container was sampled for PCBs, volatile organic carbons (VOCs), total metals, and dioxins/furans to be profiled for hazardous or non-hazardous waste management. All results were determined to be non-hazardous. The non-hazardous soil/solids were disposed of at the Hillsboro Landfill (Hillsboro, Oregon), and the non-regulated liquids were solidified and disposed of at the Chemical Waste Management facility (Arlington, Oregon). Detailed hazardous profiling results can be found in Tables 4 and 5. All solid and liquid waste, as well as materials containers were off-Site as of May 21, 2025.

DATA GAPS AND RECOMMENDATIONS

The comprehensive mapping effort of the stormwater conveyance system is considered complete to the maximum extent practicable. Any further efforts would most likely require unique and cost-prohibitive methods. It should be noted that these data gaps only capture the known stormwater lines which were unable to be mapped; the possibility remains that additional stormwater features could exist but have not yet been discovered. The remaining data gaps as unconfirmed lines are listed below.

- Downstream of CB-49, unable to be camera scoped due to collapse in pipe;
- Downstream of MH-22, unable to be camera scoped due to water backfilling features;



- Downstream of CB-50, unable to be camera scoped due to collapse in pipe;
- Downstream of MH-1, unable to be camera scoped due to collapse in pipe;
- Downstream of MH-14, unable to be camera scoped due to multiple bends in pipe preventing advancement of the camera;
- Downstream of MH-5, unable to be camera scoped due to debris and pipe damage preventing the camera from advancing; and
- Large size sump in Building 18 (approximately 21 feet by 25 feet by 8 feet deep), unable to be pumped due to excessive disposal volume.

Recommended next steps should be focused on further characterization on the type and extent of pollutants within the tailrace sediments. The comprehensive stormwater mapping allows for accurate identification of potential upstream areas for further sampling analysis.

FIRE RESPONSE AND STORMWATER IMPACTS

In January 2025 a large fire started on site that damaged and ultimately demolished Buildings 45, 46, and 47 (Figure 1, Photo 20). The fire was contained and extinguished the same day but continued to smolder for 48 hours. Stormwater features within the vicinity of the affected buildings that may have been impacted by the fire and firefighting efforts includes CB-26, CB-50, TD-5, MH-10, MH-9, and CB-SS-04. MH-9, MH-10, CB-26, CB-50 and TD-5 were not observed to have any sediment or ash accumulation after the fire was extinguished. After the fire, a fabric insert was placed in CB-50, and a large steel plate was placed to cover both CB-50 and TD-5 to prevent debris from entering the stormwater system, see Photo 21. CB-SS-04 is filled with ash and debris, which can also be observed in the surrounding area of the catch basin, see Photo 22. No fabric insert was observed in CB-SS-04 after the fire.

STORMWATER BMP RECOMMENDATIONS

The gabion filters and downspout units were part of an interim stormwater management plan under the Oregon DEQ NPDES 1200-Z stormwater permit and had an intended operating lifespan of only five years with routine maintenance (approximately 2013 to 2018). CTGR is in the process of coordinating additional demolition on-site, which recently included Buildings 45, 46, and 47. These buildings were damaged during the fire in January 2025 and subsequently demolished in the interest of safety. The downspout filters installed along Buildings 42, 42A, 43, 49 and 50 were removed in preparation for the demolition of these buildings. Planning for rehabilitation of existing downspouts will require coordination between CTGR and WSP to ensure that the downspout filter units would be installed on buildings that are not planned to be demolished in the immediate future. CTGR and WSP will evaluate where the existing gabion filters could be refurbished, and where other BMPs could be implemented. A separate memo will be provided to specify these BMP-related recommendations to improve overall stormwater management efforts.

LIMITATIONS

WSP services have been performed in accordance with the normal and reasonable standard of care exercised by similar professionals performing services under similar conditions and geographic locations. Except for our stated standard of care, no other warranties or guarantees are offered as part of WSP's contracted services.

ATTACHMENTS

Attachment A – Figures

Figure 1: Stormwater Site Plan

Figure 2: Stormwater Drainage Basins

Figures 3A – 3C: Sampling Results



Attachment B – Tables

Table 1: Stormwater Feature Inventory Log

Table 2: Sediment Sampling Data Analysis

Table 3: Stormwater Sampling Data Analysis

Table 4: Waste Sediment Profiling Analysis

Table 5: Wastewater Profiling Analysis

Attachment C – Site Photograph Log

Attachment D – Laboratory Analytical Reports

REFERENCES

- Apex Companies, LLC. 2019. Phase II Environmental Site Investigation, Former Blue Heron Mill. January.
- Code of Federal Regulations. 2024. Title 40 § 261.24 Toxicity Characteristic. December.
- ERM, 2012. Phase II Environmental Site Assessment Results and Recommendations, blue Heron Mill, Oregon City, Oregon. Environmental Resources Management (ERM). August.
- Oregon Department of Environmental Quality (DEQ). 2019. Clean Fill Determinations Table 1 (Portland Basin Province) and Table 2. February.
- DEQ, 2020. Draft Sediment Screening and Trigger Levels Lower Willamette River Downtown and Upriver Reaches Table 1. Oregon Department of Environmental Quality. July.
- DEQ, 2021. Conducting Ecological Risk Assessments Table 2. Oregon Department of Environmental Quality. April.
- DEQ, 2023. Risk-Based Concentrations for individual Chemicals. Oregon Department of Environmental Quality. May 2018, revised August.
- DEQ, 2024. Vapor Intrusion Risk-Based Concentration Table 1. Oregon Department of Environmental Quality. March.
- Stantec, 2022. Master Quality Assurance Project Plan (Revision 1) Former Blue Heron Mill Site. Stantec Consulting Services, Inc. May 13.
- United States Environmental Protection Agency (EPA). 2022. Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21. United States Environmental Protection Agency. September.
- EPA, 2024. National Primary Drinking Water Regulations. United States Environmental Protection Agency. December.
- Wood Environment & Infrastructure Solutions Inc. (Wood). 2020. Sediment and Stormwater Sampling Results Summary, Former Blue Heron Property. Wood Environment & Infrastructure Solutions, Inc. December 7.
- Wood, 2022. Initial Stormwater Conveyance System Mapping Results (Revision 1) Former Blue Heron Paper Company Mill: January 12.
- WSP USA Environment & Infrastructure Inc. 2023. Sampling and Analysis Plan – Stormwater Mapping & Sampling. Former Blue Heron Paper Company Mill. June 16.

x:\us\uspd\800-por\clientdata\13000\13500\13558 ctgr blue heron\13558\stormwater\wood files\stormwater mapping_july 2024\stormwater mapping and sampling memo\final\stormwater mapping and sampling memo_final.docx

ATTACHMENT A:

FIGURES

LEGEND:

- Manhole (Sanitary Sewer)

Catch Basin

Cleanout

Gullywasher Downspout Treatment Unit
- Floor Drain

Manhole

Outfall

Capped/Collapsed Pipe
- Concrete Dam/Wall

Existing Gullywasher Gabion Filter

Flow Direction

Sheet Flow Drainage
- Sanitary Sewer Line

Stormwater Line

Stormwater Line (approximate)

Tailrace

Tailrace (approximate)
- Trench Drain

Underground Corridor (approximate)

Tailrace

Tailrace (approximate)
- Pervious Area

Sump

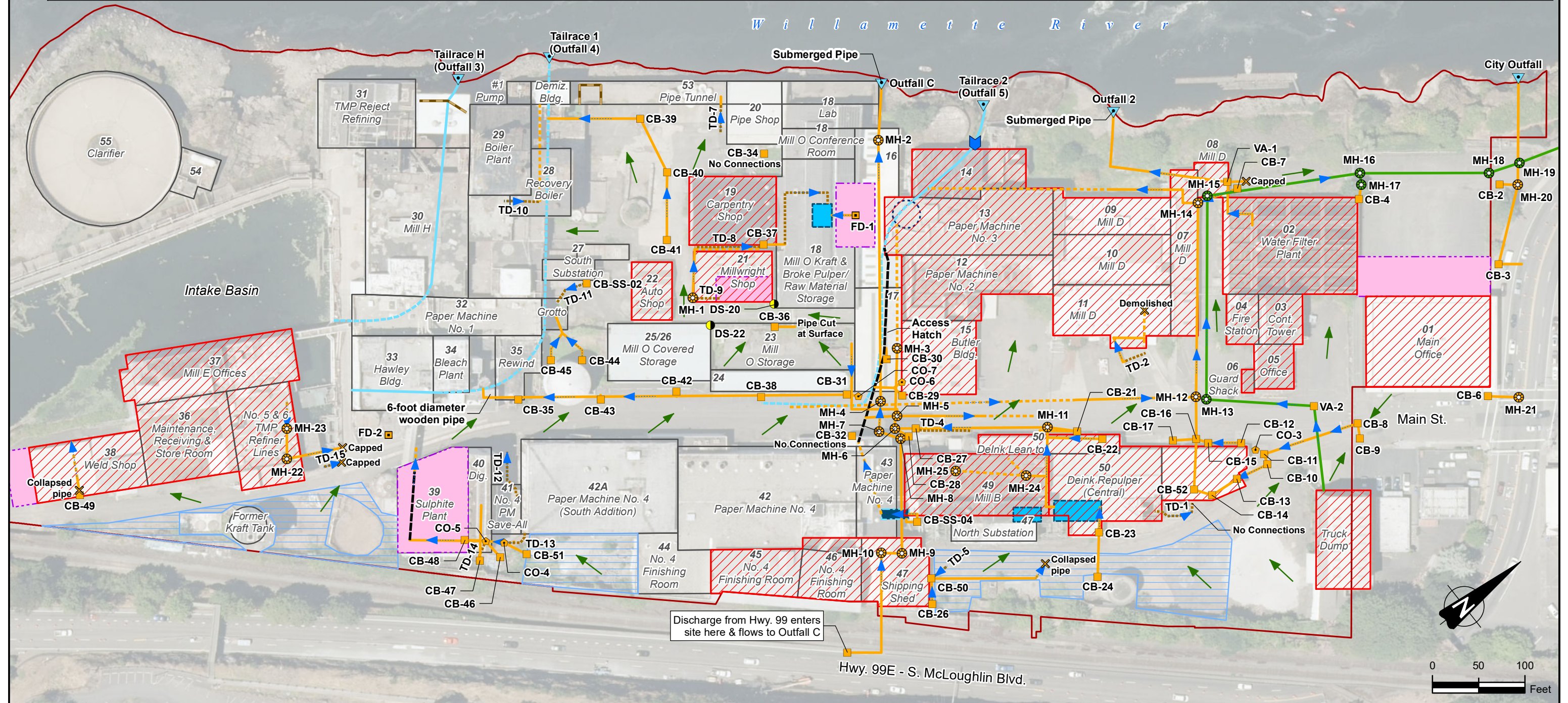
Underground Channel

Underground Collection Basin
- Existing Building

Demolished Building

Location of Former Underground Storage Tank (approximate area)

Site Boundary



LEGEND:

- Manhole (Sanitary Sewer)

Catch Basin

Cleanout

Gullywasher Downspout Treatment Unit
- Floor Drain

Manhole

Outfall

Capped/Collapsed Pipe
- Concrete Dam/Wall

Existing Gullywasher Gabion Filter

Flow Direction

Sheet Flow Drainage
- Sanitary Sewer Line

Stormwater Line

Stormwater Line (approximate)

Trench Drain

Underground Corridor (approximate)

Tailrace

Tailrace (approximate)
- Pervious Area

Sump

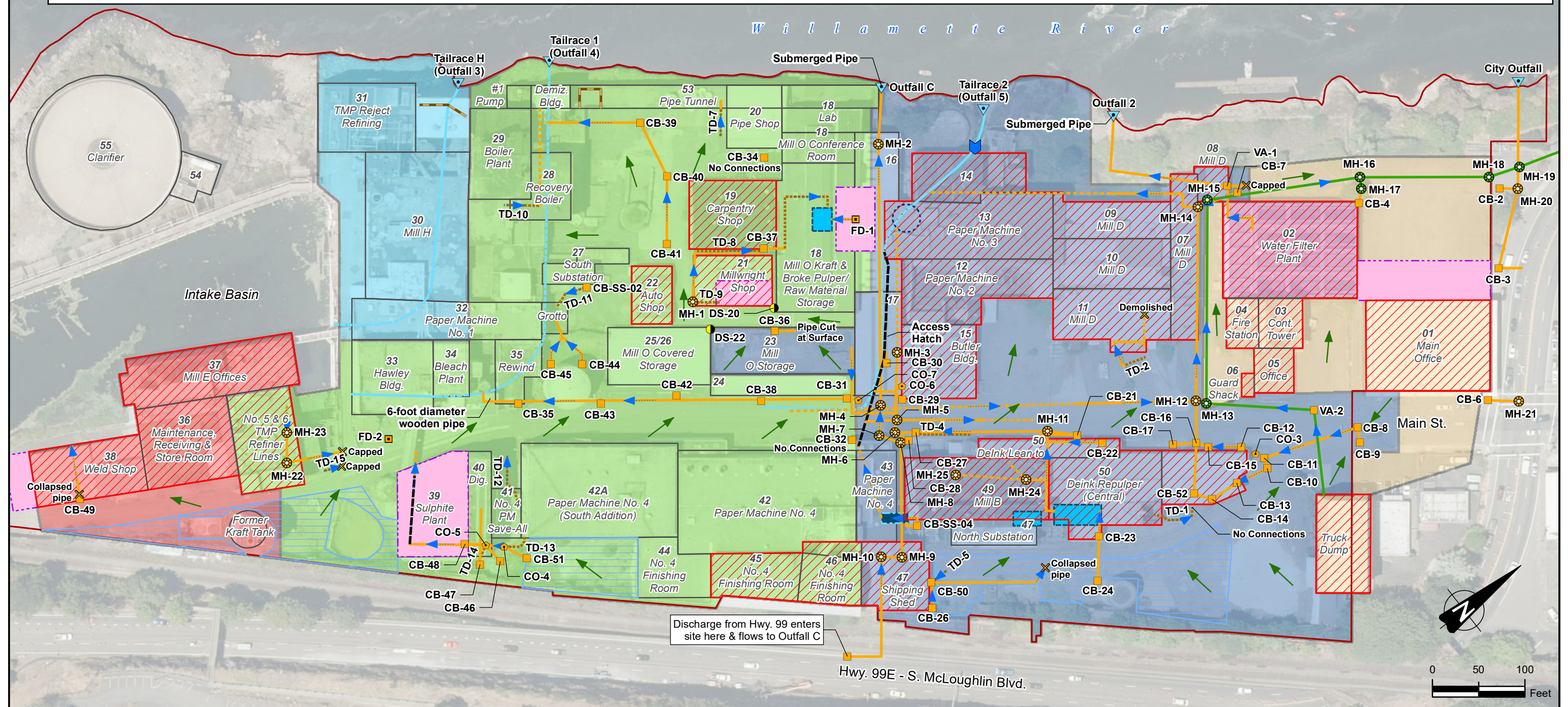
Underground Channel

Underground Collection Basin
- Existing Building

Demolished Building

Location of Former Underground Storage Tank (approximate area)

Site Boundary



DRAINAGE BASINS:

- Basin A (41,550 sq. ft.)
(Discharges to Intake Basin)
- Basin B (45,760 sq. ft.)
(Discharges to Tailrace H)
- Basin C (288,280 sq. ft.)
(Discharges to Tailrace 1)
- Basin D (252,670 sq. ft.)
(Discharges to Tailrace 2)
- Basin E (77,250 sq. ft.)
(Discharges to City Stormwater or Sanitary Sewer)
- Basin F (15,210 sq. ft.)
(Discharges to Outfall 2)

CONFEDERATED TRIBES
OF THE GRAND RONDE

WSP USA
15862 SW 72nd Ave., Suite 150
Portland, OR 97224



STORMWATER MAPPING & SAMPLING
FORMER BLUE HERON PAPER MILL
419-427 MAIN STREET, OREGON CITY, OREGON

STORMWATER DRAINAGE BASINS

DATE
JUNE 2025

SCALE
1" = 105'

PROJECT NO.
261M135583
US-EI-G685.0793

FIGURE
2



¹ Screening levels include:

- Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022);
- Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023);
- DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and Upriver Reaches Table 1 (DEQ, July 2020);
- Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019);
- Title 40 § 261.24 Toxicity Characteristics (Code of Federal Regulations, December 2024);
- Vapor Intrusion Risk-Based Concentrations Table 1 (DEQ, March 2024);
- Risk-based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023);
- Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021); and
- National Primary Drinking Water Regulations (EPA, December 2024).

CONFEDERATED TRIBES
OF THE GRAND RONDE

WSP USA
15862 SW 72nd Ave., Suite 150
Portland, OR 97224



STORMWATER MAPPING & SAMPLING
FORMER BLUE HERON PAPER MILL
419-427 MAIN STREET, OREGON CITY, OREGON

SAMPLING RESULTS
TAILRACE H

DATE	JUNE 2025
SCALE	1" = 25'
PROJECT NO.	261M135583
US-EI-G685.0793	
FIGURE	3A

DRAWN BY: P/CHECKED BY: DS



¹ Screening levels include:

- Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022);
- Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023);
- DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and Upriver Reaches Table 1 (DEQ, July 2020);
- Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019);
- Title 40 § 261.24 Toxicity Characteristics (Code of Federal Regulations, December 2024);
- Vapor Intrusion Risk-Based Concentrations Table 1 (DEQ, March 2024);
- Risk-based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023);
- Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021); and
- National Primary Drinking Water Regulations (EPA, December 2024).

CONFEDERATED TRIBES
OF THE GRAND RONDE

WSP USA
15862 SW 72nd Ave., Suite 150
Portland, OR 97224



STORMWATER MAPPING & SAMPLING
FORMER BLUE HERON PAPER MILL
419-427 MAIN STREET, OREGON CITY, OREGON

SAMPLING RESULTS
TAILRACE 2

DATE
JUNE 2025

SCALE
1" = 25'

PROJECT NO.
261M135583
US-EI-G685.0793

FIGURE
3C

ATTACHMENT B:

TABLES

Table 1 - Stormwater Feature Inventory Log
Former Blue Heron Paper Company Mill
Oregon City, Oregon

General Info				Source Investigation Notes						
Feature Name	Feature Type	Dimensions (" = inches)	Drainage Basin	Sediment Depth Sept 2020 (" = inches)	Sediment Depth Sept/Oct 2024 (Pre-Cleaning) (" = inches)	Condition	Best Management Practices Implemented	Connections	Cleaning	Notes
CB-1	Catch Basin	Not Measured	E	Not Measured	Not Measured	Unknown - Off-Site	None	City Outfall	None	Off-Site
CB-2	Catch Basin	Not Measured	E	Not Measured	Not Measured	Unknown - Off-Site	None	City Outfall	None	Off-Site
CB-3	Catch Basin	Not Measured	E	Not Measured	Not Measured	Unknown - Off-Site	None	City Outfall	None	Off-Site
CB-4	Catch Basin	Not Measured	E	Not Measured	12"	Intact	Fabric Insert	CB-4 to MH-17	Cleaned Sept/Oct 2024	Connections confirmed
CB-5	Catch Basin	Not Measured	E	Not Measured	Not Measured	Demolished	None	Demolished	None	Off-Site
CB-6	Catch Basin	Not Measured	E	Not Measured	Not Measured	Unknown - Off-Site	None	City Outfall	None	Off-Site
CB-7	Catch Basin	28" x 12"	D	3"	4"	Intact	Fabric Insert	CB-7 to MH-14	Cleaned Sept/Oct 2024	Connections confirmed
CB-8	Catch Basin	30" diameter	D	3"	0"	Intact	Fabric Insert	CB-8 to CB-11	Cleaned Sept/Oct 2024	Connections confirmed
CB-9	Catch Basin	15" x 15"	D	15"	2"	Intact	Fabric Insert	CB-9 to CB-8	Cleaned Sept/Oct 2024	Connections confirmed
CB-10	Catch Basin	30" diameter	D	6"	2"	Intact	Fabric Insert	CB-10 to CB-13	Cleaned Sept/Oct 2024	Connections confirmed
CB-11	Catch Basin	30" diameter	D	4"	0"	Intact	Fabric Insert	CB-11 to CB-10	Cleaned Sept/Oct 2024	Connections confirmed
CB-12	Catch Basin	17" diameter	D	2"	2"	Intact	Fabric Insert	CB-12 to CB-15	Cleaned Sept/Oct 2024	Connections confirmed
CB-13	Catch Basin	30" diameter	D	12"	0"	Intact	Fabric Insert	CB-13 to CB-14	Cleaned Sept/Oct 2024	Connections confirmed
CB-14	Catch Basin	30" diameter	D	11"	0"	Intact	Fabric Insert	CB-14 to CB-14A	Cleaned Sept/Oct 2024	Connections confirmed
CB-15	Catch Basin	18" diameter	D	2"	5"	Intact	Fabric Insert	CB-15 to CB-16	Cleaned Sept/Oct 2024	Connections confirmed
CB-16	Catch Basin	30" diameter	D	12"	12"	Intact	Fabric Insert	CB-16 to MH-12	Cleaned Sept/Oct 2024	Connections confirmed
CB-17	Catch Basin	17" diameter	D	7"	7"	Intact	Fabric Insert	CB-17 to CB-16	Cleaned Sept/Oct 2024	Connections confirmed
CB-18	Catch Basin	24" x 24"	D	Full	N/A	Demolished	None	Demolished	None	Demolished
CB-21	Catch Basin	27" x 11"	D	9"	5"	Intact	Fabric Insert	CB-21 to MH-11	Cleaned Sept/Oct 2024	Connections confirmed
CB-22	Catch Basin	14" x 10"	D	0.25"	5"	Intact	Fabric Insert	CB-22 to MH-11	Cleaned Sept/Oct 2024	Connections confirmed
CB-23	Catch Basin	32" x 32"	D	14"	3"	Intact	Fabric Insert	CB-23 to Sump in Bldg 50	Cleaned Sept/Oct 2024	Connections confirmed
CB-24	Catch Basin	54" x 36"	D	2"	0.25"	Intact	Fabric Insert	CB-24 to CB-23	Cleaned Sept/Oct 2024	Connections confirmed
CB-25	Catch Basin	24" x 24"	D	32.5"	N/A	Demolished	None	Demolished	None	Demolished
CB-26	Catch Basin	24" x 24"	D	13"	6"	Intact	Fabric Insert	CB-26 to CB-50	Cleaned Sept/Oct 2024	Connections confirmed
CB-27	Catch Basin	58" x 35"	D	4"	12"	Intact	Fabric Insert	CB-27 to MH-6	Cleaned Sept/Oct 2024	Connections confirmed
CB-28	Catch Basin	28" x 14"	D	5"	32"	Intact	Fabric Insert	CB-28 to MH-6	Cleaned Sept/Oct 2024	Connections confirmed
CB-29	Catch Basin	24" x 24"	D	32"	3"	Intact	Fabric Insert	CB-29 to MH-3	Cleaned Sept/Oct 2024	Connections confirmed
CB-30	Catch Basin	18" x 18"	D	1"	1"	Intact	None	Utility Corridor	None	Vault door into Utility Corridor
CB-31	Catch Basin	24" x 24"	C	24"	1"	Intact	Fabric Insert	CB-31 to Tailrace 1	Cleaned Sept/Oct 2024	Connections confirmed
CB-32	Catch Basin	26" x 23"	C	2"	2"	Intact	None	No Connections	None	No connections found
CB-34	Catch Basin	15" diameter	C	14"	3"	Intact	Fabric Insert	Tailrace 1	None	Assumed connection to Tailrace 1
CB-35	Catch Basin	24" x 24"	C	26"	0"	Intact	Fabric Insert	CB-35 to Tailrace 1	Cleaned Sept/Oct 2024	Connections confirmed
CB-36	Catch Basin	24" x 24"	D	18"	5"	Intact	Fabric Insert	No Connections	None	No connections found
CB-37	Catch Basin	24" x 24"	C	15"	7"	Intact	Fabric Insert	CB-37 to TD-8	Cleaned Sept/Oct 2024	Connections confirmed
CB-38	Catch Basin	24" x 24"	C	20"	2"	Intact	Fabric Insert	CB-38 to Tailrace 1	Cleaned Sept/Oct 2024	Connections confirmed
CB-39	Catch Basin	28" x 13"	C	0"	3"	Intact	Fabric Insert	CB-39 to Tailrace 1	Cleaned Sept/Oct 2024	Connections confirmed
CB-40	Catch Basin	24" x 24"	C	17"	33"	Intact	Fabric Insert	CB-40 to CB-39	Cleaned Sept/Oct 2024	Connections confirmed
CB-41	Catch Basin	24" x 24"	C	19"	3"	Intact	Fabric Insert	CB-41 to CB-40	Cleaned Sept/Oct 2024	Connections confirmed
CB-42	Catch Basin	24" x 24"	C	17"	3"	Intact	Fabric Insert	CB-42 to Tailrace 1	Cleaned Sept/Oct 2024	Connections confirmed
CB-43	Catch Basin	24" x 24"	C	15"	1"	Intact	Fabric Insert	CB-43 to Tailrace 1	Cleaned Sept/Oct 2024	Connections confirmed
CB-44	Catch Basin	12" diameter	C	Not Measured	0"	Intact	None	CB-44 to Grotto	Cleaned Sept/Oct 2024	Connections confirmed
CB-45	Catch Basin	12" diameter	C	Not Measured	0"	Intact	None	CB-45 to Grotto	Cleaned Sept/Oct 2024	Connections confirmed
CB-46	Catch Basin	18" x 18"	C	3"	4"	Intact	Fabric Insert	CB-46 to CO-5	Cleaned Sept/Oct 2024	Connections confirmed
CB-47	Catch Basin	27" x 18"	C	2.5"	0.5"	Intact	Fabric Insert	CB-47 to Bldg 40	Cleaned Sept/Oct 2024	Connections confirmed
CB-48	Catch Basin	12" x 12"	C	3.5"	0.5"	Intact	Fabric Insert	CB-48 to Bldg 40	Cleaned Sept/Oct 2024	Connections confirmed
CB-49	Catch Basin	24" x 24"	A	24.5"	10"	Intact	Fabric Insert	Unconfirmed	None	Collapsed pipe. Assumed connection to Intake Basin.
CB-50	Catch Basin	35" x 25"	D	16.5"	6"	Intact	Fabric Insert	CB-26 to CB-50.	None	Collapsed pipe to north
CB-51	Catch Basin	12" x 16"	C	Not Measured	12"	Intact	None	CB-51 to CO-4	None	Roots damaged pipe
CB-52	Catch Basin	24" diameter	D	Not Measured	4"	Intact	None	CB-52 to CB-16	Cleaned Sept/Oct 2024	Connections confirmed

Table 1 - Stormwater Feature Inventory Log
Former Blue Heron Paper Company Mill
Oregon City, Oregon

General Info				Source Investigation Notes						
Feature Name	Feature Type	Dimensions (" = inches)	Drainage Basin	Sediment Depth Sept 2020 (" = inches)	Sediment Depth Sept/Oct 2024 (Pre-Cleaning) (" = inches)	Condition	Best Management Practices Implemented	Connections	Cleaning	Notes
CB-SS-02	Catch Basin	36" x 24"	C	11.5"	4"	Intact	None	CB-SS-02 to Grotto	Cleaned Sept/Oct 2024	Connections confirmed
CB-SS-04	Catch Basin	24" x 21"	D	4"	4"	Intact	Fabric Insert	CB-SS-04 to Bldg 43 Corridor	Cleaned Sept/Oct 2024	Connections confirmed
MH-1	Manhole	24" diameter	C	6"	6'	Damaged Outlet	None	TD-9 to MH-1	None	Collapsed outlet pipe
MH-2	Manhole	24" diameter	Outfall C	Not Measured	0"	Intact	None	MH-2 to Outfall C	None	Outfall C contains no Site discharge
MH-3	Manhole	24" diameter	D	Not Measured	Not Measured	Intact	None	Unconfirmed	Cleaned Sept/Oct 2024	MH-3 discharges to basin in Bldg 13
MH-4	Manhole	24" diameter	Outfall C	Not Measured	Not Measured	Intact	None	MH-4 to MH-2	None	Outfall C contains no Site discharge
MH-5	Manhole	24" diameter	D	Not Measured	Not Measured	Intact	None	Unconfirmed	Cleaned Sept/Oct 2024	Damaged pipe upstream of MH-5
MH-6	Manhole	24" diameter	D	Not Measured	Not Measured	Intact	None	MH-6 to MH-3	Cleaned Sept/Oct 2024	Assumed downstream connection to MH-3
MH-7	Manhole	24" diameter	Outfall C	Not Measured	Not Measured	Intact	None	MH-7 to MH-4	None	Outfall C contains no Site discharge
MH-8	Manhole	24" diameter	Outfall C	Not Measured	Not Measured	Intact	None	MH-8 to MH-7	None	Outfall C contains no Site discharge
MH-9	Manhole	24" diameter	Outfall C	Not Measured	Not Measured	Intact	None	MH-9 to MH-8	None	Outfall C contains no Site discharge
MH-10	Manhole	24" diameter	Outfall C	Not Measured	Not Measured	Intact	None	MH-10 to MH-9	None	Outfall C contains no Site discharge
MH-11	Manhole	24" diameter	D	Not Measured	Not Measured	Intact, Inundated	None	MH-11 to CB-27	Cleaned Sept/Oct 2024	Connections confirmed
MH-12	Manhole	24" diameter	D	Not Measured	Not Measured	Intact	None	MH-12 to MH-14	Cleaned Sept/Oct 2024	Incoming line from west collapsed
MH-13	Manhole	24" diameter	E	Not Measured	Not Measured	Intact	None	MH-13 to MH-15	Cleaned Sept/Oct 2024	Connections confirmed
MH-14	Manhole	24" diameter	D	Not Measured	10"	Inundated	None	Downstream Connection Unconfirmed	None	Assume connection to Tailrace 2
MH-15	Manhole	24" diameter	E	Not Measured	2"	Intact	None	Sanitary Sewer, No Scoping	None	Sanitary sewer connection
MH-16	Manhole	24" diameter	E	Not Measured	Not Measured	Intact	None	Sanitary Sewer, No Scoping	None	Sanitary sewer connection
MH-17	Manhole	24" diameter	E	Not Measured	Not Measured	Intact	None	Sanitary Sewer, No Scoping	None	Sanitary sewer connection
MH-18	Manhole	24" diameter	E	Not Measured	Not Measured	Intact	None	Sanitary Sewer, No Scoping	None	Sanitary sewer connection
MH-19	Manhole	24" diameter	E	Not Measured	Not Measured	Intact	None	Sanitary Sewer, No Scoping	None	Sanitary sewer connection
MH-20	Manhole	24" diameter	E	Not Measured	Not Measured	Not Inspected	Not Inspected	Not inspected	None	Connections assumed
MH-21	Manhole	24" diameter	E	Not Measured	Not Measured	Not Inspected	Not Inspected	Not inspected	None	Connections assumed
MH-22	Manhole	24" diameter	C	Not Measured	Not Measured	Inundated	None	MH-22 to MH-23	Cleaned Sept/Oct 2024	Capped downstream of MH-22
MH-23	Manhole	24" diameter	C	Not Measured	Not Measured	Inundated	None	MH-23 to MH-22	None	Assumed to receive flow from Intake Basin. Line capped.
MH-24	Manhole	24" diameter	D	Not Measured	Not Measured	Intact	None	MH-24 to MH-11	Cleaned Sept/Oct 2024	Downstream connection confirmed
MH-25	Manhole	24" diameter	D	Not Measured	Not Measured	Full of sediment	None	MH-25 to MH-24	Cleaned Sept/Oct 2024	Connection of MH-25 to MH-24 assumed
VA-1	Vault	12" x 12"	F	Not Measured	Not Measured	Intact	None	VA-1 to Outfall 2. Capped Upstream.	None	Connections confirmed
VA-2	Vault	24" x 24"	E	Not Measured	Not Measured	Intact	None	VA-2 to MH-13	None	Connections confirmed
CO-1	Cleanout	Unknown	E	Not Measured	Not Measured	Demolished	None	Not inspected	None	Demolished, further investigation not possible
CO-2	Cleanout	Unknown	E	Not Measured	Not Measured	Demolished	None	Not inspected	None	Demolished, further investigation not possible
CO-3	Cleanout	6" diameter	D	Not Measured	Not Measured	Intact	None	Not inspected	None	Unable to access
CO-4	Cleanout	6" diameter	C	Not Measured	Not Measured	Intact	None	CO-4 to CO-5	Cleaned Sept/Oct 2024	Connections confirmed
CO-5	Cleanout	6" diameter	C	Not Measured	Not Measured	Intact	None	CO-5 to Bldg 39	Cleaned Sept/Oct 2024	Connections confirmed
CO-6	Cleanout	6" diameter	D	Not Measured	Not Measured	Collapsed pipe	None	CO-6 to MH-3, CB-29	Cleaned Sept/Oct 2024	Connections confirmed
CO-7	Cleanout	6" diameter	C	Not Measured	Not Measured	Intact	None	CO-7 to CB-31	Cleaned Sept/Oct 2024	Connections confirmed
FD-1	Floor Drain	8" diameter	C	Not Measured	Not Measured	Intact	None	FD-1 to Basin in Bldg 18	Cleaned Sept/Oct 2024	Connections confirmed
FD-2	Floor Drain	8" diameter	C	Not Measured	Not Measured	Intact	None	Tailrace 1	None	Visually confirmed to drain directly into Tailrace 1.
TD-1	Trench Drain	8" wide	D	Not Measured	0"	Capped	None	Capped outlet	None	No connections found
TD-2	Trench Drain	8" wide	D	Not Measured	8"	Intact	None	TD-2 to demolished Bldg 11	Cleaned Sept/Oct 2024	Flows to demolished Bldg 11.
TD-3	Trench Drain	8" wide	D	Not Measured	Not Measured	Demolished	None	Not inspected	None	Demolished
TD-4	Trench Drain	12" wide	D	Not Measured	1"	Intact	None	TD-4 to CB-27	Cleaned Sept/Oct 2024	Connections confirmed
TD-5	Trench Drain	8" wide	D	Not Measured	6"	Intact	None	TD-5 to CB-50	Cleaned Sept/Oct 2024	Connections confirmed
TD-6	Trench Drain	8" wide	Outfall C	Not Measured	Not Measured	Demolished	None	Demolished	None	Demolished
TD-7	Trench Drain	12" wide	C	Not Measured	1"	Intact	None	TD-7 to Pipe Tunnel	Cleaned Sept/Oct 2024	Connections confirmed
TD-8	Trench Drain	12" wide	C	Not Measured	6"	Intact	None	TD-8 to Bldg 18 Basin	Cleaned Sept/Oct 2024	Connections confirmed
TD-9	Trench Drain	8" wide	C	Not Measured	3"	Intact	None	TD-9 to MH-1	Cleaned Sept/Oct 2024	Connections confirmed
TD-10	Trench Drain	8" wide	C	Not Measured	Not Measured	Intact	None	Unconfirmed	None	Assumed connection to Tailrace 1
TD-11	Trench Drain	12" wide	C	Not Measured	3"	Intact	None	TD-11 to Grotto	Cleaned Sept/Oct 2024	Connections confirmed
TD-12	Trench Drain	8" wide	C	Not Measured	Not Measured	Intact	None	Unconfirmed	None	Assumed connection to Tailrace 1
TD-13	Trench Drain	12" wide	C	Not Measured	3"	Intact	None	TD-13 to CO-4	Cleaned Sept/Oct 2024	Connections confirmed
TD-14	Trench Drain	12" wide	C	Not Measured	3"	Intact	None	TD-14 to CO-5	Cleaned Sept/Oct 2024	Connections confirmed

Table 1 - Stormwater Feature Inventory Log
Former Blue Heron Paper Company Mill
Oregon City, Oregon

General Info				Source Investigation Notes						
Feature Name	Feature Type	Dimensions (" = inches)	Drainage Basin	Sediment Depth Sept 2020 (" = inches)	Sediment Depth Sept/Oct 2024 (Pre-Cleaning) (" = inches)	Condition	Best Management Practices Implemented	Connections	Cleaning	Notes
TD-15	Trench Drain	12" wide	C	Not Measured	2"	Capped Outlet	None	Capped Outlet	None	Capped outlet
DS-1	Downspout Unit	275 gallon tote	F	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-2	Downspout Unit	275 gallon tote	F	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-3	Downspout Unit	275 gallon tote	F	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-4	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-5	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-6	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-7	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-8	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-9	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-10	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-11	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-12	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-13	Downspout Unit	275 gallon tote	D	N/A	N/A	Disconnected	Gravity Biofilter	N/A	None	DS unit disconnected. Not maintained.
DS-14	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	DS unit removed.
DS-15	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-16	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-17	Downspout Unit	275 gallon tote	D	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-18	Downspout Unit	275 gallon tote	D	N/A	N/A	Disconnected	Gravity Biofilter	N/A	None	DS unit disconnected. Not maintained.
DS-19	Downspout Unit	275 gallon tote	C	N/A	N/A	Removed	Gravity Biofilter	N/A	None	DS unit removed
DS-20	Downspout Unit	275 gallon tote	C	N/A	N/A	Connected	Gravity Biofilter	N/A	None	Not maintained.
DS-21	Downspout Unit	275 gallon tote	C	N/A	N/A	Disconnected	Gravity Biofilter	N/A	None	DS unit disconnected. Not maintained.
DS-22	Downspout Unit	275 gallon tote	C	N/A	N/A	Disconnected	Gravity Biofilter	N/A	None	DS unit disconnected. Not maintained.
DS-23	Downspout Unit	275 gallon tote	C	N/A	N/A	Removed	Gravity Biofilter	N/A	None	DS unit removed.
DS-24	Downspout Unit	275 gallon tote	C	N/A	N/A	Removed	Gravity Biofilter	N/A	None	DS unit removed.
DS-25	Downspout Unit	275 gallon tote	A	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-26	Downspout Unit	275 gallon tote	A	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-27	Downspout Unit	275 gallon tote	A	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-28	Downspout Unit	275 gallon tote	A	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
DS-29	Downspout Unit	275 gallon tote	A	N/A	N/A	Removed	Gravity Biofilter	N/A	None	Building demolished. DS unit removed.
City Outfall	Outfall	Unknown	E	N/A	N/A	Unknown	None	N/A	None	
Outfall 2	Outfall	Unknown	F	N/A	N/A	Unknown	None	N/A	None	
Tailrace 2	Outfall	Natural Channel	D	N/A	N/A	Unknown	None	N/A	None	
Outfall C	Outfall	Unknown	Outfall C	N/A	N/A	Unknown	None	N/A	None	
Tailrace 1	Outfall	Natural Channel	C	N/A	N/A	Unknown	Gabion Biofilter	N/A	None	
Tailrace H	Outfall	Natural Channel	B	N/A	N/A	Unknown	Gabion Biofilter	N/A	None	

Table 2 - Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria				TPH by NWTPH-HCID			TPH by NWTPH-Dx		PCBs by EPA 8082A								Total Metals by EPA 6020B													TCLP Metals by EPA 1311/6020B
				Gasoline Range (C6-C10)	Diesel Range (C10-C22)	Oil Range (C22-C40)	Diesel Range (C10-C22)	Oil Range (C22-C40)	Total PCBs ⁶	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Lead
Portland Harbor PTW Threshold ¹				-	-	-	-	-	200	200	200	200	200	200	200	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEQ RBCss Residential ²				1200	1100	-	1100	-	230	230	230	203	230	230	230	230	-	0.43	160	78	120000	3100	200	23	1500	-	390	-	-	-
DEQ RBCss Occupational ²				20000	14000	-	14000	-	590	590	590	590	590	590	590	590	-	1.9	2300	1100	-	47000	800	350	22000	-	5800	-	-	-
DEQ RBCss Construction Worker ²				9700	4600	-	4600	-	4900	4900	4900	4900	4900	4900	4900	4900	-	15	700	350	530000	14000	800	110	7000	-	1800	-	-	-
DEQ RBCss Excavation Worker ²				-	-	-	-	-	140000	140000	140000	140000	140000	140000	140000	140000	-	420	19000	9700	-	390000	800	2900	190000	-	49000	-	-	-
DEQ RBCsw Residential ²				31	9500	-	9500	-	240	240	240	240	240	240	240	240	-	-	-	-	-	-	30	-	-	-	-	-	-	-
DEQ RBCsw Occupational ²				130	-	-	-	-	1100	1100	1100	1100	1100	1100	1100	1100	-	-	-	-	-	-	30	-	-	-	-	-	-	-
Sediment Screening Level ³				-	-	-	-	-	9	9	9	9	9	9	9	9	-	2.9	-	0.63	76	-	35	0.2	-	-	-	-	123	-
Clean Fill Screening Level ⁴				-	1100	1100	1100	1100	230	1100	4.8	4.8	41	7.3	41	240	0.56	8.8	2.0	0.63	76	34	28	0.23	47	0.71	0.82	5.2	180	-
RCRA Characteristic Waste ⁵				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Sample ID	Start Depth (ft bgs)	End Depth (ft bgs)	Sample Date	mg/kg			mg/kg		ug/kg								mg/kg													mg/L
BH_DUP1 (BH_TR1-1 0-0.5)	0	0.5	10/2/2024	U 19.9	U 49.8	DET	U 74.6	377	U 66.9	U 66.9	U 66.9	U 66.9	U 66.9	U 66.9	U 66.9	U 66.9	U 1.06	4.03	0.329	0.655	37.7	187	21.2	0.259	47.3	U 1.06	U 0.212	U 0.212	354	NA
BH_TR1-1 0-0.5 20241002	0	0.5	10/2/2024	U 19.6	U 49.0	DET	U 66.9	351	U 74.1	U 74.1	U 74.1	U 74.1	U 74.1	U 74.1	U 74.1	U 74.1	U 1.05	4.77	0.293	0.668	37.8	279	29.4	0.363	46.1	U 1.05	U 0.210	U 0.210	436	NA
BH_TR1-2 0-0.5 20241002	0	0.5	10/2/2024	U 19.7	U 49.2	DET	U 82.0	1,570	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	1.17	3.44	U 0.193	0.716	22.6	102	62.4	0.274	31.7	U 0.965	U 0.193	U 0.193	271	NA
BH_TR1-3 0-0.5 20241002	0	0.5	10/2/2024	U 99.1	U 248	DET	U 455	1,710	U 93.9	U 93.9	U 93.9	U 93.9	U 93.9	U 93.9	U 93.9	U 93.9	U 1.06	10.6	U 0.212	0.346	34.7	161	96.7	0.223	54.3	U 1.06	U 0.212	U 0.212	180	NA
BH_TR1-3 1-1.5 20241002	1	1.5	10/2/2024	U 19.5	U 48.7	DET	U 467	1,510	93.6	U 87.7	U 87.7	U 87.7	U 87.7	U 87.7	U 87.7	93.6	U 1.05	5.75	U 0.211	0.305	28.8	65.1	71.0	0.221	35.6	U 1.05	U 0.211	U 0.211	130	NA
BH_TR1-4 0-0.5 20241002	0	0.5	10/2/2024	U 19.6	U 49.0	DET	U 80.0	704	U 68.0	U 68.0	U 68.0	U 68.0	U 68.0	U 68.0	U 68.0	U 68.0	3.00	6.98	U 0.207	1.64	17.0	83.5	77.1	0.0961	41.9	U 1.03	0.551	U 0.207	1,220	NA
BH_TR2-1 0-0.5 20241002	0	0.5	10/2/2024	U 19.8	U 49.4	DET	U 820	2,900	U 88.1	U 88.1	U 88.1	U 88.1	U 88.1	U 88.1	U 88.1	U 88.1	U 1.08	3.97	U 0.216	0.235	18.4	68.2	331	0.211	20.4	U 1.08	U 0.216	U 0.216	212	U 0.0500
BH_TR2-2 0-0.5 20241002	0	0.5	10/2/2024	U 18.6	U 46.6	DET	U 91.7	445	U 79.7	U 79.7	U 79.7	U 79.7	U 79.7	U 79.7	U 79.7	U 79.7	NA	NA	NA	NA	NA	NA	170	NA	NA	NA	NA	NA	NA	0.111
BH_TR2-3 0-0.5 20241002	0	0.5	10/2/2024	U 18.9	U 47.3	DET	U 87.0	624	U 75.8	U 75.8	U 75.8	U 75.8	U 75.8	U 75.8	U 75.8	U 75.8	NA	NA	NA	NA	NA	NA	47.0	NA	NA	NA	NA	NA	NA	NA
BH_TR2-4 0-0.5 20241002	0	0.5	10/2/2024	U 18.6	U 46.4	DET	U 712	1,910	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 82.6	U 1.02	4.35	U 0.204	0.378	19.8	96.8	54.5	0.250	46.0	U 1.02	U 0.204	U 0.204	165	NA
BH_TR2-6 0-0.5 20241002	0	0.5	10/2/2024	U 99.1	U 248	DET	U 397	4,210	88.9	U 88.1	U 88.1	U 88.1	U 88.1	U 88.1	U 88.1	88.9	2.71	9.01	U 0.204	2.45	53.7	337	529	1.54	48.7	U 1.02	1.29	U 0.204	2,260	U 0.0500
BH_TRH-1 0-0.5 20241002	0	0.5	10/2/2024	U 19.1	U 47.8	DET	U 67.3	424	U 89.3	U 89.3	U 89.3	U 89.3	U 89.3	U 89.3	U 89.3	U 89.3	U 1.03	2.87	U 0.206	0.224	21.1	81.9	33.4	0.108	16.7	U 1.03	U 0.206	U 0.206	131	NA
BH_TRH-2 0-0.5 20241002	0	0.5	10/2/2024	U 20.0	U 50.0	U 99.9	NA	NA	U 94.8	U 94.8	U 94.8	U 94.8	U 94.8	U 94.8	U 94.8	U 94.8	U 1.09	1.24	U 0.217	U 0.217	10.9	30.3	9.48	U 0.0870	14.7	U 1.09	U 0.217	U 0.217	102	NA
BH_TRH-2 1-1.5 20241002	1	1.5	10/2/2024	U 18.7	U 46.7	DET	U 96.2	546	U 92.2	U 92.2	U 92.2	U 92.2	U 92.2	U 92.2	U 92.2	U 92.2	U 1.08	1.69	U 0.217	U 0.217	10.5	35.0	8.83	U 0.0868	12.8	U 1.08	U 0.217	U 0.217	266	NA
BH_TRH-3 0-0.5 20241002	0	0.5	10/2/2024	U 19.0	U 47.5	U 95.1	NA	NA	U 79.1	U 79.1	U 79.1	U 79.1	U 79.1	U 79.1	U 79.1	U 79.1	U 1.00	5.04	U 0.201	U 0.201	1.47	7.19	10.3	U 0.0803	2.72	U 1.00	U 0.201	U 0.201	9.25	NA
BH_TRH-3 1-1.5 20241002	1	1.5	10/2/2024	U 19.1	U 47.8	DET	U 1750	42,500	U 70.9	U 70.9	U 70.9	U 70.9	U 70.9	U 70.9	U 70.9	U 70.9	U 1.09	2.97	U 0.219	U 0.219	2.49	10.5	219	U 0.0875	U 2.19	U 1.09	U 0.219	U 0.219	384	U 0.0500

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a detection which exceeds RCRA Hazardous Waste Screening Levels

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and Upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁸TEQ as

Abbreviations:

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 2 - Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria				Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E																				
				Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ ⁷	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Dibenzofuran	
Portland Harbor PTW Threshold ¹				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140000	-	-	-		
DEQ RBCss Residential ²				4700000	-	23000000	1100	110	110	1100	11000	-	110000	110	2400000	3100000	1100	-	-	5300	-	1800000	-	
DEQ RBCss Occupational ²				70000000	-	350000000	21000	2100	2100	21000	210000	-	2100000	2100	30000000	47000000	21000	-	-	23000	-	23000000	-	
DEQ RBCss Construction Worker ²				21000000	-	110000000	170000	17000	17000	170000	1700000	-	17000000	17000	10000000	14000000	170000	-	-	580000	-	7500000	-	
DEQ RBCss Excavation Worker ²				590000000	-	-	4800000	490000	490000	4900000	49000000	-	490000000	490000	280000000	390000000	4900000	-	-	16000000	-	210000000	-	
DEQ RBCsw Residential ²				-	-	-	1600	4400	4400	-	-	-	-	-	-	-	-	-	-	77	-	-	-	
DEQ RBCsw Occupational ²				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	340	-	-	-	
Sediment Screening Level ³				-	-	-	-	85	85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴				250	120000	6800	730	110	110	1100	11000	25000	3100	110	10000	3700	1100	360	11000	77	5500	10000	2.0	
RCRA Characteristic Waste ⁵				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample ID		Start Depth (ft bgs)	End Depth (ft bgs)	Sample Date	ug/kg																			
BH_DUP1 (BH_TR1-1 0-0.5)		0	0.5	10/2/2024	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	48.2	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	U 41.5	
BH_TR1-1 0-0.5 20241002		0	0.5	10/2/2024	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	46.8	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	U 40.3	
BH_TR1-2 0-0.5 20241002		0	0.5	10/2/2024	U 34.7	U 34.7	U 34.7	U 34.7	39.7	69.5	58.8	U 34.7	66.3	42.2	U 34.7	49.7	U 34.7	39.9	U 34.7	U 34.7	U 34.7	U 34.7	63.2	U 34.7
BH_TR1-3 0-0.5 20241002		0	0.5	10/2/2024	262	195	400	884	701	1,068	1,440	501	556	2,370	U 139	816	141	519	U 139	U 139	U 139	183	1,020	U 139
BH_TR1-3 1-1.5 20241002		1	1.5	10/2/2024	123	106	221	145	153	274	291	91.3	291	217	50.4	359	89.5	228	U 39.2	U 39.2	U 39.2	117	333	U 39.2
BH_TR1-4 0-0.5 20241002		0	0.5	10/2/2024	U 36.1	U 36.1	43.9	81.3	100	156	178	57.6	113	170	U 36.1	253	U 36.1	100	U 36.1	U 36.1	U 36.1	189	300	U 36.1
BH_TR2-1 0-0.5 20241002		0	0.5	10/2/2024	295	U 37.0	406	208	144	220	268	74.2	65.0	280	U 37.0	1,090	231	82.3	74.8	64.2	U 37.0	1,790	1,100	52.5
BH_TR2-2 0-0.5 20241002		0	0.5	10/2/2024	U 49.0	U 49.0	76.8	108	116	182	191	61.8	93.5	142	U 49.0	255	U 49.0	96.0	U 49.0	U 49.0	U 49.0	92.6	256	U 49.0
BH_TR2-3 0-0.5 20241002		0	0.5	10/2/2024	285	419	892	206	308	542	504	142	677	335	94.5	596	198	597	65.0	68.2	U 37.2	673	564	U 37.2
BH_TR2-4 0-0.5 20241002		0	0.5	10/2/2024	176	U 44.2	172	111	65.9	113	114	U 44.2	U 44.2	142	U 44.2	758	129	U 44.2	U 44.2	U 44.2	U 44.2	925	639	U 44.2
BH_TR2-6 0-0.5 20241002		0	0.5	10/2/2024	U 48.5	185	172	423	548	973	1,170	430	762	704	182	616	U 48.5	712	U 48.5	U 48.5	U 48.5	212	741	U 48.5
BH_TRH-1 0-0.5 20241002		0	0.5	10/2/2024	U 38.9	U 38.9	U 38.9	U 38.9	U 38.9	45.1	U 38.9	U 38.9	U 38.9	U 38.9	U 38.9	41.0	U 38.9	U 38.9	U 38.9	U 38.9	U 38.9	U 38.9	49.2	U 38.9
BH_TRH-2 0-0.5 20241002		0	0.5	10/2/2024	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	54.8	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2	U 47.2
BH_TRH-2 1-1.5 20241002		1	1.5	10/2/2024	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	39.2	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8	U 33.8
BH_TRH-3 0-0.5 20241002		0	0.5	10/2/2024	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	50.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5	U 43.5
BH_TRH-3 1-1.5 20241002		1	1.5	10/2/2024	U 48.3	U 48.3	U 48.3	U 80.2	U 80.2	315	U 48.3	U 48.3	U 483	U 84.1	U 483	U 48.3	U 48.3	U 483	U 48.3	U 48.3	U 48.3	U 48.3	53.0	U 48.3

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a d

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and Upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁸TEQ as

Abbreviations:

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 2 - Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria				Dioxins and Furans by EPA 1613B																										Percent Solids by 8000D	
				2,3,7,8-TCDD	2,3,7,8-TCDD Equivalents (TEQ) ⁶	Total TCDD	1,2,3,7,8-PeCDD	Total PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	Total HxCDD	1,2,3,4,6,7,8-HpCDD	Total HpCDD	OCDD	2,3,7,8-TCDF	Total TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	Total PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	Total HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	OCDF	Percent Solids	
Portland Harbor PTW Threshold ¹				10	10	-	10	-	-	-	-	-	-	-	600	-	-	200	-	400	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Residential ²				4.7	4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Occupational ²				16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Construction Worker ²				170	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Excavation Worker ²				4800	4,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCsw Residential ²				6.8	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCsw Occupational ²				31	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sediment Screening Level ³				1.0	10	-	-	-	-	-	-	-	-	-	0.40658	-	-	0.3	-	0.4	-	-	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴				0.29	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
RCRA Characteristic Waste ⁵				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample ID		Start Depth (ft bgs)	End Depth (ft bgs)	Sample Date	pg/g																										%
BH_DUP1 (BH_TR1-1_0-0.5)		0	0.5	10/2/2024	U 0.266	3.49	4.02	J 0.574	5.37	J 0.710	4.04	J 1.63	26.2	81.3	168	814	2.33	18.5	J 0.946	J 0.896	14.9	J 1.79	J 1.27	J 0.680	U 0.238	29.1	29.6	J 1.34	70.1	40.7	89.7
BH_TR1-1 0-0.5 20241002		0	0.5	10/2/2024	U 0.369	3.28	6.00	J 0.932	8.40	U 0.569	3.18	U 1.41	22.4	65.6	140	651	2.61	21.0	J 0.997	J 1.24	12.4	J 1.32	J 0.934	J 0.604	U 0.341	22.5	21.6	J 0.892	49.7	32.4	90.0
BH_TR1-2 0-0.5 20241002		0	0.5	10/2/2024	3.73	80.6	22.9	7.18	50.9	5.19	114	41.7	687	1,950	3,560	25,300	157	234	4.05	7.72	89.1	10.3	5.46	6.97	J 1.40	451	510	14.4	2,150	2,270	49.6
BH_TR1-3 0-0.5 20241002		0	0.5	10/2/2024	U 1.3	91.4	6.16	4.13	32.3	7.64	114	23.4	911	4,460	9,890	42,600	8.53	25.3	7.24	14.0	179	19.3	9.55	8.56	5.02	686	558	10.8	1,460	731	60.5
BH_TR1-3 1-1.5 20241002		1	1.5	10/2/2024	2.18	95.5	6.88	4.35	35.0	7.62	155	37.9	904	3,350	6,700	35,100	69.4	112	8.38	18.1	196	23.9	12.0	13.5	5.30	782	645	11.7	1,600	686	39.5
BH_TR1-4 0-0.5 20241002		0	0.5	10/2/2024	U 0.613	10.9	8.18	3.06	30.3	3.89	12.7	7.38	118	262	534	1,990	2.77	40.0	J 1.75	J 1.29	51.8	4.46	2.83	U 1.75	U 0.64	91.0	70.5	3.56	174	82.1	44.2
BH_TR2-1 0-0.5 20241002		0	0.5	10/2/2024	1.38	35.8	30.4	3.44	41.0	4.31	33.4	11.2	381	1,600	4,210	15,400	7.48	30.3	3.24	4.79	54.6	9.49	6.13	4.54	U 1.45	233	103	6.54	401	266	48.3
BH_TR2-2 0-0.5 20241002		0	0.5	10/2/2024	U 0.667	18.7	3.48	J 1.96	17.2	4.58	21.3	7.26	199	730	1,700	8,890	8.04	19.6	J 0.753	J 2.35	27.0	4.42	U 1.72	2.66	J 1.53	105	85.7	5.17	460	690	73.7
BH_TR2-3 0-0.5 20241002		0	0.5	10/2/2024	U 0.34	26.1	4.48	J 1.21	11.9	2.41	19.1	6.13	334	1,440	4,250	13,100	2.25	9.03	J 2.04	3.65	39.4	6.80	3.07	U 2.26	3.61	164	88.4	8.19	322	217	70.6
BH_TR2-4 0-0.5 20241002		0	0.5	10/2/2024	U 0.603	17.5	22.7	J 1.79	18.1	J 1.95	22.6	5.03	132	680	1,400	8,490	4.27	17.4	J 1.23	2.50	35.8	4.49	3.95	J 2.31	J 0.673	144	93.0	3.66	314	195	60.3
BH_TR2-6 0-0.5 20241002		0	0.5	10/2/2024	U 1.07	19.7	30.3	3.71	39.8	3.38	18.9	10.0	184	451	1,100	4,320	10.5	45.2	5.33	7.43	88.9	11.7	6.32	2.64	3.01	137	84.3	22.6	240	230	74.3
BH_TRH-1 0-0.5 20241002		0	0.5	10/2/2024	U 0.321	28.2	3.69	J 0.799	11.7	J 0.979	22.5	2.95	94.3	494	926	8,290	3.28	18.3	9.07	15.9	114	41.8	14.3	14.7	17.9	732	277	20.1	998	259	55.8
BH_TRH-2 0-0.5 20241002		0	0.5	10/2/2024	U 0.125	21.1	1.25	J 0.448	3.77	J 0.478	19.6	J 1.61	52.2	343	593	4,220	1.47	6.39	8.65	15.2	84.9	40.1	11.3	4.67	6.10	648	235	18.0	853	182	63.4
BH_TRH-2 1-1.5 20241002		1	1.5	10/2/2024	U 0.127	16.6	2.35	J 0.312	7.44	J 0.476	16.6	J 1.71	52.3	270	454	2,740	1.40	13.3	6.47	9.56	100	34.1	9.36	4.37	5.96	580	210	15.8	775	159	62.0
BH_TRH-3 0-0.5 20241002		0	0.5	10/2/2024	U 0.0827	1.47	1.78	U 0.46	5.13	J 0.531	J 2.47	U 0.929	24.7	51.0	107	572	0.686	1.96	J 0.281	J 0.472	8.67	J 0.668	U 0.728	J 0.542	J 0.0984	15.1	13.4	U 0.523	30.2	21.0	15.9
BH_TRH-3 1-1.5 20241002		1	1.5	10/2/2024	U 0.389	2.65	2.49	J 1.95	18.3	U 1.68	U 1.78	U 2.06	44.1	45.7	137	422	U 0.458	U 0.458	U 0.866	U 0.946	3.74	U 1.30	U 1.35	U 1.71	U 2.33	10.9	11.2	U 2.40	32.4	27.8	24.6

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicat

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and Upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁸TEQ as

Abbreviations:

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 3 - Stormwater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		TPH by NWTPH-HCID			TPH by NWTPH-Dx		PCBs by EPA 8082A							
		Gasoline Range (C6-C10)	Diesel Range (C10-C22)	Oil Range (C22-C40)	Diesel Range (C10-C22)	Oil Range (C22-C40)	Total PCBs ⁵	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
DEQ RBCwi Residential - Chronic ¹		120	400	-	400	-	-	17	0.53	0.16	1.3	0.27	1.7	0.36
DEQ RBCtw Residential ²		110	100	-	100	-	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
DEQ Freshwater Chronic RBC ³		0.44	0.64	-	0.64	-	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
DEQ RBCwe Construction & Excavation ²		14	-	-	-	-	30	30	30	30	30	30	30	30
EPA Drinking Water MCL ⁴		-	-	-	-	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sample ID	Sample Date	mg/L			mg/L		ug/L							
BH_TR1_Post Gab_20241021	10/21/2024	U 0.0952	U 0.238	U 0.238	NA	NA	U 0.0957	U 0.0957	U 0.0957	U 0.0957	U 0.0957	U 0.0957	U 0.0957	U 0.0957
BH_TR1_Pre Gab_20241021	10/21/2024	U 0.0952	U 0.238	DET	U 0.190	7.72	0.418	U 0.0952	U 0.0952	U 0.0952	0.146	U 0.0952	0.272	U 0.0952
BH_TRH_Post Gab_20241021	10/21/2024	U 0.0952	U 0.238	U 0.238	NA	NA	U 0.0952	U 0.0952	U 0.0952	U 0.0952	U 0.0952	U 0.0952	U 0.0952	U 0.0952
BH_TRH_Pre Gab_20241021	10/21/2024	U 0.0962	U 0.240	U 0.240	NA	NA	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943
BH-DS14POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS14PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS24POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS24PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS8POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS8PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_Rinsate_20241002	10/2/2024	NA	NA	NA	U 0.192	U 0.385	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCtw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating nc

⁷ = TEQ as

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCtw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 3 - Stormwater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Polycyclic Aromatic Hydrocarbons (PAHs) by EPA 8270E																			
		Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ Equivalents ⁶	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Dibenzofuran
DEQ RBCwi Residential - Chronic ¹		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	-	-	-	
DEQ RBCtw Residential ²		510	-	-	0.03	0.025	0.025	0.25	-	-	-	0.025	-	280	-	-	-	0.17	-	110	-
DEQ Freshwater Chronic RBC ³		15	13	0.02	4.7	0.06	0.06	2.6	0.06	0.012	4.7	0.012	0.8	19	0.012	6.1	4.7	0.021	2.3	4.6	4
DEQ RBCwe Construction & Excavation ²		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-
EPA Drinking Water MCL ⁴		-	-	-	-	0.2	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sample ID	Sample Date	ug/L																			
BH_TR1_Post Gab_20241021	10/21/2024	U 0.0322	U 0.0322	U 0.0322	U 0.0161	U 0.0161	0.0188	U 0.0161	U 0.0161	U 0.0322	U 0.0161	U 0.0161	U 0.0322	U 0.0322	U 0.0161	U 0.0644	U 0.0644	U 0.0644	U 0.0644	U 0.0322	U 0.0322
BH_TR1_Pre Gab_20241021	10/21/2024	U 0.0326	U 0.0326	0.0489	0.0669	0.0881	0.128	0.107	0.0395	U 0.0611	0.114	0.0167	0.148	U 0.0326	0.0461	U 0.0652	U 0.0652	U 0.0652	0.102	0.196	U 0.0326
BH_TRH_Post Gab_20241021	10/21/2024	U 0.0322	U 0.0322	U 0.0322	U 0.0161	U 0.0161	0.0188	U 0.0161	U 0.0161	U 0.0322	U 0.0161	U 0.0161	U 0.0322	U 0.0322	U 0.0161	U 0.0643	U 0.0643	U 0.0643	U 0.0643	U 0.0322	U 0.0322
BH_TRH_Pre Gab_20241021	10/21/2024	U 0.0323	U 0.0323	U 0.0323	U 0.0162	U 0.0162	0.0189	U 0.0162	U 0.0162	U 0.0323	U 0.0162	U 0.0162	U 0.0323	U 0.0323	U 0.0162	U 0.0647	U 0.0647	U 0.0647	U 0.0647	U 0.0323	U 0.0323
BH-DS14POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS14PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS24POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS24PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS8POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DS8PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_Rinsate_20241002	10/2/2024	U 0.0326	U 0.0326	U 0.0326	U 0.0163	U 0.0163	0.0190	U 0.0163	U 0.0163	U 0.0326	U 0.0163	U 0.0163	U 0.0326	U 0.0326	U 0.0163	U 0.0652	U 0.0652	U 0.0652	U 0.0652	U 0.0326	U 0.0326

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCtw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁷ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences 93(2): 223-241

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCtw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 3 - Stormwater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Dioxins and Furans by EPA 1613B																									
		2,3,7,8-TCDD	2,3,7,8-TCDD Equivalents (TEQ) ⁷	Total TCDD	1,2,3,7,8-PeCDD	Total PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	Total HxCDD	1,2,3,4,6,7,8-HpCDD	Total HpCDD	OCDD	2,3,7,8-TCDF	Total TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	Total PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	Total HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	OCDF
DEQ RBCwi Residential - Chronic ¹		36	36	-	-	-	-	-	-	1000	-	-	-	1100	-	-	-	-	-	470	-	-	-	-	13000	-	-
DEQ RBCtw Residential ²		0.091	0.091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ Freshwater Chronic RBC ³		0.0031	0.0031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCwe Construction & Excavation ²		450	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
EPA Drinking Water MCL ⁴		30	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample ID	Sample Date	pg/L																									
BH_TR1_Post Gab_20241021	10/21/2024	U 0.705	0.0744	U 0.705	U 0.891	U 0.891	U 1.22	U 1.39	U 1.3	J 1.86	J 5.78	J 5.78	J 24.7	U 0.652	U 0.652	U 0.655	U 0.503	U 0.655	U 0.665	U 0.693	U 0.727	U 0.97	U 0.97	J 0.922	U 1.05	J 0.922	U 1.32
BH_TR1_Pre Gab_20241021	10/21/2024	U 0.644	7.84	J 3.86	U 1.55	J 4.62	J 3.31	J 11.8	J 5.14	97.3	235	505	1,900	U 1.85	10.3	U 1.16	J 3.28	32.3	J 4.59	J 3.08	J 2.53	U 0.402	102	86.8	U 2.51	194	76.3
BH_TRH_Post Gab_20241021	10/21/2024	U 0.476	0.0794	U 0.476	U 0.811	U 0.811	U 0.667	U 0.688	U 0.729	U 1.5	J 6.54	J 14.5	J 46.7	U 0.504	U 0.504	U 0.437	U 0.36	U 0.437	U 0.455	U 0.456	U 0.494	U 0.618	J 2.76	U 1.38	U 1.41	J 2.97	U 1.00
BH_TRH_Pre Gab_20241021	10/21/2024	U 0.506	0.0813	U 0.506	U 0.89	U 0.89	U 1.01	U 1.07	U 1.13	U 1.13	J 6.56	J 13.4	51.0	U 0.55	U 0.55	U 0.553	U 0.42	U 0.553	U 0.613	U 0.614	U 0.626	U 0.865	J 1.35	U 1.42	U 1.11	U 4.1	J 1.35
BH-DS14POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DS14PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DS24POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DS24PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DS8POST-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DS8PRE-20241016	10/16/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_Rinsate_20241002	10/2/2024	U 1.72	NA	U 1.72	U 3.04	U 3.04	U 2.28	U 2.35	U 2.32	U 2.35	U 2.27	U 2.27	U 3.63	U 1.13	U 1.13	U 1.23	U 1.2	U 1.23	U 0.994	U 1.04	U 1.13	U 1.43	U 1.43	U 1.08	U 1.69	U 1.69	U 3.41

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCtw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁷ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences 93(2): 223-241

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCtw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 3 - Stormwater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Dissolved Metals by EPA 6020B													Total Metals by EPA 6020B												
		Dissolved Antimony	Dissolved Arsenic	Dissolved Beryllium	Dissolved Cadmium	Dissolved Chromium	Dissolved Copper	Dissolved Lead	Dissolved Mercury	Dissolved Nickel	Dissolved Selenium	Dissolved Silver	Dissolved Thallium	Dissolved Zinc	Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
DEQ RBCwi Residential - Chronic ¹		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCtw Residential ²		-	0.052	40	20	30000	800	15	6	400	-	100	-	-	-	0.052	40	20	30000	800	15	6	400	-	100	-	
DEQ Freshwater Chronic RBC ³		190	150	11	0.094	24	1.4	0.54	0.012	16	4.6	0.1	6	36	190	150	11	0.094	24	1.4	0.54	0.012	16	4.6	0.1	6	
DEQ RBCwe Construction & Excavation ²		-	6300	270000	130000	-	5400000	-	-	-	-	1100000	-	-	-	6300	270000	130000	9400	5400000	-	-	-	-	1100000	-	
EPA Drinking Water MCL ⁴		6	10	4	5	100	1300	15	2	-	50	-	2	-	6	10	4	5	100	1300	15	2	-	50	-	2	
Sample ID	Sample Date	ug/L													ug/L												
BH_TR1_Post_Gab_20241021	10/21/2024	2.43	1.50	U 0.200	U 0.200	U 2.00	10.6	U 0.200	U 0.0800	U 2.00	U 1.00	U 0.200	U 0.200	52.4	2.50	1.51	U 0.200	U 0.200	U 2.00	11.7	0.573	U 0.0800	2.01	U 1.00	U 0.200	U 0.200	59.7
BH_TR1_Pre_Gab_20241021	10/21/2024	2.68	1.73	U 0.200	U 0.200	U 2.00	9.99	U 0.200	U 0.0800	U 2.00	U 1.00	U 0.200	U 0.200	42.6	2.90	2.45	U 0.200	0.211	3.19	29.4	9.26	U 0.0800	4.68	U 1.00	U 0.200	U 0.200	168
BH_TRH_Post_Gab_20241021	10/21/2024	U 1.00	U 1.00	U 0.200	U 0.200	U 2.00	113	2.40	U 0.0800	6.15	U 1.00	U 0.200	U 0.200	52.2	U 1.00	1.25	U 0.200	U 0.200	U 2.00	119	7.00	U 0.0800	6.34	U 1.00	U 0.200	U 0.200	60.8
BH_TRH_Pre_Gab_20241021	10/21/2024	U 1.00	1.04	U 0.200	0.204	U 2.00	124	3.84	U 0.0800	5.55	U 1.00	U 0.200	U 0.200	49.0	U 1.00	1.34	U 0.200	0.223	U 2.00	112	7.32	U 0.0800	5.84	U 1.00	U 0.200	U 0.200	53.8
BH-DS14POST-20241016	10/16/2024	U 1.00	1.49	U 0.200	0.225	6.52	20.5	U 0.200	U 0.0800	2.22	U 1.00	U 0.200	U 0.200	22.0	U 1.00	1.66	U 0.200	0.273	6.96	21.7	0.289	U 0.0800	3.23	U 1.00	U 0.200	U 0.200	21.5
BH-DS14PRE-20241016	10/16/2024	U 1.00	4.15	U 0.200	U 0.200	9.32	63.7	2.99	U 0.0800	U 2.00	U 1.00	U 0.200	U 0.200	55.3	U 1.00	14.3	U 0.200	0.510	28.6	514	204	U 0.0800	9.25	U 1.00	U 0.200	U 0.200	123
BH-DS24POST-20241016	10/16/2024	10.9	U 1.00	U 0.200	U 0.200	2.13	32.7	U 0.200	U 0.0800	3.56	U 1.00	U 0.200	U 0.200	32.6	12.7	U 1.00	U 0.200	U 0.200	2.36	35.4	0.420	U 0.0800	4.37	U 1.00	U 0.200	U 0.200	33.7
BH-DS24PRE-20241016	10/16/2024	11.6	2.20	U 0.200	0.217	3.03	38.0	3.96	U 0.0800	U 2.00	U 1.00	U 0.200	U 0.200	66.5	13.1	2.31	U 0.200	0.227	4.09	40.2	5.28	U 0.0800	2.64	U 1.00	U 0.200	U 0.200	67.0
BH-DS8POST-20241016	10/16/2024	U 1.00	U 1.00	U 0.200	U 0.200	U 2.00	2.50	U 0.200	U 0.0800	U 2.00	U 1.00	U 0.200	U 0.200	5.09	U 1.00	U 1.00	U 0.200	U 0.200	U 2.00	4.18	0.764	U 0.0800	3.68	U 1.00	U 0.200	U 0.200	21.6
BH-DS8PRE-20241016	10/16/2024	U 1.00	U 1.00	U 0.200	U 0.200	U 2.00	U 2.00	U 0.200	U 0.0800	U 2.00	U 1.00	U 0.200	U 0.200	69.6	U 1.00	U 1.00	U 0.200	U 0.200	U 2.00	5.84	1.77	U 0.0800	2.75	U 1.00	U 0.200	U 0.200	107
BH_Rinsate_20241002	10/2/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.21	NA	NA	NA	NA	NA	NA	

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCtw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁷ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences 93(2): 223-241

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCtw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 3 - Stormwater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		TSS by 2540D	Field Measurements		
		Total Suspended Solids (TSS)	Temperature	pH	Conductivity
DEQ RBCwi Residential - Chronic ¹		-	-	-	-
DEQ RBCtw Residential ²		-	-	-	-
DEQ Freshwater Chronic RBC ³		-	-	-	-
DEQ RBCwe Construction & Excavation ²		-	-	-	-
EPA Drinking Water MCL ⁴		-	-	-	-
Sample ID	Sample Date	mg/L	°C	-	mS
BH_TR1_Post Gab_20241021	10/21/2024	U 5.00	13.6	7.5	0.15
BH_TR1_Pre Gab_20241021	10/21/2024	45.0	13.4	8.0	0.20
BH_TRH_Post Gab_20241021	10/21/2024	6.00	13.40	6.8	0.29
BH_TRH_Pre Gab_20241021	10/21/2024	6.00	13.40	6.9	0.29
BH-DS14POST-20241016	10/16/2024	NA	13.9	4.6	0.07
BH-DS14PRE-20241016	10/16/2024	NA	14.2	4.5	0.02
BH-DS24POST-20241016	10/16/2024	NA	14.2	4.6	0.02
BH-DS24PRE-20241016	10/16/2024	NA	14.7	4.5	0.02
BH-DS8POST-20241016	10/16/2024	NA	14.0	4.8	0.04
BH-DS8PRE-20241016	10/16/2024	NA	14.2	5.9	0.01
BH_Rinsate_20241002	10/2/2024	NA	-	-	-

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCtw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = Benzo(a)pyrene TEQ calculated using TEFs specified in Human Health Risk Assessment Guidance (DEQ, 2010) and 1/2 the reporting limit for calculating non-detects.

⁷ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds. Toxicological Sciences 93(2): 223-241

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCtw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 4 - Waste Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria	PCBs by EPA 8082A								Total Metals by EPA 6020B								TCLP Metals by EPA 1311/6020B								
	Total PCBs ⁶	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	
Portland Harbor PTW Threshold ¹	200	200	200	200	200	200	200	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Residential ²	230	230	230	203	230	230	230	230	0.43	15000	78	120000	200	23	-	390	-	-	-	-	-	-	-	-	
DEQ RBCss Occupational ²	590	590	590	590	590	590	590	590	1.9	220000	1100	-	800	350	-	5800	-	-	-	-	-	-	-	-	
DEQ RBCss Construction Worker ²	4900	4900	4900	4900	4900	4900	4900	4900	15	69000	350	530000	800	110	-	1800	-	-	-	-	-	-	-	-	
DEQ RBCss Excavation Worker ²	140000	140000	140000	140000	140000	140000	140000	140000	420	-	9700	-	800	2900	-	49000	-	-	-	-	-	-	-	-	
DEQ RBCsw Residential ²	240	240	240	240	240	240	240	240	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCsw Occupational ²	1100	1100	1100	1100	1100	1100	1100	1100	-	-	-	-	30	-	-	-	-	-	-	-	-	-	-	-	
Sediment Screening Level ³	9	9	9	9	9	9	9	9	2.9	-	0.63	76	35	0.2	-	-	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴	230	1100	4.8	4.8	41	7.3	41	240	8.8	790	0.63	76	28	0.23	0.71	0.82	-	-	-	-	-	-	-	-	
RCRA Characteristic Waste ⁵	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	100	1	5	5	0.2	1	5	
Sample ID		Sample Date		ug/kg						mg/kg								mg/L							
BH_DPSED#1_20241210		12/10/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSED#2_20241210		12/10/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSED#3_20241203		12/3/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	U 0.100	U 5.00	U 0.100	U 0.100	0.149	U 0.00700	U 0.100	U 0.100
BH_DPSED#3_20241210		12/10/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DPSed#1_20241203		12/3/2024		597	U 11.2	U 11.2	U 11.2	231	U 11.2	234	132	7.22	117	1.14	81.6	875	21.7	U 1.35	10.1	NA	NA	NA	0.799	U 0.00700	NA
BH-DPSed#2_20241203		12/3/2024		253	U 11.5	U 11.5	U 11.5	61.5	U 11.5	135	56.0	4.53	125	1.04	28.0	86.3	1.33	U 1.43	U 0.286	NA	NA	NA	NA	NA	NA

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a detection which exceeds RCRA Hazardous Waste Screening Levels

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = TEQ as reported by laboratory. Nondetects

not included in calculation. TEQ calculated

following method described in

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 4 - Waste Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Dioxins and Furans by EPA 1613B																											
		2,3,7,8-TCDD	2,3,7,8-TCDD Equivalents (TEQ) ⁷	Total TCDD	1,2,3,7,8-PeCDD	Total PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	Total HxCDD	1,2,3,4,6,7,8-HpCDD	Total HpCDD	OCDD	2,3,7,8-TCDF	Total TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	Total PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	Total HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	OCDF		
		Portland Harbor PTW Threshold ¹	10	10	-	10	-	-	-	-	-	-	-	-	600	-	-	200	-	400	-	-	-	-	-	-	-	-	
		DEQ RBCss Residential ²	4.7	4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		DEQ RBCss Occupational ²	16	16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		DEQ RBCss Construction Worker ²	170	170	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		DEQ RBCss Excavation Worker ²	4800	4,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		DEQ RBCsw Residential ²	6.8	6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		DEQ RBCsw Occupational ²	31	31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Sediment Screening Level ³	1.0	10	-	-	-	-	-	-	-	-	-	-	0.40658	-	-	0.3	-	0.4	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴	0.29	0.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
RCRA Characteristic Waste ⁵	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sample ID		Sample Date		pg/g																									
BH_DPSeq#1_20241210		12/10/2024	1.53	10.2	6.45	J 2.17	13.8	J 1.64	8.04	5.68	73.2	166	341	1,630	2.50	22.1	J 1.29	3.68	43.6	5.32	3.45	J 1.28	J 0.609	64.4	33.9	3.46	91.5	57.8	
BH_DPSeq#2_20241210		12/10/2024	U 0.737	19.1	4.60	5.55	23.1	5.10	20.0	11.6	136	414	869	4,680	3.13	46.8	J 1.96	3.05	101	9.82	4.53	4.99	J 1.55	149	84.8	5.83	330	327	
BH_DPSeq#3_20241203		12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSeq#3_20241210		12/10/2024	U 0.439	3.34	U 2.3	U 0.415	3.42	J 1.25	5.09	2.78	42.5	95.2	223	1,090	2.08	9.91	U 0.694	J 1.56	15.6	U 1.78	J 1.51	J 1.22	U 0.876	26.3	19.0	U 1.62	48.5	40.2	
BH-DPSed#1_20241203		12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DPSed#2_20241203		12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a detection which exceeds RCRA Hazardous Waste Screening Levels

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = TEQ as reported by laboratory. Nondetects

not included in calculation. TEQ calculated

following method described in

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 4 - Waste Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria	Volatile Organic Carbons by 8260D																																	
	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibrom-3-chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone (MEK)	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Isopropyltoluene	4-Methyl-2-Pentanone (MIBK)	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	
Portland Harbor PTW Threshold ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Residential ²	-	53000000	-	3200	58000	1800000	-	-	-	-	430000	-	160	2200000	3600	-	430000	-	-	14000	-	-	-	-	-	-	-	-	-	860	8200	-	-	3400
DEQ RBCss Occupational ²	-	870000000	-	26000	260000	29000000	-	-	-	-	6900000	-	730	36000000	16000	-	6900000	-	-	64000	-	-	-	-	-	-	-	-	-	4000	37000	-	-	15000
DEQ RBCss Construction Worker ²	-	4700000000	-	54000	3200000	13000000	-	-	-	-	29000000	-	9000	200000000	200000	-	29000000	-	-	13000000	-	-	-	-	-	-	-	-	-	40000	380000	-	-	2300000
DEQ RBCss Excavation Worker ²	-	-	-	15000000	890000000	3700000000	-	-	-	-	810000000	-	2500000	5.6E+08	56000000	-	810000000	-	-	360000000	-	-	-	-	-	-	-	-	-	11000000	110000000	-	-	63000000
DEQ RBCsw Residential ²	-	190000	-	6.3	44	6700	-	-	-	-	10000	-	0.12	36000	2.8	-	11000	-	-	57	-	-	-	-	-	-	-	-	-	0.36	23	-	-	2
DEQ RBCsw Occupational ²	-	880000	-	29	200	32000	-	-	-	-	48000	-	0.56	160000	13	-	53000	-	-	250	-	-	-	-	-	-	-	-	-	1.7	100	-	-	8.8
Sediment Screening Level ³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴	13	190000	1.8	6.3	44	6700	-	1300	0.019	200	10000	0.0084	0.12	920	2.8	17	11000	740	7800	57	-	72000	14000	360	14000	-	9700	1200	0.36	23	2500	1300	2	
RCRA Characteristic Waste ⁵	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample ID	Sample Date	ug/kg																																
BH_DPSed#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSed#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSed#3_20241203	12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSed#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DPSed#1_20241203	12/3/2024	U 27.3	U 27.3	U 164	U 27.3	U 27.3	U 27.3	U 54.5	U 273	U 54.5	U 273	U 54.5	U 273	U 54.5	U 27.3	U 27.3	U 54.5	U 27.3	U 54.5	U 27.3	U 54.5	U 545	U 54.5	U 545	U 54.5	U 54.5	U 545	U 1090	U 109	U 10.9	U 27.3	U 54.5	U 54.5	
BH-DPSed#2_20241203	12/3/2024	U 31.7	U 31.7	U 63.3	U 31.7	U 31.7	U 31.7	U 63.3	U 317	U 63.3	U 317	U 63.3	U 317	U 63.3	U 31.7	U 31.7	U 63.3	U 31.7	U 63.3	U 31.7	U 63.3	U 633	U 63.3	U 633	U 63.3	U 63.3	U 633	U 1270	U 127	U 12.7	U 31.7	U 63.3	U 63.3	

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a detection which exceeds RCRA Hazardous Waste Screening Levels

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 4 - Waste Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria	Volatile Organic Carbons by 8260D (continued)																																	
	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane (Freon 12)	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	m,p-Xylene	Methyl tert-Butyl Ether (MTBE)	Methylene chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Xylene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane (Freon 11)	Vinyl chloride	
Portland Harbor PTW Threshold ¹	-	-	-	-	320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	140000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEQ RBCss Residential ²	57000	46000	-	7500	530000	1.6E+08	5800	1400000	160000	-	3700	-	-	34000	-	3500000	-	250000	76000	5300	-	-	-	-	7900000	-	220000	5800000	1600000	-	6700	7600000	360	
DEQ RBCss Occupational ²	260000	750000	-	34000	8700000	-	26000	25000000	23000000	-	17000	-	-	150000	-	57000000	-	1100000	1600000	23000	-	-	-	-	1.3E+08	-	1000000	88000000	23000000	-	51000	130000000	4400	
DEQ RBCss Construction Worker ²	2700000	370000	-	320000	4700000	-	410000	25000000	710000	-	210000	-	-	1700000	-	27000000	-	12000000	2100000	580000	-	-	-	-	56000000	-	1800000	28000000	7100000	-	130000	69000000	34000	
DEQ RBCss Excavation Worker ²	74000000	10000000	-	8900000	1.3E+08	-	11000000	7E+08	20000000	-	5800000	-	-	49000000	-	7.5E+08	-	3.2E+08	58000000	16000000	-	-	-	-	-	-	50000000	7.7E+08	200000000	-	3700000	-	950000	
DEQ RBCsw Residential ²	46	83	-	13	5800	310000	3.4	2200	630	-	2.4	-	-	220	-	96000	-	110	140	77	-	-	-	-	170000	-	460	84000	7000	-	13	61000	0.57	
DEQ RBCsw Occupational ²	220	400	-	58	27000	1300000	15	9100	4500	-	11	-	-	900	-	-	-	540	2400	340	-	-	-	-	800000	-	1900	490000	51000	-	87	280000	10	
Sediment Screening Level ³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴	46	83	810	13	2400	310000	3.4	2200	630	-	2.4	130	18000	220	16	96000	-	110	140	77	190000	72000	1000	350000	1200	96000	180	23000	7000	-	13	52000	0.57	
RCRA Characteristic Waste ⁵	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sample ID	Sample Date	ug/kg																																
BH_DPSed#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSed#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSed#3_20241203	12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSed#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH-DPSed#1_20241203	12/3/2024	U 109	U 545	U 545	U 54.5	113	U 545	U 54.5	U 273	U 27.3	U 54.5	U 109	U 54.5	U 109	U 27.3	U 109	U 54.5	U 54.5	U 54.5	U 545	U 109	U 54.5	U 27.3	U 27.3	U 54.5	U 54.5	U 54.5	U 27.3	U 54.5	U 27.3	U 54.5	U 27.3	746	U 27.3
BH-DPSed#2_20241203	12/3/2024	U 127	U 633	U 633	U 63.3	U 31.7	U 633	U 63.3	U 317	U 31.7	U 63.3	U 127	U 63.3	U 127	U 31.7	U 127	U 63.3	U 63.3	U 63.3	U 633	U 127	U 63.3	U 31.7	U 31.7	U 63.3	U 63.3	U 63.3	U 31.7	U 63.3	U 31.7	U 63.3	U 31.7	U 31.7	U 31.7

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a detection which exceeds RCRA Hazardous Waste Screening Levels

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = TEQ as reported by laboratory.

Nondetects not included in calculation. TEQ

calculated following method described in

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 4 - Waste Sediment Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria	TCLP Volatile Organic Carbons by 8260D											TCLP Semi-Volatile Organic Carbons by 8270E											Percent Solids by 8000D	
	1,1-Dichloroethene	1,2-Dichloroethane	1,4-Dichlorobenzene	2-Butanone (MEK)	Benzene	Carbon tetrachloride	Chlorobenzene	Chloroform	Tetrachloroethene	Trichloroethene	Vinyl chloride	2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dinitrotoluene	2-Methylphenol	3,4,5-Methylphenol	Hexachlorobenzene	Hexachlorobutadiene	Hexachloroethane	Nitrobenzene	Pentachlorophenol	Pyridine	Percent Solids	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Portland Harbor PTW Threshold ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Residential ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Occupational ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Construction Worker ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCss Excavation Worker ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCsw Residential ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DEQ RBCsw Occupational ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sediment Screening Level ³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Clean Fill Screening Level ⁴	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
RCRA Characteristic Waste ⁵	0.7	0.5	7.5	200	0.5	0.5	100	6	0.7	0.5	0.2	400	2	0.13	200	200	0.13	0.5	3	2	100	5	-	
Sample ID	Sample Date	mg/L											mg/L											%
BH_DPSed#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSed#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSed#3_20241203	12/3/2024	U 0.0200	U 0.0200	U 0.0250	U 0.500	U 0.0100	U 0.0500	U 0.0250	U 0.0500	U 0.0200	U 0.0100	U 0.250	U 0.250	U 0.100	U 0.250	U 0.250	U 0.100	U 0.250	U 0.250	U 0.250	U 0.500	U 0.500	NA	
BH_DPSed#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DPSed#1_20241203	12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	81.1	
BH-DPSed#2_20241203	12/3/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.1	

Notes:

Bold numbers indicate detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Light blue highlight indicates a detection which exceeds one or more regulatory standards

Blue highlight indicates a detection which exceeds Clean Fill screening levels

Yellow highlight indicates a detection which exceeds the Clean Fill and Sediment Screening Levels

Orange highlight indicates a detection that exceed listed Residential, Occupational, or Construction Worker RBCs

Red highlight indicates a detection that exceeds listed Excavation Worker RBCs

Maroon highlight indicates a detection which exceeds RCRA Hazardous Waste Screening Levels

Green highlight indicates arsenic result less than Portland Basin background level of 8.8 mg/kg

¹ = Errata #3 for Portland Harbor Superfund Site Record of Decision Table 21 (EPA, September 2022).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = DRAFT Sediment Screening and Trigger Levels Lower Willamette River Downtown and upriver Reaches Table 1 (DEQ, July 2020).

⁴ = Clean Fill Determinations Tables 1 (Portland Basin province) & 2 (DEQ, February 2019).

⁵ = Title 40 § 261.24 Toxicity characteristic (Code of Federal Regulations, December 2024).

⁶ = Total PCBs calculated as the sum of detect aroclors

⁷ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

DET = Detected

EPA = Environmental Protection Agency

ft bgs = Feet below ground surface

J = Result is an estimated value

mg/kg = Milligrams per kilogram

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

ND = Analyte or summation not detected

NWTPH = Northwest Method Total Petroleum Hydrocarbons

PCBs = Polychlorinated Biphenyls

pg/g = Picograms per gram

PTW = Principal Threat Waste

RBCss = Risk-Based Concentrations for soil ingestion, dermal contact, and inhalation exposure pathways

RBCsw = Risk-Based Concentrations for leaching to groundwater pathway

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/kg = Micrograms per kilogram

Table 5 - Wastewater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		PCBs by EPA 8082A							
		Total PCBs ⁷	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
DEQ RBCwi Residential - Chronic ¹		-	17	0.53	0.16	1.3	0.27	1.7	0.36
DEQ RBCTw Residential ²		0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
DEQ Freshwater Chronic RBC ³		0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
DEQ RBCwe Construction & Excavation ²		30	30	30	30	30	30	30	30
EPA Drinking Water MCL ⁴		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Sample ID	Sample Date	ug/L							
BH_DPSW#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSW#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSW#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA
BH-DPSW#1-20241203	12/3/2024	0.273	U 0.0935	U 0.0935	U 0.0935	U 0.0935	U 0.0935	0.153	0.120
BH-DPSW#2-20241203	12/3/2024	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943	U 0.0943
BH-DPSW#3-20241203	12/3/2024	U 0.0935	U 0.0935	U 0.0935	U 0.0935	U 0.0935	U 0.0935	U 0.0935	U 0.0935

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCTw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = TEQ as

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCTw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 5 - Wastewater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Dioxins and Furans by EPA 1613B																											
		2,3,7,8-TCDD	2,3,7,8-TCDD Equivalents (TEQ) ⁶	Total TCDD	1,2,3,7,8-PeCDD	Total PeCDD	1,2,3,4,7,8-HxCDD	1,2,3,6,7,8-HxCDD	1,2,3,7,8,9-HxCDD	Total HxCDD	1,2,3,4,6,7,8-HpCDD	Total HpCDD	OCDD	2,3,7,8-TCDF	Total TCDF	1,2,3,7,8-PeCDF	2,3,4,7,8-PeCDF	Total PeCDF	1,2,3,4,7,8-HxCDF	1,2,3,6,7,8-HxCDF	2,3,4,6,7,8-HxCDF	1,2,3,7,8,9-HxCDF	Total HxCDF	1,2,3,4,6,7,8-HpCDF	1,2,3,4,7,8,9-HpCDF	Total HpCDF	OCDF		
DEQ RBCwi Residential - Chronic ¹		36	36	-	-	-	-	-	-	1000	-	-	-	1100	-	-	-	-	-	470	-	-	-	-	13000	-	-		
DEQ RBCTw Residential ²		0.091	0.091	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
DEQ Freshwater Chronic RBC ³		0.0031	0.0031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
DEQ RBCwe Construction & Excavation ²		450	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
EPA Drinking Water MCL ⁴		30	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sample ID		Sample Date		pg/L																									
BH_DPSW#1_20241210		U 1.08	3.11	U 1.1	U 1.58	J 2.07	U 2.71	J 4.67	J 2.39	33.5	123	247	1,490	U 2.33	U 2.33	U 2.24	U 2.15	J 18.2	J 3.38	U 2.47	J 1.77	U 0.691	31.9	J 19.4	U 2.11	49.9	J 45.5		
BH_DPSW#2_20241210		U 0.76	0.581	U 0.76	U 1.25	U 1.25	U 1.31	U 1.4	U 1.47	J 3.02	J 5.67	J 11.3	J 31.8	J 4.14	8.02	U 1.52	U 1.03	J 1.99	J 0.858	U 0.962	U 0.982	U 1.59	J 3.17	J 1.44	U 1.39	J 1.44	J 2.63		
BH_DPSW#3_20241210		U 0.681	0.136	U 0.681	U 0.908	U 0.908	U 1.02	U 1.1	U 1.22	J 0.636	J 1.91	J 1.91	J 11.7	J 1.13	J 1.13	U 1.02	U 0.788	U 1.02	U 0.609	U 0.63	U 0.728	U 0.982	U 0.982	U 0.919	U 0.944	U 0.944	U 1.41		
BH-DPSW#1-20241203		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH-DPSW#2-20241203		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH-DPSW#3-20241203		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCTw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCTw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 5 - Wastewater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Total Metals by EPA 6020B							
		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
DEQ RBCwi Residential - Chronic ¹		-	-	-	-	-	-	-	-
DEQ RBCTw Residential ²		0.052	4000	20	30000	15	6	-	100
DEQ Freshwater Chronic RBC ³		150	220	0.094	24	0.54	0.012	4.6	0.1
DEQ RBCwe Construction & Excavation ²		6300	-	130000	9400	-	-	-	1100000
EPA Drinking Water MCL ⁴		10	2000	5	100	15	2	50	-
Sample ID	Sample Date	ug/L							
BH_DPSW#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSW#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA
BH_DPSW#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA
BH-DPSW#1-20241203	12/3/2024	5.85	86.2	4.29	7.93	174	0.136	U 1.00	0.391
BH-DPSW#2-20241203	12/3/2024	U 1.00	29.3	U 0.200	U 2.00	5.62	U 0.0800	U 1.00	U 0.200
BH-DPSW#3-20241203	12/3/2024	U 1.00	28.1	U 0.200	U 2.00	1.86	U 0.0800	U 1.00	U 0.200

Notes:

Bold numbers represent detections

Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards

Blue highlight indicates a detected result which is greater than one or more of the regulatory standards

Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC

Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCTw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).

² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).

³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).

⁴ = National Primary Drinking Water Regulations (EPA, December 2024).

⁵ = Total PCBs calculated as the sum of detect aroclors

⁶ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency

- = Screening levels not published for these constituents

DEQ = State of Oregon Department of Environmental Quality

EPA = Environmental Protection Agency

J = Result is an estimated value

MCL = Maximum Contaminant Level

mg/L = Milligrams per liter

NA = Sample not analyzed for this constituent

pg/L = Picograms per liter

RBCTw = Risk-Based Concentrations for ingestion & inhalation from tapwater

RBCwe = Risk-Based Concentrations for groundwater in excavation

RBCwi = Risk-Based Concentrations for vapor intrusion into buildings

RCRA = Resource Conservation and Recovery Act

TEF = Toxic Equivalency Factor

TEQ = Toxic Equivalency Quotient

TPH = Total Petroleum Hydrocarbons

U = Analyte not detected at or above the reporting limit indicated

ug/L = Micrograms per liter

Table 5 - Wastewater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Volatile Organic Compounds by 8260D																						
		1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone (MEK)	
		DEQ RBCwi Residential - Chronic ¹	8.3	13000	6.8	10	13	300	-	-	47	91	560	0.067	0.34	5900	4	12	400	-	-	5.8	-	4000000
		DEQ RBCTw Residential ²	-	8000	-	0.28	2.8	280	-	-	-	-	54	-	0.0075	300	0.17	-	59	-	-	0.48	-	-
		DEQ Freshwater Chronic RBC ³	85	76	200	730	410	130	-	8	-	130	15	-	-	23	2000	520	26	22	-	9.4	-	22000
		DEQ RBCwe Construction & Excavation ²	-	1100000	-	49	10000	44000	-	-	-	-	6300	-	27	37000	630	-	7500	-	-	1500	-	-
		EPA Drinking Water MCL ⁴	-	200	-	5	-	7	-	-	-	70	-	0.2	-	-	5	5	-	-	-	-	-	-
Sample ID		Sample Date		ug/L																				
BH_DPSW#1_20241210		12/10/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH_DPSW#2_20241210		12/10/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH_DPSW#3_20241210		12/10/2024		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH-DPSW#1-20241203		12/3/2024		U 0.400	U 0.400	U 0.500	U 0.500	U 0.400	U 0.400	U 1.00	U 2.00	U 1.00	U 2.00	U 1.00	U 5.00	U 0.500	U 0.500	U 0.400	U 0.500	U 1.00	U 0.500	U 1.00	U 10.0	
BH-DPSW#2-20241203		12/3/2024		U 0.400	U 0.400	U 0.500	U 0.500	U 0.400	U 0.400	U 1.00	U 2.00	U 1.00	U 2.00	U 1.00	U 5.00	U 0.500	U 0.500	U 0.400	U 0.500	U 1.00	U 0.500	U 1.00	U 10.0	
BH-DPSW#3-20241203		12/3/2024		U 0.400	U 0.400	U 0.500	U 0.500	U 0.400	U 0.400	U 1.00	U 2.00	U 1.00	U 2.00	U 1.00	U 5.00	U 0.500	U 0.500	U 0.400	U 0.500	U 1.00	U 0.500	U 1.00	U 10.0	

Notes:
Bold numbers represent detections
Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards
Blue highlight indicates a detected result which is greater than one or more of the regulatory standards
Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC
Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCTw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).
² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).
³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).
⁴ = National Primary Drinking Water Regulations (EPA, December 2024).
⁵ = Total PCBs calculated as the sum of detect aroclors
⁶ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization
- = Screening levels not published for these constituents
DEQ = State of Oregon Department of Environmental Quality
EPA = Environmental Protection Agency
J = Result is an estimated value
MCL = Maximum Contaminant Level
mg/L = Milligrams per liter
NA = Sample not analyzed for this constituent
pg/L = Picograms per liter
RBCTw = Risk-Based Concentrations for ingestion & inhalation from tapwater
RBCwe = Risk-Based Concentrations for groundwater in excavation
RBCwi = Risk-Based Concentrations for vapor intrusion into buildings
RCRA = Resource Conservation and Recovery Act
TEF = Toxic Equivalency Factor
TEQ = Toxic Equivalency Quotient
TPH = Total Petroleum Hydrocarbons
U = Analyte not detected at or above the reporting limit indicated
ug/L = Micrograms per liter

Table 5 - Wastewater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria	Volatile Organic Compounds by 8260D (continued)																						
	2-Chlorotoluene	2-Hexanone	4-Chlorotoluene	4-Isopropyltoluene	4-Methyl-2-Pentanone (MIBK)	Acetone	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Dibromochloromethane	
	DEQ RBCwi Residential - Chronic ¹	-	17000	-	-	1100000	-	13	2.8	1500	1200	1.6	250	25	1900	0.71	810	14000	1.4	350	430	-	-
	DEQ RBCTw Residential ²	-	-	-	-	-	-	0.052	0.46	-	-	0.13	3.3	7.5	-	0.46	77	21000	0.22	190	36	-	0.17
	DEQ Freshwater Chronic RBC ³	-	99	-	16	170	1700	78	160	-	-	340	230	16	15	77	25	-	140	-	-	1.7	320
	DEQ RBCwe Construction & Excavation ²	-	-	-	-	-	-	250	1800	-	-	450	14000	1200	-	1800	10000	2400000	720	22000	18000	-	610
	EPA Drinking Water MCL ⁴	-	-	-	-	-	-	-	5	-	-	-	-	-	-	5	100	-	-	-	70	-	-
Sample ID	Sample Date	ug/L																					
BH_DPSW#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSW#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH_DPSW#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH-DPSW#1-20241203	12/3/2024	U 1.00	U 10.0	U 1.00	U 1.00	U 10.0	U 20.0	U 2.00	U 0.200	U 0.500	U 1.00	U 1.00	U 1.00	U 5.00	U 10.0	U 1.00	U 0.500	U 5.00	U 1.00	U 5.00	U 0.400	U 1.00	
BH-DPSW#2-20241203	12/3/2024	U 1.00	U 10.0	U 1.00	U 1.00	U 10.0	U 20.0	U 2.00	U 0.200	U 0.500	U 1.00	U 1.00	U 1.00	U 5.00	U 10.0	U 1.00	U 0.500	U 5.00	U 1.00	14.3	U 0.400	U 1.00	
BH-DPSW#3-20241203	12/3/2024	U 1.00	U 10.0	U 1.00	U 1.00	U 10.0	22.8	U 2.00	U 0.200	U 0.500	U 1.00	U 1.00	U 1.00	U 5.00	U 10.0	U 1.00	U 0.500	U 5.00	U 1.00	U 5.00	U 0.400	U 1.00	

Notes:
Bold numbers represent detections
Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards
Blue highlight indicates a detected result which is greater than one or more of the regulatory standards
Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC
Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCTw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).
² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).
³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).
⁴ = National Primary Drinking Water Regulations (EPA, December 2024).
⁵ = Total PCBs calculated as the sum of detect aroclors
⁶ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization
- = Screening levels not published for these constituents
DEQ = State of Oregon Department of Environmental Quality
EPA = Environmental Protection Agency
J = Result is an estimated value
MCL = Maximum Contaminant Level
mg/L = Milligrams per liter
NA = Sample not analyzed for this constituent
pg/L = Picograms per liter
RBCTw = Risk-Based Concentrations for ingestion & inhalation from tapwater
RBCwe = Risk-Based Concentrations for groundwater in excavation
RBCwi = Risk-Based Concentrations for vapor intrusion into buildings
RCRA = Resource Conservation and Recovery Act
TEF = Toxic Equivalency Factor
TEQ = Toxic Equivalency Quotient
TPH = Total Petroleum Hydrocarbons
U = Analyte not detected at or above the reporting limit indicated
ug/L = Micrograms per liter

Table 5 - Wastewater Sampling Results
Former Blue Heron Paper Company Mill
Oregon City, Oregon

Screening Criteria		Volatile Organic Compounds by 8260D (continued)																						
		Dibromomethane	Dichlorodifluoromethane (Freon 12)	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	m,p-Xylene	Methyl tert-Butyl Ether (MTBE)	Methylene chloride	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Xylene	sec-Butylbenzene	Styrene	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane (Freon 11)	Vinyl chloride	
		DEQ RBCwi Residential - Chronic ¹	230	9.8	7.1	0.74	2200	-	740	1200	11	-	5300	1000	-	20000	-	29	36000	180	-	2.1	-	0.2
		DEQ RBCTw Residential ²	-	-	1.5	-	440	-	14	11	0.17	-	-	-	-	1200	-	12	1100	360	-	0.49	1100	0.027
		DEQ Freshwater Chronic RBC ³	-	-	61	-	4.8	-	730	1500	-	-	-	27	-	-	-	-	62	-	1.7	220	-	930
		DEQ RBCwe Construction & Excavation ²	-	-	4500	-	51000	23000	63000	79000	500	-	-	-	-	170000	-	5600	220000	180000	-	430	160000	960
EPA Drinking Water MCL ⁴		-	-	700	-	-	-	5	-	-	-	-	-	100	-	5	1000	100	-	5	-	2		
Sample ID	Sample Date	ug/L																						
BH_DPSW#1_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH_DPSW#2_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH_DPSW#3_20241210	12/10/2024	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
BH-DPSW#1-20241203	12/3/2024	U 1.00	U 1.00	U 0.500	U 5.00	U 1.00	U 1.00	U 1.00	U 10.0	U 5.00	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 1.00	U 0.400	U 1.00	U 0.400	U 1.00	U 0.400	U 2.00	U 0.200	
BH-DPSW#2-20241203	12/3/2024	U 1.00	U 1.00	U 0.500	U 5.00	U 1.00	U 1.00	U 1.00	U 10.0	U 5.00	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 1.00	U 0.400	U 1.00	U 0.400	U 1.00	U 0.400	U 2.00	U 0.200	
BH-DPSW#3-20241203	12/3/2024	U 1.00	U 1.00	U 0.500	U 5.00	U 1.00	U 1.00	U 1.00	U 10.0	U 5.00	U 1.00	U 0.500	U 0.500	U 1.00	U 1.00	U 1.00	U 0.400	U 1.00	U 0.400	U 1.00	U 0.400	U 2.00	U 0.200	

Notes:
Bold numbers represent detections
Gray highlight indicates a non-detect result which is greater than one or more of the regulatory standards
Blue highlight indicates a detected result which is greater than one or more of the regulatory standards
Orange highlight indicates a detected result which exceeds DEQ Freshwater Chronic RBC
Red highlight indicates a detected which exceeds at least two of the following: DEQ RBCwi Residential - Chronic, DEQ RBCTw Residential RBC, DEQ RBCwe Construction & Excavation, EPA Drinking Water MCL

¹ = Vapor Intrusion Risk-Based Concentrations Table1 (DEQ, March 2024).
² = Risk-Based Concentrations for Individual Chemicals (DEQ, May 2018 rev. August 2023).
³ = Conducting Ecological Risk Assessments Table 2 (DEQ, April 2021).
⁴ = National Primary Drinking Water Regulations (EPA, December 2024).
⁵ = Total PCBs calculated as the sum of detect aroclors
⁶ = TEQ as reported by laboratory. Nondetects not included in calculation. TEQ calculated following method described in Van den Berg et al., 2006. The 2005 World Health Organization
- = Screening levels not published for these constituents
DEQ = State of Oregon Department of Environmental Quality
EPA = Environmental Protection Agency
J = Result is an estimated value
MCL = Maximum Contaminant Level
mg/L = Milligrams per liter
NA = Sample not analyzed for this constituent
pg/L = Picograms per liter
RBCTw = Risk-Based Concentrations for ingestion & inhalation from tapwater
RBCwe = Risk-Based Concentrations for groundwater in excavation
RBCwi = Risk-Based Concentrations for vapor intrusion into buildings
RCRA = Resource Conservation and Recovery Act
TEF = Toxic Equivalency Factor
TEQ = Toxic Equivalency Quotient
TPH = Total Petroleum Hydrocarbons
U = Analyte not detected at or above the reporting limit indicated
ug/L = Micrograms per liter



ATTACHMENT C:

SITE PHOTOGRAPH LOG

Photograph No. 1:



Photograph No. 2:



Comments:

Photo 1:
Smoke testing setup – smoke sticks in can with intake of blower covering the opening of the can.

Photo 2:
Smoke setup for larger lines using liquid smoke machine and higher-output blower.

Photograph No. 3:



Comments:

An example of smoke testing at the opposite end of the connected feature. White smoke shown with red arrow.

Photograph No. 4:



Comments:

Dye testing in Grotto. Fluorescent green dye appeared in the standing water, shown with red arrow.

Photograph No. 5:



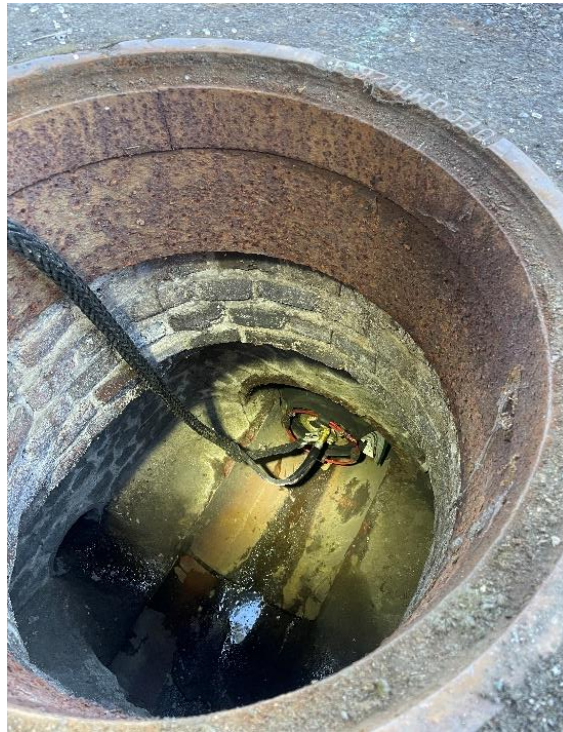
Photograph No. 6:



Comments:

Examples of jetting nozzle attachments utilized for line cleaning.

Photograph No. 7:



Comments:

**Pneumatic
plug
installed**

Photograph No. 8:



Comments:

**Confined
space entry
into VA-1.**

Photograph No. 9:



Comments:

Captured line cleaning water storage tanks. Temporary secondary containment berms installed around each tank.

Photograph No. 10:



Comments:

Dewatering solids container with vacuum truck.

Photograph No. 11:



Comments:

Vacuum truck offloading water and debris collection from line cleaning. Waste container temporarily opened to facilitate offloading.

Photograph No. 12:



Comments:

Push-cam set up for CCTV of TD-14.

Photograph No. 13:



Comments:

Track mounted CCTV camera crawler.

Photograph No. 14:



Photograph No. 15:



Comments:

**Photo 14:
Underground water collection basin in Building 13**

**Photo 15:
Underground water collection basin in Building 13.**

Photograph No. 16:



Comments:

Broken ceramic pipe piece dislodged during line jetting

Photograph No. 17:



Comments:

Demolished buildings near the Site entrance. Depression in the rubble is in the former location of Building 01 "Main Office".

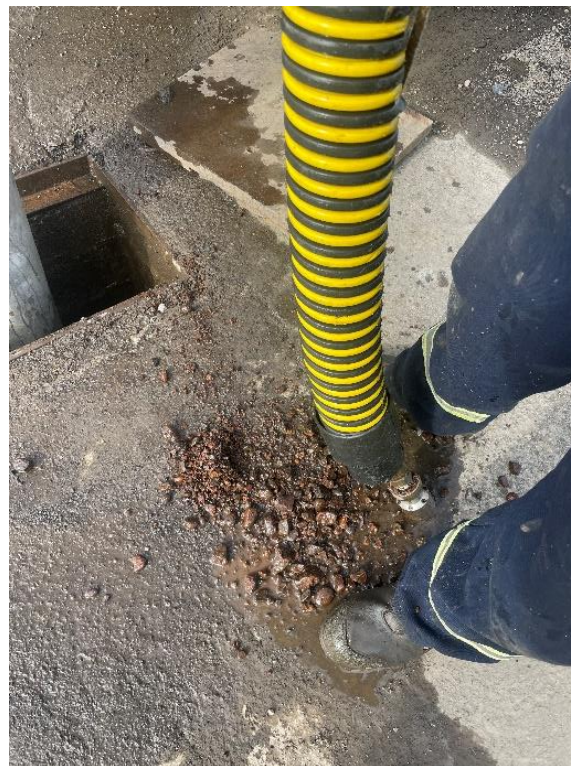
Photograph No. 18:



Comments:

Pressure washing TD-2 and collecting water with vacuum truck.

Photograph No. 19:



Comments:

Debris removed from line jetting at VA-2.

Photograph No. 20:



Comments:

**Buildings 45,
46, 47
demolished
due to
January fire.**

Photograph No. 21:



Comments:

**Metal plate
covering CB-
50 and
partially
covering TD-
5.**

Photograph No. 22:



Comments:

CB-SS-04 and surrounding area with ashes and debris.



ATTACHMENT D: ANALYTICAL LABORATORY REPORTS



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Tuesday, November 5, 2024

John Kuiper

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

RE: A4J1024 - Blue Heron - G685.0793 Task 400

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4J1024, which was received by the laboratory on 10/3/2024 at 3:10:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information			
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>			
(See Cooler Receipt Form for details)			
Cooler #1	5.4	degC	Cooler #2
Cooler #3	4.6	degC	5.1 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

Philip Nerenberg

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

**ANALYTICAL REPORT****Apex Laboratories, LLC**6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062**WSP USA Environment & Infrastructure Inc.**
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544**ANALYTICAL REPORT FOR SAMPLES****SAMPLE INFORMATION**

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-TRH-1_0-0.5-20241002	A4J1024-01	Solid	10/02/24 09:15	10/03/24 15:10
BH-TRH-2_0-0.5-20241002	A4J1024-02	Solid	10/02/24 10:10	10/03/24 15:10
BH-TRH-2_1-1.5-20241002	A4J1024-03	Solid	10/02/24 09:50	10/03/24 15:10
BH-TRH-3_0-0.5-20241002	A4J1024-04	Solid	10/02/24 11:25	10/03/24 15:10
BH-TRH-3_1-1.5-20241002	A4J1024-05	Solid	10/02/24 12:00	10/03/24 15:10
BH-TR1-1_0-0.5-20241002	A4J1024-06	Solid	10/02/24 08:23	10/03/24 15:10
BH-TR1-2_0-0.5-20241002	A4J1024-07	Solid	10/02/24 14:00	10/03/24 15:10
BH-TR1-3_0-0.5-20241002	A4J1024-08	Solid	10/02/24 12:30	10/03/24 15:10
BH-TR1-3_1-1.5-20241002	A4J1024-09	Solid	10/02/24 12:50	10/03/24 15:10
BH-TR1-4_0-0.5-20241002	A4J1024-10	Solid	10/02/24 15:50	10/03/24 15:10
BH-TR2-1_0-0.5-20241002	A4J1024-11	Solid	10/02/24 16:30	10/03/24 15:10
BH-TR2-2_0-0.5-20241002	A4J1024-12	Solid	10/02/24 17:30	10/03/24 15:10
BH-TR2-3_0-0.5-20241002	A4J1024-13	Solid	10/02/24 17:50	10/03/24 15:10
BH-TR2-4_0-0.5-20241002	A4J1024-14	Solid	10/02/24 17:00	10/03/24 15:10
BH-TR2-6_0-0.5-20241002	A4J1024-15	Solid	10/02/24 15:10	10/03/24 15:10
BH-DUP1	A4J1024-16	Solid	10/02/24 00:00	10/03/24 15:10
BH-Rinsate-20241002	A4J1024-17	Water	10/02/24 18:40	10/03/24 15:10

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 2 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-1_0-0.5-20241002 (A4J1024-01)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.1	mg/kg	1	10/04/24 21:49	NWTPH-HCID	
Diesel Range Organics	ND	---	47.8	mg/kg	1	10/04/24 21:49	NWTPH-HCID	
Oil Range Organics	DET	---	95.7	mg/kg	1	10/04/24 21:49	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	90 %	Limits:	50-150 %	1	10/04/24 21:49	NWTPH-HCID
4-Bromofluorobenzene (Surr)			88 %		50-150 %	1	10/04/24 21:49	NWTPH-HCID
BH-TRH-2_0-0.5-20241002 (A4J1024-02)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	20.0	mg/kg	1	10/04/24 23:00	NWTPH-HCID	
Diesel Range Organics	ND	---	50.0	mg/kg	1	10/04/24 23:00	NWTPH-HCID	
Oil Range Organics	ND	---	99.9	mg/kg	1	10/04/24 23:00	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	88 %	Limits:	50-150 %	1	10/04/24 23:00	NWTPH-HCID
4-Bromofluorobenzene (Surr)			84 %		50-150 %	1	10/04/24 23:00	NWTPH-HCID
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	18.7	mg/kg	1	10/04/24 23:23	NWTPH-HCID	
Diesel Range Organics	ND	---	46.7	mg/kg	1	10/04/24 23:23	NWTPH-HCID	
Oil Range Organics	DET	---	93.4	mg/kg	1	10/04/24 23:23	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	90 %	Limits:	50-150 %	1	10/04/24 23:23	NWTPH-HCID
4-Bromofluorobenzene (Surr)			87 %		50-150 %	1	10/04/24 23:23	NWTPH-HCID
BH-TRH-3_0-0.5-20241002 (A4J1024-04)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.0	mg/kg	1	10/04/24 21:26	NWTPH-HCID	
Diesel Range Organics	ND	---	47.5	mg/kg	1	10/04/24 21:26	NWTPH-HCID	
Oil Range Organics	ND	---	95.1	mg/kg	1	10/04/24 21:26	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	92 %	Limits:	50-150 %	1	10/04/24 21:26	NWTPH-HCID
4-Bromofluorobenzene (Surr)			79 %		50-150 %	1	10/04/24 21:26	NWTPH-HCID
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.1	mg/kg	1	10/05/24 02:31	NWTPH-HCID	
Diesel Range Organics	ND	---	47.8	mg/kg	1	10/05/24 02:31	NWTPH-HCID	
Oil Range Organics	DET	---	95.5	mg/kg	1	10/05/24 02:31	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	89 %	Limits:	50-150 %	1	10/05/24 02:31	NWTPH-HCID
4-Bromofluorobenzene (Surr)			86 %		50-150 %	1	10/05/24 02:31	NWTPH-HCID

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-1_0-0.5-20241002 (A4J1024-06)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.6	mg/kg	1	10/04/24 23:47	NWTPH-HCID	
Diesel Range Organics	ND	---	49.0	mg/kg	1	10/04/24 23:47	NWTPH-HCID	
Oil Range Organics	DET	---	98.0	mg/kg	1	10/04/24 23:47	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery: 94 %		Limits: 50-150 %	1	10/04/24 23:47	NWTPH-HCID	
4-Bromofluorobenzene (Surr)		92 %		50-150 %	1	10/04/24 23:47	NWTPH-HCID	
BH-TR1-2_0-0.5-20241002 (A4J1024-07)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.7	mg/kg	1	10/05/24 00:34	NWTPH-HCID	
Diesel Range Organics	ND	---	49.2	mg/kg	1	10/05/24 00:34	NWTPH-HCID	
Oil Range Organics	DET	---	98.3	mg/kg	1	10/05/24 00:34	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery: 94 %		Limits: 50-150 %	1	10/05/24 00:34	NWTPH-HCID	
4-Bromofluorobenzene (Surr)		90 %		50-150 %	1	10/05/24 00:34	NWTPH-HCID	
BH-TR1-3_0-0.5-20241002 (A4J1024-08)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	99.1	mg/kg	5	10/05/24 05:16	NWTPH-HCID	
Diesel Range Organics	ND	---	248	mg/kg	5	10/05/24 05:16	NWTPH-HCID	
Oil Range Organics	DET	---	496	mg/kg	5	10/05/24 05:16	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery: 97 %		Limits: 50-150 %	5	10/05/24 05:16	NWTPH-HCID	
4-Bromofluorobenzene (Surr)		91 %		50-150 %	5	10/05/24 05:16	NWTPH-HCID	
BH-TR1-3_1-1.5-20241002 (A4J1024-09)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.5	mg/kg	1	10/05/24 02:55	NWTPH-HCID	
Diesel Range Organics	ND	---	48.7	mg/kg	1	10/05/24 02:55	NWTPH-HCID	
Oil Range Organics	DET	---	97.4	mg/kg	1	10/05/24 02:55	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	1	10/05/24 02:55	NWTPH-HCID	
4-Bromofluorobenzene (Surr)		76 %		50-150 %	1	10/05/24 02:55	NWTPH-HCID	
BH-TR1-4_0-0.5-20241002 (A4J1024-10)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.6	mg/kg	1	10/05/24 04:29	NWTPH-HCID	
Diesel Range Organics	ND	---	49.0	mg/kg	1	10/05/24 04:29	NWTPH-HCID	
Oil Range Organics	DET	---	97.9	mg/kg	1	10/05/24 04:29	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery: 77 %		Limits: 50-150 %	1	10/05/24 04:29	NWTPH-HCID	
4-Bromofluorobenzene (Surr)		76 %		50-150 %	1	10/05/24 04:29	NWTPH-HCID	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-1_0-0.5-20241002 (A4J1024-11)		Matrix: Solid			Batch: 24J0195			
Gasoline Range Organics	ND	---	19.8	mg/kg	1	10/05/24 03:18	NWTPH-HCID	
Diesel Range Organics	ND	---	49.4	mg/kg	1	10/05/24 03:18	NWTPH-HCID	
Oil Range Organics	DET	---	98.8	mg/kg	1	10/05/24 03:18	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	75 %	Limits:	50-150 %	1	10/05/24 03:18	NWTPH-HCID
4-Bromofluorobenzene (Surr)			66 %		50-150 %	1	10/05/24 03:18	NWTPH-HCID
BH-TR2-2_0-0.5-20241002 (A4J1024-12)		Matrix: Solid			Batch: 24J0195			
Gasoline Range Organics	ND	---	18.6	mg/kg	1	10/05/24 05:39	NWTPH-HCID	
Diesel Range Organics	ND	---	46.6	mg/kg	1	10/05/24 05:39	NWTPH-HCID	
Oil Range Organics	DET	---	93.1	mg/kg	1	10/05/24 05:39	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	69 %	Limits:	50-150 %	1	10/05/24 05:39	NWTPH-HCID
4-Bromofluorobenzene (Surr)			66 %		50-150 %	1	10/05/24 05:39	NWTPH-HCID
BH-TR2-3_0-0.5-20241002 (A4J1024-13)		Matrix: Solid			Batch: 24J0195			
Gasoline Range Organics	ND	---	18.9	mg/kg	1	10/05/24 06:26	NWTPH-HCID	
Diesel Range Organics	ND	---	47.3	mg/kg	1	10/05/24 06:26	NWTPH-HCID	
Oil Range Organics	DET	---	94.7	mg/kg	1	10/05/24 06:26	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	91 %	Limits:	50-150 %	1	10/05/24 06:26	NWTPH-HCID
4-Bromofluorobenzene (Surr)			87 %		50-150 %	1	10/05/24 06:26	NWTPH-HCID
BH-TR2-4_0-0.5-20241002 (A4J1024-14)		Matrix: Solid			Batch: 24J0195			
Gasoline Range Organics	ND	---	18.6	mg/kg	1	10/05/24 04:05	NWTPH-HCID	
Diesel Range Organics	ND	---	46.4	mg/kg	1	10/05/24 04:05	NWTPH-HCID	
Oil Range Organics	DET	---	92.8	mg/kg	1	10/05/24 04:05	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	86 %	Limits:	50-150 %	1	10/05/24 04:05	NWTPH-HCID
4-Bromofluorobenzene (Surr)			80 %		50-150 %	1	10/05/24 04:05	NWTPH-HCID
BH-TR2-6_0-0.5-20241002 (A4J1024-15)		Matrix: Solid			Batch: 24J0195			
Gasoline Range Organics	ND	---	99.1	mg/kg	5	10/05/24 07:13	NWTPH-HCID	
Diesel Range Organics	ND	---	248	mg/kg	5	10/05/24 07:13	NWTPH-HCID	
Oil Range Organics	DET	---	496	mg/kg	5	10/05/24 07:13	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	84 %	Limits:	50-150 %	5	10/05/24 07:13	NWTPH-HCID
4-Bromofluorobenzene (Surr)			83 %		50-150 %	5	10/05/24 07:13	NWTPH-HCID

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DUP1 (A4J1024-16)				Matrix: Solid		Batch: 24J0195		
Gasoline Range Organics	ND	---	19.9	mg/kg	1	10/05/24 00:57	NWTPH-HCID	
Diesel Range Organics	ND	---	49.8	mg/kg	1	10/05/24 00:57	NWTPH-HCID	
Oil Range Organics	DET	---	99.6	mg/kg	1	10/05/24 00:57	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	95 %	Limits: 50-150 %	1	10/05/24 00:57	NWTPH-HCID	
4-Bromofluorobenzene (Surr)			94 %	50-150 %	1	10/05/24 00:57	NWTPH-HCID	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John KuiperReport ID:
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-1_0-0.5-20241002 (A4J1024-01)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	67.3	mg/kg	1	10/14/24 20:24	NWTPH-Dx	Q-39
Oil	424	---	135	mg/kg	1	10/14/24 20:24	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	1	10/14/24 20:24	NWTPH-Dx	
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	96.2	mg/kg	1	10/14/24 21:26	NWTPH-Dx	
Oil	546	---	192	mg/kg	1	10/14/24 21:26	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 78 %		Limits: 50-150 %	1	10/14/24 21:26	NWTPH-Dx	
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	1750	mg/kg	25	10/14/24 21:47	NWTPH-Dx	
Oil	42500	---	3510	mg/kg	25	10/14/24 21:47	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: %		Limits: 50-150 %	25	10/14/24 21:47	NWTPH-Dx	
BH-TR1-1_0-0.5-20241002 (A4J1024-06)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	66.9	mg/kg	1	10/14/24 22:28	NWTPH-Dx	
Oil	351	---	134	mg/kg	1	10/14/24 22:28	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 78 %		Limits: 50-150 %	1	10/14/24 22:28	NWTPH-Dx	
BH-TR1-2_0-0.5-20241002 (A4J1024-07)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	82.0	mg/kg	1	10/14/24 22:49	NWTPH-Dx	
Oil	1570	---	164	mg/kg	1	10/14/24 22:49	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	1	10/14/24 22:49	NWTPH-Dx	
BH-TR1-3_0-0.5-20241002 (A4J1024-08)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	455	mg/kg	5	10/14/24 23:30	NWTPH-Dx	
Oil	1710	---	909	mg/kg	5	10/14/24 23:30	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	5	10/14/24 23:30	NWTPH-Dx	
BH-TR1-3_1-1.5-20241002 (A4J1024-09)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	467	mg/kg	5	10/14/24 23:51	NWTPH-Dx	
Oil	1510	---	935	mg/kg	5	10/14/24 23:51	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 76 %		Limits: 50-150 %	5	10/14/24 23:51	NWTPH-Dx	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-4_0-0.5-20241002 (A4J1024-10)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	80.0	mg/kg	1	10/15/24 00:32	NWTPH-Dx	F-03
Oil	704	---	160	mg/kg	1	10/15/24 00:32	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 83 %		Limits: 50-150 %	1	10/15/24 00:32	NWTPH-Dx	
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	820	mg/kg	10	10/15/24 00:53	NWTPH-Dx	S-05
Oil	2900	---	1640	mg/kg	10	10/15/24 00:53	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 79 %		Limits: 50-150 %	10	10/15/24 00:53	NWTPH-Dx	
BH-TR2-2_0-0.5-20241002 (A4J1024-12RE1)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	91.7	mg/kg	1	10/15/24 08:53	NWTPH-Dx	
Oil	445	---	183	mg/kg	1	10/15/24 08:53	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 102 %		Limits: 50-150 %	1	10/15/24 08:53	NWTPH-Dx	
BH-TR2-3_0-0.5-20241002 (A4J1024-13)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	87.0	mg/kg	1	10/15/24 01:55	NWTPH-Dx	
Oil	624	---	174	mg/kg	1	10/15/24 01:55	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %	1	10/15/24 01:55	NWTPH-Dx	
BH-TR2-4_0-0.5-20241002 (A4J1024-14)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	712	mg/kg	10	10/15/24 02:36	NWTPH-Dx	S-05
Oil	1910	---	1420	mg/kg	10	10/15/24 02:36	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 80 %		Limits: 50-150 %	10	10/15/24 02:36	NWTPH-Dx	
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	397	mg/kg	5	10/14/24 22:49	NWTPH-Dx	S-05
Oil	4210	---	794	mg/kg	5	10/14/24 22:49	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 92 %		Limits: 50-150 %	5	10/14/24 22:49	NWTPH-Dx	
BH-DUP1 (A4J1024-16)				Matrix: Solid		Batch: 24J0545		
Diesel	ND	---	74.6	mg/kg	1	10/14/24 23:30	NWTPH-Dx	
Oil	377	---	149	mg/kg	1	10/14/24 23:30	NWTPH-Dx	
Surrogate: o-Terphenyl (Surr)		Recovery: 88 %		Limits: 50-150 %	1	10/14/24 23:30	NWTPH-Dx	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-Rinsate-20241002 (A4J1024-17)				Matrix: Water		Batch: 24J0995		H-02
Diesel	ND	---	0.192	mg/L	1	10/25/24 21:15	NWTPH-Dx	
Oil	ND	---	0.385	mg/L	1	10/25/24 21:15	NWTPH-Dx	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>	<i>1</i>	<i>10/25/24 21:15</i>	<i>NWTPH-Dx</i>	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John KuiperReport ID:
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-1_0-0.5-20241002 (A4J1024-01)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	Q-39
Aroclor 1221	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	
Aroclor 1232	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	
Aroclor 1242	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	
Aroclor 1248	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	
Aroclor 1254	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	
Aroclor 1260	ND	---	89.3	ug/kg	2	10/07/24 18:39	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 105 %		Limits: 60-125 %	2	10/07/24 18:39	EPA 8082A	
BH-TRH-2_0-0.5-20241002 (A4J1024-02)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Aroclor 1221	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Aroclor 1232	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Aroclor 1242	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Aroclor 1248	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Aroclor 1254	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Aroclor 1260	ND	---	94.8	ug/kg	2	10/07/24 20:25	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 104 %		Limits: 60-125 %	2	10/07/24 20:25	EPA 8082A	
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Aroclor 1221	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Aroclor 1232	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Aroclor 1242	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Aroclor 1248	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Aroclor 1254	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Aroclor 1260	ND	---	92.2	ug/kg	2	10/07/24 21:17	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 108 %		Limits: 60-125 %	2	10/07/24 21:17	EPA 8082A	
BH-TRH-3_0-0.5-20241002 (A4J1024-04)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	
Aroclor 1221	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	
Aroclor 1232	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	
Aroclor 1242	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 10 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-3_0-0.5-20241002 (A4J1024-04)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1248	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	
Aroclor 1254	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	
Aroclor 1260	ND	---	79.1	ug/kg	2	10/07/24 22:10	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 96 %		Limits: 60-125 %	2	10/07/24 22:10	EPA 8082A	
BH-TRH-3_1-1.5-20241002 (A4J1024-05RE1)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Aroclor 1221	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Aroclor 1232	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Aroclor 1242	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Aroclor 1248	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Aroclor 1254	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Aroclor 1260	ND	---	70.9	ug/kg	2	10/09/24 14:40	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 92 %		Limits: 60-125 %	2	10/09/24 14:40	EPA 8082A	
BH-TR1-1_0-0.5-20241002 (A4J1024-06)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Aroclor 1221	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Aroclor 1232	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Aroclor 1242	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Aroclor 1248	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Aroclor 1254	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Aroclor 1260	ND	---	74.1	ug/kg	2	10/07/24 23:55	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 95 %		Limits: 60-125 %	2	10/07/24 23:55	EPA 8082A	
BH-TR1-2_0-0.5-20241002 (A4J1024-07)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Aroclor 1221	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Aroclor 1232	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Aroclor 1242	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Aroclor 1248	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Aroclor 1254	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Aroclor 1260	ND	---	82.6	ug/kg	2	10/08/24 00:48	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 100 %		Limits: 60-125 %	2	10/08/24 00:48	EPA 8082A	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-3_0-0.5-20241002 (A4J1024-08)		Matrix: Solid		Batch: 24J0186		C-07		
Aroclor 1016	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Aroclor 1221	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Aroclor 1232	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Aroclor 1242	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Aroclor 1248	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Aroclor 1254	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Aroclor 1260	ND	---	93.9	ug/kg	2	10/07/24 18:04	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 103 %		Limits: 60-125 %	2	10/07/24 18:04	EPA 8082A	
BH-TR1-3_1-1.5-20241002 (A4J1024-09)		Matrix: Solid		Batch: 24J0186		C-07		
Aroclor 1016	ND	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	
Aroclor 1221	ND	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	
Aroclor 1232	ND	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	
Aroclor 1242	ND	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	
Aroclor 1248	ND	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	
Aroclor 1254	93.6	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	P-12
Aroclor 1260	ND	---	87.7	ug/kg	2	10/07/24 18:57	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 107 %		Limits: 60-125 %	2	10/07/24 18:57	EPA 8082A	
BH-TR1-4_0-0.5-20241002 (A4J1024-10)		Matrix: Solid		Batch: 24J0186		C-07		
Aroclor 1016	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Aroclor 1221	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Aroclor 1232	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Aroclor 1242	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Aroclor 1248	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Aroclor 1254	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Aroclor 1260	ND	---	68.0	ug/kg	2	10/07/24 19:50	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 102 %		Limits: 60-125 %	2	10/07/24 19:50	EPA 8082A	
BH-TR2-1_0-0.5-20241002 (A4J1024-11)		Matrix: Solid		Batch: 24J0186		C-07		
Aroclor 1016	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	
Aroclor 1221	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	
Aroclor 1232	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1242	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	
Aroclor 1248	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	
Aroclor 1254	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	
Aroclor 1260	ND	---	88.1	ug/kg	2	10/07/24 20:42	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 104 %	Limits: 60-125 %	2	10/07/24 20:42	EPA 8082A		
BH-TR2-2_0-0.5-20241002 (A4J1024-12)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Aroclor 1221	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Aroclor 1232	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Aroclor 1242	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Aroclor 1248	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Aroclor 1254	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Aroclor 1260	ND	---	79.7	ug/kg	2	10/07/24 21:35	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 99 %	Limits: 60-125 %	2	10/07/24 21:35	EPA 8082A		
BH-TR2-3_0-0.5-20241002 (A4J1024-13)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Aroclor 1221	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Aroclor 1232	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Aroclor 1242	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Aroclor 1248	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Aroclor 1254	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Aroclor 1260	ND	---	75.8	ug/kg	2	10/07/24 22:28	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 101 %	Limits: 60-125 %	2	10/07/24 22:28	EPA 8082A		
BH-TR2-4_0-0.5-20241002 (A4J1024-14)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	
Aroclor 1221	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	
Aroclor 1232	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	
Aroclor 1242	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	
Aroclor 1248	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	
Aroclor 1254	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	
Aroclor 1260	ND	---	82.6	ug/kg	2	10/07/24 23:20	EPA 8082A	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-4_0-0.5-20241002 (A4J1024-14)				Matrix: Solid		Batch: 24J0186		C-07
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 100 %		Limits: 60-125 %	2	10/07/24 23:20	EPA 8082A	
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	P-12
Aroclor 1221	ND	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	
Aroclor 1232	ND	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	
Aroclor 1242	ND	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	
Aroclor 1248	ND	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	
Aroclor 1254	88.9	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	
Aroclor 1260	ND	---	88.1	ug/kg	2	10/08/24 00:13	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 98 %		Limits: 60-125 %	2	10/08/24 00:13	EPA 8082A	
BH-DUP1 (A4J1024-16)				Matrix: Solid		Batch: 24J0186		C-07
Aroclor 1016	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Aroclor 1221	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Aroclor 1232	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Aroclor 1242	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Aroclor 1248	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Aroclor 1254	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Aroclor 1260	ND	---	66.9	ug/kg	2	10/08/24 01:05	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 100 %		Limits: 60-125 %	2	10/08/24 01:05	EPA 8082A	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-1_0-0.5-20241002 (A4J1024-01)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Acenaphthylene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Anthracene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Benz(a)anthracene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	Q-37
Benzo(k)fluoranthene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Chrysene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Fluoranthene	41.0	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Fluorene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Naphthalene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Phenanthrene	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Pyrene	49.2	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
Dibenzofuran	ND	---	38.9	ug/kg	1	10/04/24 18:48	EPA 8270E SIM	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 88 %</i>		<i>Limits: 44-120 %</i>	<i>1</i>	<i>10/04/24 18:48</i>	<i>EPA 8270E SIM</i>	
<i>p-Terphenyl-d14 (Surr)</i>		<i>78 %</i>		<i>54-127 %</i>	<i>1</i>	<i>10/04/24 18:48</i>	<i>EPA 8270E SIM</i>	

BH-TRH-2_0-0.5-20241002 (A4J1024-02)**Matrix: Solid****Batch: 24J0210**

Acenaphthene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Acenaphthylene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Anthracene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Benz(a)anthracene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Benzo(a)pyrene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Benzo(b)fluoranthene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Benzo(k)fluoranthene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Benzo(g,h,i)perylene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Chrysene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM
Dibenz(a,h)anthracene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 15 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-2_0-0.5-20241002 (A4J1024-02)				Matrix: Solid		Batch: 24J0210		
Fluoranthene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Fluorene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Naphthalene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Phenanthrene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Pyrene	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Dibenzofuran	ND	---	47.2	ug/kg	1	10/04/24 21:19	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 88 %		Limits: 44-120 %	1	10/04/24 21:19	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		76 %		54-127 %	1	10/04/24 21:19	EPA 8270E SIM	
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Acenaphthylene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Anthracene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Benz(a)anthracene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Chrysene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Fluoranthene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Fluorene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Naphthalene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Phenanthrene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Pyrene	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Dibenzofuran	ND	---	33.8	ug/kg	1	10/04/24 21:44	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 86 %		Limits: 44-120 %	1	10/04/24 21:44	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		76 %		54-127 %	1	10/04/24 21:44	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 16 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid		Batch: 24J0210		
BH-TRH-3_0-0.5-20241002 (A4J1024-04)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Acenaphthylene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Anthracene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Benz(a)anthracene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Chrysene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Fluoranthene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Fluorene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Naphthalene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Phenanthrene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Pyrene	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Dibenzofuran	ND	---	43.5	ug/kg	1	10/04/24 22:09	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 85 %		Limits: 44-120 %	1	10/04/24 22:09	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		75 %		54-127 %	1	10/04/24 22:09	EPA 8270E SIM	
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Acenaphthylene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Anthracene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Benz(a)anthracene	ND	---	80.2	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	R-02
Benzo(a)pyrene	ND	---	80.2	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	R-02
Benzo(b)fluoranthene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Chrysene	ND	---	84.1	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	R-02
Fluoranthene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid		Batch: 24J0210		
Fluorene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Naphthalene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Phenanthrene	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Pyrene	53.0	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Dibenzofuran	ND	---	48.3	ug/kg	1	10/04/24 22:34	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 81 %		Limits: 44-120 %	1	10/04/24 22:34	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		80 %		54-127 %	1	10/04/24 22:34	EPA 8270E SIM	
BH-TRH-3_1-1.5-20241002 (A4J1024-05RE1)				Matrix: Solid		Batch: 24J0210		R-04
Benzo(g,h,i)perylene	ND	---	483	ug/kg	10	10/07/24 16:41	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	483	ug/kg	10	10/07/24 16:41	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	483	ug/kg	10	10/07/24 16:41	EPA 8270E SIM	
BH-TR1-1_0-0.5-20241002 (A4J1024-06)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Acenaphthylene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Anthracene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Benz(a)anthracene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Chrysene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Fluoranthene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Fluorene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Naphthalene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Phenanthrene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Pyrene	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-1_0-0.5-20241002 (A4J1024-06)				Matrix: Solid		Batch: 24J0210		
Dibenzofuran	ND	---	40.3	ug/kg	1	10/04/24 22:59	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery:	88 %	Limits:	44-120 %	1	10/04/24 22:59	EPA 8270E SIM
p-Terphenyl-d14 (Surr)			75 %		54-127 %	1	10/04/24 22:59	EPA 8270E SIM
BH-TR1-2_0-0.5-20241002 (A4J1024-07)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Acenaphthylene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Anthracene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Benz(a)anthracene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Benzo(a)pyrene	39.7	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Benzo(b)fluoranthene	58.8	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Benzo(g,h,i)perylene	66.3	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Chrysene	42.2	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Fluoranthene	49.7	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Fluorene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	39.9	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Naphthalene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Phenanthrene	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Pyrene	63.2	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Dibenzofuran	ND	---	34.7	ug/kg	1	10/04/24 23:24	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery:	83 %	Limits:	44-120 %	1	10/04/24 23:24	EPA 8270E SIM
p-Terphenyl-d14 (Surr)			71 %		54-127 %	1	10/04/24 23:24	EPA 8270E SIM
BH-TR1-3_0-0.5-20241002 (A4J1024-08)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	262	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Acenaphthylene	195	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Anthracene	400	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Benz(a)anthracene	884	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Benzo(a)pyrene	701	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Benzo(b)fluoranthene	1440	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-3_0-0.5-20241002 (A4J1024-08)				Matrix: Solid		Batch: 24J0210		
Benzo(k)fluoranthene	501	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	M-05
Benzo(g,h,i)perylene	556	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Chrysene	2370	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Fluoranthene	816	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Fluorene	141	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	519	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Naphthalene	ND	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Phenanthrene	183	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Pyrene	1020	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Dibenzofuran	ND	---	139	ug/kg	4	10/04/24 23:49	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 84 %		Limits: 44-120 %	4	10/04/24 23:49	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		77 %		54-127 %	4	10/04/24 23:49	EPA 8270E SIM	
BH-TR1-3_1-1.5-20241002 (A4J1024-09)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	123	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	M-05
Acenaphthylene	106	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Anthracene	221	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Benz(a)anthracene	145	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Benzo(a)pyrene	153	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Benzo(b)fluoranthene	291	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Benzo(k)fluoranthene	91.3	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Benzo(g,h,i)perylene	291	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Chrysene	217	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Dibenz(a,h)anthracene	50.4	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Fluoranthene	359	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Fluorene	89.5	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	228	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Naphthalene	ND	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 20 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-3_1-1.5-20241002 (A4J1024-09)				Matrix: Solid		Batch: 24J0210		
Phenanthrene	117	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	M-05
Pyrene	333	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Dibenzofuran	ND	---	39.2	ug/kg	1	10/05/24 00:14	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 85 %		Limits: 44-120 %	1	10/05/24 00:14	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		71 %		54-127 %	1	10/05/24 00:14	EPA 8270E SIM	
BH-TR1-4_0-0.5-20241002 (A4J1024-10)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	M-05
Acenaphthylene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Anthracene	43.9	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Benz(a)anthracene	81.3	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Benzo(a)pyrene	100	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Benzo(b)fluoranthene	178	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Benzo(k)fluoranthene	57.6	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Benzo(g,h,i)perylene	113	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Chrysene	170	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Fluoranthene	253	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Fluorene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	100	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Naphthalene	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Phenanthrene	189	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Pyrene	300	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Dibenzofuran	ND	---	36.1	ug/kg	1	10/05/24 00:39	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 85 %		Limits: 44-120 %	1	10/05/24 00:39	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		73 %		54-127 %	1	10/05/24 00:39	EPA 8270E SIM	
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	295	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Acenaphthylene	ND	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Anthracene	406	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Benz(a)anthracene	208	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 21 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid		Batch: 24J0210		
Benzo(a)pyrene	144	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	M-05
Benzo(b)fluoranthene	268	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Benzo(k)fluoranthene	74.2	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Benzo(g,h,i)perylene	65.0	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Chrysene	280	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Fluoranthene	1090	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Fluorene	231	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	82.3	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
1-Methylnaphthalene	74.8	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
2-Methylnaphthalene	64.2	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	M-05
Naphthalene	ND	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Phenanthrene	1790	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Pyrene	1100	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Dibenzofuran	52.5	---	37.0	ug/kg	1	10/05/24 01:04	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 90 %		Limits: 44-120 %	1	10/05/24 01:04	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		74 %		54-127 %	1	10/05/24 01:04	EPA 8270E SIM	
BH-TR2-2_0-0.5-20241002 (A4J1024-12)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	M-05
Acenaphthylene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Anthracene	76.8	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Benz(a)anthracene	108	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Benzo(a)pyrene	116	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Benzo(b)fluoranthene	191	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Benzo(k)fluoranthene	61.8	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Benzo(g,h,i)perylene	93.5	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Chrysene	142	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Fluoranthene	255	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	M-05
Fluorene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	96.0	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-2_0-0.5-20241002 (A4J1024-12)				Matrix: Solid		Batch: 24J0210		
2-Methylnaphthalene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Naphthalene	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Phenanthrene	92.6	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Pyrene	256	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Dibenzofuran	ND	---	49.0	ug/kg	1	10/05/24 01:29	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 93 %		Limits: 44-120 %	1	10/05/24 01:29	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		81 %		54-127 %	1	10/05/24 01:29	EPA 8270E SIM	
BH-TR2-3_0-0.5-20241002 (A4J1024-13)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	285	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Acenaphthylene	419	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Anthracene	892	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Benz(a)anthracene	206	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Benzo(a)pyrene	308	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Benzo(b)fluoranthene	504	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Benzo(k)fluoranthene	142	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	M-05
Benzo(g,h,i)perylene	677	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Chrysene	335	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Dibenz(a,h)anthracene	94.5	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Fluoranthene	596	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Fluorene	198	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	597	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
1-Methylnaphthalene	65.0	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
2-Methylnaphthalene	68.2	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Naphthalene	ND	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Phenanthrene	673	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Pyrene	564	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Dibenzofuran	ND	---	37.2	ug/kg	1	10/05/24 01:54	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 90 %		Limits: 44-120 %	1	10/05/24 01:54	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		76 %		54-127 %	1	10/05/24 01:54	EPA 8270E SIM	
BH-TR2-4_0-0.5-20241002 (A4J1024-14)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	176	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Acenaphthylene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-4_0-0.5-20241002 (A4J1024-14)				Matrix: Solid		Batch: 24J0210		
Anthracene	172	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Benz(a)anthracene	111	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Benzo(a)pyrene	65.9	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Benzo(b)fluoranthene	114	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Chrysene	142	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Fluoranthene	758	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Fluorene	129	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Naphthalene	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Phenanthrene	925	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Pyrene	639	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Dibenzofuran	ND	---	44.2	ug/kg	1	10/05/24 02:19	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 85 %		Limits: 44-120 %	1	10/05/24 02:19	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		69 %		54-127 %	1	10/05/24 02:19	EPA 8270E SIM	
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Acenaphthylene	185	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Anthracene	172	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Benz(a)anthracene	423	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Benzo(a)pyrene	548	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Benzo(b)fluoranthene	1170	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Benzo(k)fluoranthene	430	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	M-05
Benzo(g,h,i)perylene	762	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Chrysene	704	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Dibenz(a,h)anthracene	182	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Fluoranthene	616	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Fluorene	ND	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid		Batch: 24J0210		
Indeno(1,2,3-cd)pyrene	712	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Naphthalene	ND	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Phenanthrene	212	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Pyrene	741	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Dibenzofuran	ND	---	48.5	ug/kg	1	10/05/24 02:44	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 90 %		Limits: 44-120 %	1	10/05/24 02:44	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		75 %		54-127 %	1	10/05/24 02:44	EPA 8270E SIM	
BH-DUP1 (A4J1024-16)				Matrix: Solid		Batch: 24J0210		
Acenaphthene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Acenaphthylene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Anthracene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Benz(a)anthracene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Chrysene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Fluoranthene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Fluorene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Naphthalene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Phenanthrene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Pyrene	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Dibenzofuran	ND	---	41.5	ug/kg	1	10/04/24 19:38	EPA 8270E SIM	
Surrogate: 2-Fluorobiphenyl (Surr)		Recovery: 89 %		Limits: 44-120 %	1	10/04/24 19:38	EPA 8270E SIM	
p-Terphenyl-d14 (Surr)		78 %		54-127 %	1	10/04/24 19:38	EPA 8270E SIM	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-Rinsate-20241002 (A4J1024-17)		Matrix: Water			Batch: 24J0251			
Acenaphthene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Anthracene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Chrysene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Fluoranthene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Fluorene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0163	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0652	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0652	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Naphthalene	ND	---	0.0652	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Phenanthrene	ND	---	0.0652	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Pyrene	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0326	ug/L	1	10/07/24 18:02	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 90 %		Limits: 78-134 %	1	10/07/24 18:02	EPA 8270E LVI	
Benzo(a)pyrene-d12 (Surr)		115 %		80-132 %	1	10/07/24 18:02	EPA 8270E LVI	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-1_0-0.5-20241002 (A4J1024-01)				Matrix: Solid				
Batch: 24J0442								
Antimony	ND	---	1.03	mg/kg	10	10/10/24 20:36	EPA 6020B	
Arsenic	2.87	---	1.03	mg/kg	10	10/10/24 20:36	EPA 6020B	
Beryllium	ND	---	0.206	mg/kg	10	10/10/24 20:36	EPA 6020B	
Cadmium	0.224	---	0.206	mg/kg	10	10/10/24 20:36	EPA 6020B	
Chromium	21.1	---	1.03	mg/kg	10	10/10/24 20:36	EPA 6020B	
Copper	81.9	---	2.06	mg/kg	10	10/10/24 20:36	EPA 6020B	
Lead	33.4	---	0.206	mg/kg	10	10/10/24 20:36	EPA 6020B	
Mercury	0.108	---	0.0825	mg/kg	10	10/10/24 20:36	EPA 6020B	
Nickel	16.7	---	2.06	mg/kg	10	10/10/24 20:36	EPA 6020B	
Selenium	ND	---	1.03	mg/kg	10	10/10/24 20:36	EPA 6020B	
Silver	ND	---	0.206	mg/kg	10	10/10/24 20:36	EPA 6020B	
Thallium	ND	---	0.206	mg/kg	10	10/10/24 20:36	EPA 6020B	
Zinc	131	---	4.12	mg/kg	10	10/10/24 20:36	EPA 6020B	
BH-TRH-2_0-0.5-20241002 (A4J1024-02)				Matrix: Solid				
Batch: 24J0442								
Antimony	ND	---	1.09	mg/kg	10	10/10/24 20:42	EPA 6020B	
Arsenic	1.24	---	1.09	mg/kg	10	10/10/24 20:42	EPA 6020B	
Beryllium	ND	---	0.217	mg/kg	10	10/10/24 20:42	EPA 6020B	
Cadmium	ND	---	0.217	mg/kg	10	10/10/24 20:42	EPA 6020B	
Chromium	10.9	---	1.09	mg/kg	10	10/10/24 20:42	EPA 6020B	
Copper	30.3	---	2.17	mg/kg	10	10/10/24 20:42	EPA 6020B	
Lead	9.48	---	0.217	mg/kg	10	10/10/24 20:42	EPA 6020B	
Mercury	ND	---	0.0870	mg/kg	10	10/10/24 20:42	EPA 6020B	
Nickel	14.7	---	2.17	mg/kg	10	10/10/24 20:42	EPA 6020B	
Selenium	ND	---	1.09	mg/kg	10	10/10/24 20:42	EPA 6020B	
Silver	ND	---	0.217	mg/kg	10	10/10/24 20:42	EPA 6020B	
Thallium	ND	---	0.217	mg/kg	10	10/10/24 20:42	EPA 6020B	
Zinc	102	---	4.35	mg/kg	10	10/10/24 20:42	EPA 6020B	
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid				
Batch: 24J0442								
Antimony	ND	---	1.08	mg/kg	10	10/10/24 20:47	EPA 6020B	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-2_1-1.5-20241002 (A4J1024-03) Matrix: Solid								
Arsenic	1.69	---	1.08	mg/kg	10	10/10/24 20:47	EPA 6020B	
Beryllium	ND	---	0.217	mg/kg	10	10/10/24 20:47	EPA 6020B	
Cadmium	ND	---	0.217	mg/kg	10	10/10/24 20:47	EPA 6020B	
Chromium	10.5	---	1.08	mg/kg	10	10/10/24 20:47	EPA 6020B	
Copper	35.0	---	2.17	mg/kg	10	10/10/24 20:47	EPA 6020B	
Lead	8.83	---	0.217	mg/kg	10	10/10/24 20:47	EPA 6020B	
Mercury	ND	---	0.0868	mg/kg	10	10/10/24 20:47	EPA 6020B	
Nickel	12.8	---	2.17	mg/kg	10	10/10/24 20:47	EPA 6020B	
Selenium	ND	---	1.08	mg/kg	10	10/10/24 20:47	EPA 6020B	
Silver	ND	---	0.217	mg/kg	10	10/10/24 20:47	EPA 6020B	
Thallium	ND	---	0.217	mg/kg	10	10/10/24 20:47	EPA 6020B	
Zinc	266	---	4.34	mg/kg	10	10/10/24 20:47	EPA 6020B	
BH-TRH-3_0-0.5-20241002 (A4J1024-04) Matrix: Solid								
Batch: 24J0442								
Antimony	ND	---	1.00	mg/kg	10	10/10/24 20:53	EPA 6020B	
Arsenic	5.04	---	1.00	mg/kg	10	10/10/24 20:53	EPA 6020B	
Beryllium	ND	---	0.201	mg/kg	10	10/10/24 20:53	EPA 6020B	
Cadmium	ND	---	0.201	mg/kg	10	10/10/24 20:53	EPA 6020B	
Chromium	1.47	---	1.00	mg/kg	10	10/10/24 20:53	EPA 6020B	
Copper	7.19	---	2.01	mg/kg	10	10/10/24 20:53	EPA 6020B	
Lead	10.3	---	0.201	mg/kg	10	10/10/24 20:53	EPA 6020B	
Mercury	ND	---	0.0803	mg/kg	10	10/10/24 20:53	EPA 6020B	
Nickel	2.72	---	2.01	mg/kg	10	10/10/24 20:53	EPA 6020B	
Selenium	ND	---	1.00	mg/kg	10	10/10/24 20:53	EPA 6020B	
Silver	ND	---	0.201	mg/kg	10	10/10/24 20:53	EPA 6020B	
Thallium	ND	---	0.201	mg/kg	10	10/10/24 20:53	EPA 6020B	
Zinc	9.25	---	4.02	mg/kg	10	10/10/24 20:53	EPA 6020B	
BH-TRH-3_1-1.5-20241002 (A4J1024-05) Matrix: Solid								
Batch: 24J0442								
Antimony	ND	---	1.09	mg/kg	10	10/10/24 20:58	EPA 6020B	
Arsenic	2.97	---	1.09	mg/kg	10	10/10/24 20:58	EPA 6020B	
Beryllium	ND	---	0.219	mg/kg	10	10/10/24 20:58	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-3_1-1.5-20241002 (A4J1024-05) Matrix: Solid								
Cadmium	ND	---	0.219	mg/kg	10	10/10/24 20:58	EPA 6020B	
Chromium	2.49	---	1.09	mg/kg	10	10/10/24 20:58	EPA 6020B	
Copper	10.5	---	2.19	mg/kg	10	10/10/24 20:58	EPA 6020B	
Lead	219	---	0.219	mg/kg	10	10/10/24 20:58	EPA 6020B	
Mercury	ND	---	0.0875	mg/kg	10	10/10/24 20:58	EPA 6020B	
Nickel	ND	---	2.19	mg/kg	10	10/10/24 20:58	EPA 6020B	
Selenium	ND	---	1.09	mg/kg	10	10/10/24 20:58	EPA 6020B	
Silver	ND	---	0.219	mg/kg	10	10/10/24 20:58	EPA 6020B	
Thallium	ND	---	0.219	mg/kg	10	10/10/24 20:58	EPA 6020B	
Zinc	384	---	4.38	mg/kg	10	10/10/24 20:58	EPA 6020B	
BH-TR1-1_0-0.5-20241002 (A4J1024-06) Matrix: Solid								
Batch: 24J0442								
Antimony	ND	---	1.05	mg/kg	10	10/10/24 21:03	EPA 6020B	
Arsenic	4.77	---	1.05	mg/kg	10	10/10/24 21:03	EPA 6020B	
Beryllium	0.293	---	0.210	mg/kg	10	10/10/24 21:03	EPA 6020B	
Cadmium	0.668	---	0.210	mg/kg	10	10/10/24 21:03	EPA 6020B	
Chromium	37.8	---	1.05	mg/kg	10	10/10/24 21:03	EPA 6020B	
Copper	279	---	2.10	mg/kg	10	10/10/24 21:03	EPA 6020B	
Lead	29.4	---	0.210	mg/kg	10	10/10/24 21:03	EPA 6020B	
Mercury	0.363	---	0.0839	mg/kg	10	10/10/24 21:03	EPA 6020B	
Nickel	46.1	---	2.10	mg/kg	10	10/10/24 21:03	EPA 6020B	
Selenium	ND	---	1.05	mg/kg	10	10/10/24 21:03	EPA 6020B	
Silver	ND	---	0.210	mg/kg	10	10/10/24 21:03	EPA 6020B	
Thallium	ND	---	0.210	mg/kg	10	10/10/24 21:03	EPA 6020B	
Zinc	436	---	4.19	mg/kg	10	10/10/24 21:03	EPA 6020B	
BH-TR1-2_0-0.5-20241002 (A4J1024-07) Matrix: Solid								
Batch: 24J0442								
Arsenic	3.44	---	0.965	mg/kg	10	10/10/24 21:09	EPA 6020B	
Beryllium	ND	---	0.193	mg/kg	10	10/10/24 21:09	EPA 6020B	
Cadmium	0.716	---	0.193	mg/kg	10	10/10/24 21:09	EPA 6020B	
Chromium	22.6	---	0.965	mg/kg	10	10/10/24 21:09	EPA 6020B	
Copper	102	---	1.93	mg/kg	10	10/10/24 21:09	EPA 6020B	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-2_0-0.5-20241002 (A4J1024-07)				Matrix: Solid				
Lead	62.4	---	0.193	mg/kg	10	10/10/24 21:09	EPA 6020B	
Mercury	0.274	---	0.0772	mg/kg	10	10/10/24 21:09	EPA 6020B	
Nickel	31.7	---	1.93	mg/kg	10	10/10/24 21:09	EPA 6020B	
Selenium	ND	---	0.965	mg/kg	10	10/10/24 21:09	EPA 6020B	
Silver	ND	---	0.193	mg/kg	10	10/10/24 21:09	EPA 6020B	
Thallium	ND	---	0.193	mg/kg	10	10/10/24 21:09	EPA 6020B	
Zinc	271	---	3.86	mg/kg	10	10/10/24 21:09	EPA 6020B	
BH-TR1-2_0-0.5-20241002 (A4J1024-07RE2)				Matrix: Solid				
Batch: 24J0442								
Antimony	1.17	---	0.965	mg/kg	10	10/13/24 01:43	EPA 6020B	
BH-TR1-3_0-0.5-20241002 (A4J1024-08)				Matrix: Solid				
Batch: 24J0442								
Antimony	ND	---	1.06	mg/kg	10	10/10/24 21:14	EPA 6020B	
Arsenic	10.6	---	1.06	mg/kg	10	10/10/24 21:14	EPA 6020B	
Beryllium	ND	---	0.212	mg/kg	10	10/10/24 21:14	EPA 6020B	
Cadmium	0.346	---	0.212	mg/kg	10	10/10/24 21:14	EPA 6020B	
Chromium	34.7	---	1.06	mg/kg	10	10/10/24 21:14	EPA 6020B	
Copper	161	---	2.12	mg/kg	10	10/10/24 21:14	EPA 6020B	
Lead	96.7	---	0.212	mg/kg	10	10/10/24 21:14	EPA 6020B	
Mercury	0.223	---	0.0847	mg/kg	10	10/10/24 21:14	EPA 6020B	
Nickel	54.3	---	2.12	mg/kg	10	10/10/24 21:14	EPA 6020B	
Selenium	ND	---	1.06	mg/kg	10	10/10/24 21:14	EPA 6020B	
Silver	ND	---	0.212	mg/kg	10	10/10/24 21:14	EPA 6020B	
Thallium	ND	---	0.212	mg/kg	10	10/10/24 21:14	EPA 6020B	
Zinc	180	---	4.24	mg/kg	10	10/10/24 21:14	EPA 6020B	
BH-TR1-3_1-1.5-20241002 (A4J1024-09)				Matrix: Solid				
Batch: 24J0442								
Arsenic	5.75	---	1.05	mg/kg	10	10/10/24 21:19	EPA 6020B	
Beryllium	ND	---	0.211	mg/kg	10	10/10/24 21:19	EPA 6020B	
Cadmium	0.305	---	0.211	mg/kg	10	10/10/24 21:19	EPA 6020B	
Chromium	28.8	---	1.05	mg/kg	10	10/10/24 21:19	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR1-3_1-1.5-20241002 (A4J1024-09) Matrix: Solid								
Copper	65.1	---	2.11	mg/kg	10	10/10/24 21:19	EPA 6020B	
Lead	71.0	---	0.211	mg/kg	10	10/10/24 21:19	EPA 6020B	
Mercury	0.221	---	0.0844	mg/kg	10	10/10/24 21:19	EPA 6020B	
Nickel	35.6	---	2.11	mg/kg	10	10/10/24 21:19	EPA 6020B	
Selenium	ND	---	1.05	mg/kg	10	10/10/24 21:19	EPA 6020B	
Silver	ND	---	0.211	mg/kg	10	10/10/24 21:19	EPA 6020B	
Thallium	ND	---	0.211	mg/kg	10	10/10/24 21:19	EPA 6020B	
Zinc	130	---	4.22	mg/kg	10	10/10/24 21:19	EPA 6020B	
BH-TR1-3_1-1.5-20241002 (A4J1024-09RE1) Matrix: Solid								
Batch: 24J0442								
Antimony	ND	---	1.05	mg/kg	10	10/11/24 15:04	EPA 6020B	
BH-TR1-4_0-0.5-20241002 (A4J1024-10) Matrix: Solid								
Batch: 24J0442								
Arsenic	6.98	---	1.03	mg/kg	10	10/10/24 21:35	EPA 6020B	
Beryllium	ND	---	0.207	mg/kg	10	10/10/24 21:35	EPA 6020B	
Cadmium	1.64	---	0.207	mg/kg	10	10/10/24 21:35	EPA 6020B	
Chromium	17.0	---	1.03	mg/kg	10	10/10/24 21:35	EPA 6020B	
Copper	83.5	---	2.07	mg/kg	10	10/10/24 21:35	EPA 6020B	
Lead	77.1	---	0.207	mg/kg	10	10/10/24 21:35	EPA 6020B	
Mercury	0.0961	---	0.0826	mg/kg	10	10/10/24 21:35	EPA 6020B	
Nickel	41.9	---	2.07	mg/kg	10	10/10/24 21:35	EPA 6020B	
Selenium	ND	---	1.03	mg/kg	10	10/10/24 21:35	EPA 6020B	
Thallium	ND	---	0.207	mg/kg	10	10/10/24 21:35	EPA 6020B	
BH-TR1-4_0-0.5-20241002 (A4J1024-10RE1) Matrix: Solid								
Batch: 24J0442								
Silver	0.551	---	0.207	mg/kg	10	10/11/24 15:22	EPA 6020B	
Zinc	1220	---	4.13	mg/kg	10	10/11/24 15:22	EPA 6020B	
BH-TR1-4_0-0.5-20241002 (A4J1024-10RE3) Matrix: Solid								
Batch: 24J0442								
Antimony	3.00	---	1.03	mg/kg	10	10/13/24 01:48	EPA 6020B	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-1_0-0.5-20241002 (A4J1024-11) Matrix: Solid								
Batch: 24J0442								
Antimony	ND	---	1.08	mg/kg	10	10/10/24 21:41	EPA 6020B	
Arsenic	3.97	---	1.08	mg/kg	10	10/10/24 21:41	EPA 6020B	
Beryllium	ND	---	0.216	mg/kg	10	10/10/24 21:41	EPA 6020B	
Cadmium	0.235	---	0.216	mg/kg	10	10/10/24 21:41	EPA 6020B	
Chromium	18.4	---	1.08	mg/kg	10	10/10/24 21:41	EPA 6020B	
Copper	68.2	---	2.16	mg/kg	10	10/10/24 21:41	EPA 6020B	
Lead	331	---	0.216	mg/kg	10	10/10/24 21:41	EPA 6020B	
Mercury	0.211	---	0.0862	mg/kg	10	10/10/24 21:41	EPA 6020B	
Nickel	20.4	---	2.16	mg/kg	10	10/10/24 21:41	EPA 6020B	
Selenium	ND	---	1.08	mg/kg	10	10/10/24 21:41	EPA 6020B	
Silver	ND	---	0.216	mg/kg	10	10/10/24 21:41	EPA 6020B	
Thallium	ND	---	0.216	mg/kg	10	10/10/24 21:41	EPA 6020B	
Zinc	212	---	4.31	mg/kg	10	10/10/24 21:41	EPA 6020B	
BH-TR2-2_0-0.5-20241002 (A4J1024-12) Matrix: Solid								
Batch: 24J0442								
Lead	170	---	0.206	mg/kg	10	10/10/24 21:46	EPA 6020B	
BH-TR2-3_0-0.5-20241002 (A4J1024-13) Matrix: Solid								
Batch: 24J0442								
Lead	47.0	---	0.217	mg/kg	10	10/10/24 21:52	EPA 6020B	
BH-TR2-4_0-0.5-20241002 (A4J1024-14) Matrix: Solid								
Batch: 24J0442								
Antimony	ND	---	1.02	mg/kg	10	10/10/24 21:57	EPA 6020B	
Arsenic	4.35	---	1.02	mg/kg	10	10/10/24 21:57	EPA 6020B	
Beryllium	ND	---	0.204	mg/kg	10	10/10/24 21:57	EPA 6020B	
Cadmium	0.378	---	0.204	mg/kg	10	10/10/24 21:57	EPA 6020B	
Chromium	19.8	---	1.02	mg/kg	10	10/10/24 21:57	EPA 6020B	
Copper	96.8	---	2.04	mg/kg	10	10/10/24 21:57	EPA 6020B	
Lead	54.5	---	0.204	mg/kg	10	10/10/24 21:57	EPA 6020B	
Mercury	0.250	---	0.0816	mg/kg	10	10/10/24 21:57	EPA 6020B	
Nickel	46.0	---	2.04	mg/kg	10	10/10/24 21:57	EPA 6020B	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-4_0-0.5-20241002 (A4J1024-14) Matrix: Solid								
Selenium	ND	---	1.02	mg/kg	10	10/10/24 21:57	EPA 6020B	
Silver	ND	---	0.204	mg/kg	10	10/10/24 21:57	EPA 6020B	
Thallium	ND	---	0.204	mg/kg	10	10/10/24 21:57	EPA 6020B	
Zinc	165	---	4.08	mg/kg	10	10/10/24 21:57	EPA 6020B	
BH-TR2-6_0-0.5-20241002 (A4J1024-15) Matrix: Solid								
Batch: 24J0442								
Arsenic	9.01	---	1.02	mg/kg	10	10/10/24 22:02	EPA 6020B	
Beryllium	ND	---	0.204	mg/kg	10	10/10/24 22:02	EPA 6020B	
Cadmium	2.45	---	0.204	mg/kg	10	10/10/24 22:02	EPA 6020B	
Chromium	53.7	---	1.02	mg/kg	10	10/10/24 22:02	EPA 6020B	
Copper	337	---	2.04	mg/kg	10	10/10/24 22:02	EPA 6020B	
Mercury	1.54	---	0.0815	mg/kg	10	10/10/24 22:02	EPA 6020B	
Nickel	48.7	---	2.04	mg/kg	10	10/10/24 22:02	EPA 6020B	
Selenium	ND	---	1.02	mg/kg	10	10/10/24 22:02	EPA 6020B	
Thallium	ND	---	0.204	mg/kg	10	10/10/24 22:02	EPA 6020B	
BH-TR2-6_0-0.5-20241002 (A4J1024-15RE1) Matrix: Solid								
Batch: 24J0442								
Silver	1.29	---	0.204	mg/kg	10	10/11/24 15:09	EPA 6020B	
Zinc	2260	---	4.07	mg/kg	10	10/11/24 15:09	EPA 6020B	
BH-TR2-6_0-0.5-20241002 (A4J1024-15RE2) Matrix: Solid								
Batch: 24J0442								
Lead	529	---	2.04	mg/kg	100	10/11/24 14:48	EPA 6020B	
BH-TR2-6_0-0.5-20241002 (A4J1024-15RE3) Matrix: Solid								
Batch: 24J0442								
Antimony	2.71	---	1.02	mg/kg	10	10/13/24 01:53	EPA 6020B	
BH-DUP1 (A4J1024-16) Matrix: Solid								
Batch: 24J0513								
Antimony	ND	---	1.06	mg/kg	10	10/12/24 18:37	EPA 6020B	
Arsenic	4.03	---	1.06	mg/kg	10	10/12/24 18:37	EPA 6020B	
Beryllium	0.329	---	0.212	mg/kg	10	10/12/24 18:37	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DUP1 (A4J1024-16)			Matrix: Solid					
Cadmium	0.655	---	0.212	mg/kg	10	10/12/24 18:37	EPA 6020B	Q-42
Chromium	37.7	---	1.06	mg/kg	10	10/12/24 18:37	EPA 6020B	
Copper	187	---	2.12	mg/kg	10	10/12/24 18:37	EPA 6020B	
Lead	21.2	---	0.212	mg/kg	10	10/12/24 18:37	EPA 6020B	
Nickel	47.3	---	4.24	mg/kg	10	10/12/24 18:37	EPA 6020B	
Selenium	ND	---	1.06	mg/kg	10	10/12/24 18:37	EPA 6020B	
Silver	ND	---	0.212	mg/kg	10	10/12/24 18:37	EPA 6020B	
Thallium	ND	---	0.212	mg/kg	10	10/12/24 18:37	EPA 6020B	
Zinc	354	---	4.24	mg/kg	10	10/12/24 18:37	EPA 6020B	
BH-DUP1 (A4J1024-16RE1)			Matrix: Solid					
Batch: 24J0513								
Mercury	0.259	---	0.0847	mg/kg	10	10/14/24 15:23	EPA 6020B	
BH-Rinsate-20241002 (A4J1024-17)			Matrix: Water					
Batch: 24K0065								
Lead	0.210	---	0.200	ug/L	1	11/04/24 23:14	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid				
Batch: 24J1231								
Lead	ND	---	0.0500	mg/L	10	11/01/24 23:14	1311/6020B	
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid				
Batch: 24J1231								
Lead	ND	---	0.0500	mg/L	10	11/01/24 23:25	1311/6020B	
BH-TR2-2_0-0.5-20241002 (A4J1024-12)				Matrix: Solid				
Batch: 24J1231								
Lead	0.111	---	0.0500	mg/L	10	11/01/24 23:36	1311/6020B	
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid				
Batch: 24J1231								
Lead	ND	---	0.0500	mg/L	10	11/01/24 23:52	1311/6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper**Report ID:**
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-1_0-0.5-20241002 (A4J1024-01)				Matrix: Solid		Batch: 24J0181		
% Solids	55.8	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TRH-2_0-0.5-20241002 (A4J1024-02)				Matrix: Solid		Batch: 24J0181		
% Solids	63.4	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TRH-2_1-1.5-20241002 (A4J1024-03)				Matrix: Solid		Batch: 24J0181		
% Solids	62.0	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TRH-3_0-0.5-20241002 (A4J1024-04)				Matrix: Solid		Batch: 24J0181		
% Solids	15.9	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid		Batch: 24J0181		
% Solids	24.6	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR1-1_0-0.5-20241002 (A4J1024-06)				Matrix: Solid		Batch: 24J0181		
% Solids	90.0	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR1-2_0-0.5-20241002 (A4J1024-07)				Matrix: Solid		Batch: 24J0181		
% Solids	49.6	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR1-3_0-0.5-20241002 (A4J1024-08)				Matrix: Solid		Batch: 24J0181		
% Solids	60.5	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR1-3_1-1.5-20241002 (A4J1024-09)				Matrix: Solid		Batch: 24J0181		
% Solids	39.5	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR1-4_0-0.5-20241002 (A4J1024-10)				Matrix: Solid		Batch: 24J0181		
% Solids	44.2	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid		Batch: 24J0181		
% Solids	48.3	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR2-2_0-0.5-20241002 (A4J1024-12)				Matrix: Solid		Batch: 24J0181		
% Solids	73.7	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR2-3_0-0.5-20241002 (A4J1024-13)				Matrix: Solid		Batch: 24J0181		

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TR2-3_0-0.5-20241002 (A4J1024-13)				Matrix: Solid		Batch: 24J0181		
% Solids	70.6	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR2-4_0-0.5-20241002 (A4J1024-14)				Matrix: Solid		Batch: 24J0181		
% Solids	60.3	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid		Batch: 24J0181		
% Solids	74.3	---	1.00	%	1	10/07/24 05:57	EPA 8000D	
BH-DUP1 (A4J1024-16)				Matrix: Solid		Batch: 24J0181		
% Solids	89.7	---	1.00	%	1	10/07/24 05:57	EPA 8000D	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1024 - 11 05 24 1544

ANALYTICAL SAMPLE RESULTS

TCLP Extraction by EPA 1311

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-TRH-3_1-1.5-20241002 (A4J1024-05)				Matrix: Solid		Batch: 24J1164		
TCLP Extraction	PREP	---		N/A	1	10/30/24 16:10	EPA 1311	
BH-TR2-1_0-0.5-20241002 (A4J1024-11)				Matrix: Solid		Batch: 24J1164		
TCLP Extraction	PREP	---		N/A	1	10/30/24 16:10	EPA 1311	
BH-TR2-2_0-0.5-20241002 (A4J1024-12)				Matrix: Solid		Batch: 24J1164		
TCLP Extraction	PREP	---		N/A	1	10/30/24 16:10	EPA 1311	
BH-TR2-6_0-0.5-20241002 (A4J1024-15)				Matrix: Solid		Batch: 24J1164		
TCLP Extraction	PREP	---		N/A	1	10/30/24 16:10	EPA 1311	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0195 - EPA 3546 (Fuels)						Solid						
Blank (24J0195-BLK1)			Prepared: 10/04/24 10:44		Analyzed: 10/04/24 21:02							
NWTPH-HCID												
Gasoline Range Organics	ND	---	20.0	mg/kg	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	50.0	mg/kg	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	100	mg/kg	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 92 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		92 %		50-150 %		"						
Duplicate (24J0195-DUP1)			Prepared: 10/04/24 10:44		Analyzed: 10/04/24 22:13							
QC Source Sample: BH-TRH-1 0-0.5-20241002 (A4J1024-01)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	19.7	mg/kg	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	49.3	mg/kg	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	98.5	mg/kg	1	---	ND	---	---	---	30%	Q-05
Surr: o-Terphenyl (Surr)		Recovery: 86 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		82 %		50-150 %		"						
Duplicate (24J0195-DUP2)			Prepared: 10/04/24 10:44		Analyzed: 10/05/24 01:45							
QC Source Sample: BH-DUP1 (A4J1024-16)												
Gasoline Range Organics	ND	---	19.0	mg/kg	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	47.4	mg/kg	1	---	ND	---	---	---	30%	
Oil Range Organics	DET	---	94.8	mg/kg	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)		Recovery: 90 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		90 %		50-150 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0545 - EPA 3546 (Fuels)						Solid						
Blank (24J0545-BLK1)			Prepared: 10/14/24 09:47		Analyzed: 10/14/24 19:43							
NWTPH-Dx												
Diesel	ND	---	100	mg/kg	1	---	---	---	---	---	---	
Oil	ND	---	200	mg/kg	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 78 %		Limits: 50-150 %		Dilution: 1x						
LCS (24J0545-BS1)			Prepared: 10/14/24 09:47		Analyzed: 10/14/24 20:03							
NWTPH-Dx												
Diesel	536	---	100	mg/kg	1	625	---	86	38-132%	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 81 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (24J0545-DUP1)			Prepared: 10/14/24 09:47		Analyzed: 10/14/24 20:45							
QC Source Sample: BH-TRH-1 0-0.5-20241002 (A4J1024-01)												
NWTPH-Dx												
Diesel	ND	---	74.9	mg/kg	1	---	ND	---	---	---	30%	
Oil	658	---	150	mg/kg	1	---	424	---	---	43	30%	Q-05
Surr: o-Terphenyl (Surr)		Recovery: 82 %		Limits: 50-150 %		Dilution: 1x						
Duplicate (24J0545-DUP2)			Prepared: 10/14/24 09:47		Analyzed: 10/14/24 23:51							
QC Source Sample: BH-DUP1 (A4J1024-16)												
Diesel	ND	---	91.3	mg/kg	1	---	ND	---	---	---	30%	
Oil	329	---	183	mg/kg	1	---	377	---	---	14	30%	
Surr: o-Terphenyl (Surr)		Recovery: 94 %		Limits: 50-150 %		Dilution: 1x						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24J0995 - EPA 3510C (Fuels/Acid Ext.)						Water							
Blank (24J0995-BLK1)			Prepared: 10/25/24 07:04		Analyzed: 10/25/24 20:10								
NWTPH-Dx													
Diesel	ND	---	0.0800	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.160	mg/L	1	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 93 %		Limits: 50-150 %		Dilution: 1x							
LCS (24J0995-BS1)			Prepared: 10/25/24 07:04		Analyzed: 10/25/24 20:31								
NWTPH-Dx													
Diesel	0.447	---	0.0800	mg/L	1	0.500	---	89	36-132%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 101 %		Limits: 50-150 %		Dilution: 1x							
LCS Dup (24J0995-BSD1)			Prepared: 10/25/24 07:04		Analyzed: 10/25/24 20:53								Q-19
NWTPH-Dx													
Diesel	0.424	---	0.0800	mg/L	1	0.500	---	85	36-132%	5	30%		
Surr: o-Terphenyl (Surr)		Recovery: 99 %		Limits: 50-150 %		Dilution: 1x							

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0186 - EPA 3546						Solid						
Blank (24J0186-BLK1)			Prepared: 10/04/24 09:15 Analyzed: 10/07/24 18:04						C-07			
EPA 8082A												
Aroclor 1016	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 99 %		Limits: 60-125 %		Dilution: 1x						
LCS (24J0186-BS1)			Prepared: 10/04/24 09:15 Analyzed: 10/07/24 18:21						C-07			
EPA 8082A												
Aroclor 1016	1120	---	50.0	ug/kg	1	1250	---	90	47-134%	---	---	
Aroclor 1260	1300	---	50.0	ug/kg	1	1250	---	104	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 108 %		Limits: 60-125 %		Dilution: 1x						
Duplicate (24J0186-DUP1)			Prepared: 10/04/24 09:15 Analyzed: 10/07/24 19:32						C-07			
QC Source Sample: BH-TRH-1 0-0.5-20241002 (A4J1024-01)												
EPA 8082A												
Aroclor 1016	ND	---	69.7	ug/kg	2	---	ND	---	---	---	30%	
Aroclor 1221	ND	---	69.7	ug/kg	2	---	ND	---	---	---	30%	
Aroclor 1232	ND	---	69.7	ug/kg	2	---	ND	---	---	---	30%	
Aroclor 1242	ND	---	69.7	ug/kg	2	---	ND	---	---	---	30%	
Aroclor 1248	ND	---	69.7	ug/kg	2	---	ND	---	---	---	30%	
Aroclor 1254	137	---	69.7	ug/kg	2	---	ND	---	---	---	30%	Q-05
Aroclor 1260	ND	---	69.7	ug/kg	2	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr)		Recovery: 104 %		Limits: 60-125 %		Dilution: 2x						
Matrix Spike (24J0186-MS1)			Prepared: 10/04/24 09:15 Analyzed: 10/08/24 01:58						C-07			
QC Source Sample: BH-DUP1 (A4J1024-16)												
Aroclor 1016	994	---	89.3	ug/kg	2	1120	ND	89	47-134%	---	---	
Aroclor 1260	1140	---	89.3	ug/kg	2	1120	ND	102	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 105 %		Limits: 60-125 %		Dilution: 2x						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0186 - EPA 3546							Solid					

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0210 - EPA 3546						Solid						
Blank (24J0210-BLK1)			Prepared: 10/04/24 12:15 Analyzed: 10/04/24 17:58									
EPA 8270E SIM												
Acenaphthene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Anthracene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Chrysene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Fluoranthene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Fluorene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Naphthalene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Phenanthrene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Pyrene	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	50.0	ug/kg	1	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 89 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		80 %		54-127 %		"						

LCS (24J0210-BS1)

Prepared: 10/04/24 12:15 Analyzed: 10/04/24 18:23

EPA 8270E SIM												
Acenaphthene	3750	---	50.0	ug/kg	1	4000	---	94	40-123%	---	---	
Acenaphthylene	3500	---	50.0	ug/kg	1	4000	---	87	32-132%	---	---	
Anthracene	3670	---	50.0	ug/kg	1	4000	---	92	47-123%	---	---	
Benz(a)anthracene	3550	---	50.0	ug/kg	1	4000	---	89	49-126%	---	---	
Benzo(a)pyrene	3720	---	50.0	ug/kg	1	4000	---	93	45-129%	---	---	
Benzo(b)fluoranthene	3530	---	50.0	ug/kg	1	4000	---	88	45-132%	---	---	
Benzo(k)fluoranthene	3770	---	50.0	ug/kg	1	4000	---	94	47-132%	---	---	
Benzo(g,h,i)perylene	3220	---	50.0	ug/kg	1	4000	---	81	43-134%	---	---	
Chrysene	3840	---	50.0	ug/kg	1	4000	---	96	50-124%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper**

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0210 - EPA 3546						Solid						
LCS (24J0210-BS1)						Prepared: 10/04/24 12:15 Analyzed: 10/04/24 18:23						
Dibenz(a,h)anthracene	3950	---	50.0	ug/kg	1	4000	---	99	45-134%	---	---	
Fluoranthene	3910	---	50.0	ug/kg	1	4000	---	98	50-127%	---	---	
Fluorene	3530	---	50.0	ug/kg	1	4000	---	88	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	3550	---	50.0	ug/kg	1	4000	---	89	45-133%	---	---	
1-Methylnaphthalene	3530	---	50.0	ug/kg	1	4000	---	88	40-120%	---	---	
2-Methylnaphthalene	3720	---	50.0	ug/kg	1	4000	---	93	38-122%	---	---	
Naphthalene	3590	---	50.0	ug/kg	1	4000	---	90	35-123%	---	---	
Phenanthrene	3610	---	50.0	ug/kg	1	4000	---	90	50-121%	---	---	
Pyrene	3880	---	50.0	ug/kg	1	4000	---	97	47-127%	---	---	
Dibenzofuran	3610	---	50.0	ug/kg	1	4000	---	90	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr) Recovery: 88 % Limits: 44-120 % Dilution: 1x												
p-Terphenyl-d14 (Surr) 78 % 54-127 % "												

Duplicate (24J0210-DUP1)

Prepared: 10/04/24 12:15 Analyzed: 10/04/24 19:13

QC Source Sample: BH-TRH-1 0-0.5-20241002 (A4J1024-01)

EPA 8270E SIM

Acenaphthene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Anthracene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	---	36.8	ug/kg	1	---	23.1	---	---	***	30%	
Benzo(a)pyrene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	Q-05
Benzo(k)fluoranthene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Chrysene	ND	---	36.8	ug/kg	1	---	25.4	---	---	***	30%	
Dibenz(a,h)anthracene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Fluoranthene	ND	---	36.8	ug/kg	1	---	41.0	---	---	***	30%	
Fluorene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Naphthalene	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Phenanthrene	ND	---	36.8	ug/kg	1	---	21.3	---	---	***	30%	Q-05
Pyrene	40.9	---	36.8	ug/kg	1	---	49.2	---	---	18	30%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 45 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0210 - EPA 3546						Solid						
Duplicate (24J0210-DUP1)			Prepared: 10/04/24 12:15 Analyzed: 10/04/24 19:13									
QC Source Sample: BH-TRH-1 0-0.5-20241002 (A4J1024-01)												
Dibenzofuran	ND	---	36.8	ug/kg	1	---	ND	---	---	---	30%	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 83 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		73 %		54-127 %		"						
Matrix Spike (24J0210-MS1)			Prepared: 10/04/24 12:15 Analyzed: 10/04/24 20:04									
QC Source Sample: BH-DUP1 (A4J1024-16)												
Acenaphthene	3700	---	46.9	ug/kg	1	3760	ND	98	40-123%	---	---	
Acenaphthylene	3450	---	46.9	ug/kg	1	3760	ND	92	32-132%	---	---	
Anthracene	3500	---	46.9	ug/kg	1	3760	ND	93	47-123%	---	---	
Benz(a)anthracene	3440	---	46.9	ug/kg	1	3760	ND	92	49-126%	---	---	
Benzo(a)pyrene	3470	---	46.9	ug/kg	1	3760	ND	92	45-129%	---	---	
Benzo(b)fluoranthene	3250	---	46.9	ug/kg	1	3760	ND	87	45-132%	---	---	
Benzo(k)fluoranthene	3530	---	46.9	ug/kg	1	3760	ND	94	47-132%	---	---	
Benzo(g,h,i)perylene	2990	---	46.9	ug/kg	1	3760	ND	80	43-134%	---	---	
Chrysene	3620	---	46.9	ug/kg	1	3760	ND	96	50-124%	---	---	
Dibenz(a,h)anthracene	3560	---	46.9	ug/kg	1	3760	ND	95	45-134%	---	---	
Fluoranthene	3760	---	46.9	ug/kg	1	3760	31.3	99	50-127%	---	---	
Fluorene	3490	---	46.9	ug/kg	1	3760	ND	93	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	3210	---	46.9	ug/kg	1	3760	ND	86	45-133%	---	---	
1-Methylnaphthalene	3430	---	46.9	ug/kg	1	3760	ND	91	40-120%	---	---	
2-Methylnaphthalene	3610	---	46.9	ug/kg	1	3760	ND	96	38-122%	---	---	
Naphthalene	3500	---	46.9	ug/kg	1	3760	ND	93	35-123%	---	---	
Phenanthrene	3470	---	46.9	ug/kg	1	3760	30.6	92	50-121%	---	---	
Pyrene	3750	---	46.9	ug/kg	1	3760	32.1	99	47-127%	---	---	
Dibenzofuran	3520	---	46.9	ug/kg	1	3760	ND	94	44-120%	---	---	
Surr: 2-Fluorobiphenyl (Surr)		Recovery: 96 %		Limits: 44-120 %		Dilution: 1x						
p-Terphenyl-d14 (Surr)		80 %		54-127 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper**

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0251 - EPA 3511 (Bottle Extraction)						Water						
Blank (24J0251-BLK1)			Prepared: 10/07/24 10:00		Analyzed: 10/07/24 16:23							
EPA 8270E LVI												
Acenaphthene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 86 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		113 %		80-132 %		"						

LCS (24J0251-BS1)

Prepared: 10/07/24 10:00 Analyzed: 10/07/24 16:56

EPA 8270E LVI

Acenaphthene	1.75	---	0.0320	ug/L	1	1.60	---	109	80-120%	---	---
Acenaphthylene	1.70	---	0.0320	ug/L	1	1.60	---	106	80-124%	---	---
Anthracene	1.60	---	0.0320	ug/L	1	1.60	---	100	80-123%	---	---
Benz(a)anthracene	1.62	---	0.0160	ug/L	1	1.60	---	102	80-122%	---	---
Benzo(a)pyrene	1.77	---	0.0160	ug/L	1	1.60	---	111	80-129%	---	---
Benzo(b)fluoranthene	1.78	---	0.0160	ug/L	1	1.60	---	111	80-124%	---	---
Benzo(k)fluoranthene	1.74	---	0.0160	ug/L	1	1.60	---	108	80-125%	---	---
Benzo(g,h,i)perylene	1.50	---	0.0320	ug/L	1	1.60	---	94	80-120%	---	---

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0251 - EPA 3511 (Bottle Extraction)						Water						
LCS (24J0251-BS1)						Prepared: 10/07/24 10:00 Analyzed: 10/07/24 16:56						
Chrysene	1.50	---	0.0160	ug/L	1	1.60	---	94	80-120%	---	---	
Dibenz(a,h)anthracene	1.55	---	0.0160	ug/L	1	1.60	---	97	80-120%	---	---	
Fluoranthene	1.77	---	0.0320	ug/L	1	1.60	---	111	80-126%	---	---	
Fluorene	1.90	---	0.0320	ug/L	1	1.60	---	118	77-127%	---	---	
Indeno(1,2,3-cd)pyrene	1.41	---	0.0160	ug/L	1	1.60	---	88	80-121%	---	---	
1-Methylnaphthalene	1.85	---	0.0640	ug/L	1	1.60	---	115	53-148%	---	---	
2-Methylnaphthalene	1.93	---	0.0640	ug/L	1	1.60	---	121	48-150%	---	---	
Naphthalene	1.70	---	0.0640	ug/L	1	1.60	---	106	78-120%	---	---	
Phenanthrene	1.50	---	0.0640	ug/L	1	1.60	---	94	80-120%	---	---	
Pyrene	1.77	---	0.0320	ug/L	1	1.60	---	111	80-125%	---	---	
Carbazole	1.98	---	0.0320	ug/L	1	1.60	---	124	65-141%	---	---	
Dibenzofuran	1.78	---	0.0320	ug/L	1	1.60	---	111	76-121%	---	---	
Surr: Acenaphthylene-d8 (Surr)												
Recovery: 89 % Limits: 78-134 % Dilution: 1x												
Benzo(a)pyrene-d12 (Surr)												
112 % 80-132 % "												

LCS Dup (24J0251-BSD1)				Prepared: 10/07/24 10:00 Analyzed: 10/07/24 17:29								Q-19	
EPA 8270E LVI													
Acenaphthene	1.77	---	0.0320	ug/L	1	1.60	---	111	80-120%	1	30%		
Acenaphthylene	1.75	---	0.0320	ug/L	1	1.60	---	109	80-124%	3	30%		
Anthracene	1.65	---	0.0320	ug/L	1	1.60	---	103	80-123%	3	30%		
Benz(a)anthracene	1.66	---	0.0160	ug/L	1	1.60	---	104	80-122%	2	30%		
Benzo(a)pyrene	1.83	---	0.0160	ug/L	1	1.60	---	115	80-129%	3	30%		
Benzo(b)fluoranthene	1.80	---	0.0160	ug/L	1	1.60	---	112	80-124%	0.9	30%		
Benzo(k)fluoranthene	1.78	---	0.0160	ug/L	1	1.60	---	111	80-125%	2	30%		
Benzo(g,h,i)perylene	1.48	---	0.0320	ug/L	1	1.60	---	92	80-120%	1	30%		
Chrysene	1.54	---	0.0160	ug/L	1	1.60	---	96	80-120%	2	30%		
Dibenz(a,h)anthracene	1.52	---	0.0160	ug/L	1	1.60	---	95	80-120%	2	30%		
Fluoranthene	1.83	---	0.0320	ug/L	1	1.60	---	114	80-126%	3	30%		
Fluorene	1.90	---	0.0320	ug/L	1	1.60	---	119	77-127%	0.3	30%		
Indeno(1,2,3-cd)pyrene	1.43	---	0.0160	ug/L	1	1.60	---	89	80-121%	1	30%		
1-Methylnaphthalene	1.83	---	0.0640	ug/L	1	1.60	---	114	53-148%	1	30%		
2-Methylnaphthalene	1.87	---	0.0640	ug/L	1	1.60	---	117	48-150%	3	30%		
Naphthalene	1.75	---	0.0640	ug/L	1	1.60	---	109	78-120%	3	30%		
Phenanthrene	1.49	---	0.0640	ug/L	1	1.60	---	93	80-120%	0.5	30%		

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 48 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0251 - EPA 3511 (Bottle Extraction)						Water						
LCS Dup (24J0251-BSD1)			Prepared: 10/07/24 10:00 Analyzed: 10/07/24 17:29						Q-19			
Pyrene	1.78	---	0.0320	ug/L	1	1.60	---	111	80-125%	0.2	30%	
Carbazole	2.04	---	0.0320	ug/L	1	1.60	---	127	65-141%	3	30%	
Dibenzofuran	1.79	---	0.0320	ug/L	1	1.60	---	112	76-121%	0.8	30%	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 90 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		115 %		80-132 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0442 - EPA 3051A						Solid						
Blank (24J0442-BLK1)			Prepared: 10/10/24 12:34 Analyzed: 10/10/24 19:43									
EPA 6020B												
Antimony	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Arsenic	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Beryllium	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Cadmium	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Copper	ND	---	2.00	mg/kg	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Mercury	ND	---	0.0800	mg/kg	10	---	---	---	---	---	---	
Nickel	ND	---	2.00	mg/kg	10	---	---	---	---	---	---	
Selenium	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Silver	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Thallium	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Zinc	ND	---	4.00	mg/kg	10	---	---	---	---	---	---	
LCS (24J0442-BS1)												
Prepared: 10/10/24 12:34 Analyzed: 10/10/24 19:48												
EPA 6020B												
Antimony	26.9	---	1.00	mg/kg	10	25.0	---	108	80-120%	---	---	Q-41
Arsenic	50.5	---	1.00	mg/kg	10	50.0	---	101	80-120%	---	---	
Beryllium	24.7	---	0.200	mg/kg	10	25.0	---	99	80-120%	---	---	
Cadmium	51.2	---	0.200	mg/kg	10	50.0	---	102	80-120%	---	---	
Chromium	49.7	---	1.00	mg/kg	10	50.0	---	99	80-120%	---	---	
Copper	53.1	---	2.00	mg/kg	10	50.0	---	106	80-120%	---	---	
Lead	53.1	---	0.200	mg/kg	10	50.0	---	106	80-120%	---	---	
Mercury	1.03	---	0.0800	mg/kg	10	1.00	---	103	80-120%	---	---	
Nickel	53.4	---	2.00	mg/kg	10	50.0	---	107	80-120%	---	---	
Selenium	25.9	---	1.00	mg/kg	10	25.0	---	104	80-120%	---	---	
Silver	27.6	---	0.200	mg/kg	10	25.0	---	110	80-120%	---	---	
Thallium	26.0	---	0.200	mg/kg	10	25.0	---	104	80-120%	---	---	
Zinc	51.1	---	4.00	mg/kg	10	50.0	---	102	80-120%	---	---	
Duplicate (24J0442-DUP1)												
Prepared: 10/10/24 12:34 Analyzed: 10/10/24 19:59												
QC Source Sample: Non-SDG (A4I1644-04)												
Antimony	ND	---	1.05	mg/kg	10	---	ND	---	---	---	20%	PRO

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 50 of 70



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0442 - EPA 3051A							Solid					
Duplicate (24J0442-DUP1)			Prepared: 10/10/24 12:34		Analyzed: 10/10/24 19:59							
QC Source Sample: Non-SDG (A411644-04)												
Arsenic	ND	---	1.05	mg/kg	10	---	ND	---	---	---	20%	PRO
Beryllium	ND	---	0.210	mg/kg	10	---	ND	---	---	---	20%	PRO
Cadmium	ND	---	0.210	mg/kg	10	---	ND	---	---	---	20%	PRO
Chromium	ND	---	1.05	mg/kg	10	---	ND	---	---	---	20%	PRO
Copper	ND	---	2.10	mg/kg	10	---	1.49	---	---	***	20%	PRO
Lead	ND	---	0.210	mg/kg	10	---	0.112	---	---	***	20%	PRO
Mercury	ND	---	0.0840	mg/kg	10	---	ND	---	---	---	20%	PRO
Nickel	ND	---	2.10	mg/kg	10	---	ND	---	---	---	20%	PRO
Selenium	ND	---	1.05	mg/kg	10	---	ND	---	---	---	20%	PRO
Silver	ND	---	0.210	mg/kg	10	---	ND	---	---	---	20%	PRO
Thallium	ND	---	0.210	mg/kg	10	---	ND	---	---	---	20%	PRO
Zinc	7.97	---	4.20	mg/kg	10	---	8.81	---	---	10	20%	PRO

Matrix Spike (24J0442-MS1)

Prepared: 10/10/24 12:34 Analyzed: 10/10/24 20:04

QC Source Sample: Non-SDG (A4I1644-04)												
EPA 6020B												
Antimony	27.8	---	1.07	mg/kg	10	26.8	ND	104	75-125%	---	---	PRO,Q-41
Arsenic	53.2	---	1.07	mg/kg	10	53.5	ND	99	75-125%	---	---	PRO
Beryllium	25.0	---	0.214	mg/kg	10	26.8	ND	93	75-125%	---	---	PRO
Cadmium	53.1	---	0.214	mg/kg	10	53.5	ND	99	75-125%	---	---	PRO
Chromium	51.4	---	1.07	mg/kg	10	53.5	ND	96	75-125%	---	---	PRO
Copper	57.6	---	2.14	mg/kg	10	53.5	1.49	105	75-125%	---	---	PRO
Lead	54.2	---	0.214	mg/kg	10	53.5	0.112	101	75-125%	---	---	PRO
Mercury	1.03	---	0.0857	mg/kg	10	1.07	ND	96	75-125%	---	---	PRO
Nickel	54.5	---	2.14	mg/kg	10	53.5	ND	102	75-125%	---	---	PRO
Selenium	26.9	---	1.07	mg/kg	10	26.8	ND	101	75-125%	---	---	PRO
Silver	28.4	---	0.214	mg/kg	10	26.8	ND	106	75-125%	---	---	PRO
Thallium	26.3	---	0.214	mg/kg	10	26.8	ND	98	75-125%	---	---	PRO
Zinc	61.2	---	4.28	mg/kg	10	53.5	8.81	98	75-125%	---	---	PRO

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0513 - EPA 3051A Solid												
Blank (24J0513-BLK1) Prepared: 10/11/24 16:35 Analyzed: 10/12/24 18:26												
EPA 6020B												
Antimony	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Arsenic	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Beryllium	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Cadmium	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Copper	ND	---	2.00	mg/kg	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Nickel	ND	---	4.00	mg/kg	10	---	---	---	---	---	---	
Selenium	ND	---	1.00	mg/kg	10	---	---	---	---	---	---	
Silver	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Thallium	ND	---	0.200	mg/kg	10	---	---	---	---	---	---	
Zinc	ND	---	4.00	mg/kg	10	---	---	---	---	---	---	
Blank (24J0513-BLK2) Prepared: 10/11/24 16:35 Analyzed: 10/14/24 15:13												
EPA 6020B												
Mercury	ND	---	0.0800	mg/kg	10	---	---	---	---	---	---	Q-16
LCS (24J0513-BS1) Prepared: 10/11/24 16:35 Analyzed: 10/12/24 18:31												
EPA 6020B												
Antimony	24.3	---	1.00	mg/kg	10	25.0	---	97	80-120%	---	---	
Arsenic	47.1	---	1.00	mg/kg	10	50.0	---	94	80-120%	---	---	
Beryllium	23.4	---	0.200	mg/kg	10	25.0	---	94	80-120%	---	---	
Cadmium	47.3	---	0.200	mg/kg	10	50.0	---	95	80-120%	---	---	
Chromium	46.7	---	1.00	mg/kg	10	50.0	---	93	80-120%	---	---	
Copper	48.2	---	2.00	mg/kg	10	50.0	---	96	80-120%	---	---	
Lead	47.7	---	0.200	mg/kg	10	50.0	---	95	80-120%	---	---	
Nickel	48.8	---	4.00	mg/kg	10	50.0	---	98	80-120%	---	---	
Selenium	23.8	---	1.00	mg/kg	10	25.0	---	95	80-120%	---	---	
Silver	25.3	---	0.200	mg/kg	10	25.0	---	101	80-120%	---	---	
Thallium	23.2	---	0.200	mg/kg	10	25.0	---	93	80-120%	---	---	
Zinc	48.8	---	4.00	mg/kg	10	50.0	---	98	80-120%	---	---	
LCS (24J0513-BS2) Prepared: 10/11/24 16:35 Analyzed: 10/14/24 15:18												

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0513 - EPA 3051A												
Solid												
LCS (24J0513-BS2)												
Prepared: 10/11/24 16:35 Analyzed: 10/14/24 15:18												
EPA 6020B												
Mercury	1.02	---	0.0800	mg/kg	10	1.00	---	102	80-120%	---	---	Q-16
Duplicate (24J0513-DUP1)												
Prepared: 10/11/24 16:35 Analyzed: 10/12/24 18:42												
QC Source Sample: BH-DUP1 (A4J1024-16)												
Antimony	ND	---	1.06	mg/kg	10	---	ND	---	---	---	20%	
Arsenic	4.23	---	1.06	mg/kg	10	---	4.03	---	---	5	20%	
Beryllium	0.333	---	0.212	mg/kg	10	---	0.329	---	---	1	20%	
Cadmium	0.549	---	0.212	mg/kg	10	---	0.655	---	---	18	20%	
Chromium	35.6	---	1.06	mg/kg	10	---	37.7	---	---	6	20%	
Copper	213	---	2.12	mg/kg	10	---	187	---	---	13	20%	
Lead	22.1	---	0.212	mg/kg	10	---	21.2	---	---	4	20%	
Nickel	44.2	---	4.24	mg/kg	10	---	47.3	---	---	7	20%	
Selenium	ND	---	1.06	mg/kg	10	---	ND	---	---	---	20%	
Silver	ND	---	0.212	mg/kg	10	---	ND	---	---	---	20%	
Thallium	ND	---	0.212	mg/kg	10	---	ND	---	---	---	20%	
Zinc	375	---	4.24	mg/kg	10	---	354	---	---	6	20%	
Duplicate (24J0513-DUP2)												
Prepared: 10/11/24 16:35 Analyzed: 10/14/24 15:40												
QC Source Sample: BH-DUP1 (A4J1024-16RE1)												
Mercury	0.297	---	0.0847	mg/kg	10	---	0.259	---	---	13	20%	Q-16
Matrix Spike (24J0513-MS1)												
Prepared: 10/11/24 16:35 Analyzed: 10/12/24 18:47												
QC Source Sample: BH-DUP1 (A4J1024-16)												
Antimony	22.5	---	1.02	mg/kg	10	25.6	ND	88	75-125%	---	---	
Arsenic	50.1	---	1.02	mg/kg	10	51.1	4.03	90	75-125%	---	---	
Beryllium	23.2	---	0.204	mg/kg	10	25.6	0.329	89	75-125%	---	---	
Cadmium	47.5	---	0.204	mg/kg	10	51.1	0.655	92	75-125%	---	---	
Chromium	86.3	---	1.02	mg/kg	10	51.1	37.7	95	75-125%	---	---	
Copper	302	---	2.04	mg/kg	10	51.1	187	224	75-125%	---	---	Q-65
Lead	81.1	---	0.204	mg/kg	10	51.1	21.2	117	75-125%	---	---	
Nickel	131	---	4.09	mg/kg	10	51.1	47.3	163	75-125%	---	---	Q-04
Selenium	23.6	---	1.02	mg/kg	10	25.6	ND	92	75-125%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0513 - EPA 3051A							Solid					
Matrix Spike (24J0513-MS1)			Prepared: 10/11/24 16:35 Analyzed: 10/12/24 18:47									
QC Source Sample: BH-DUP1 (A4J1024-16)												
Silver	24.9	---	0.204	mg/kg	10	25.6	ND	97	75-125%	---	---	Q-65
Thallium	22.1	---	0.204	mg/kg	10	25.6	ND	87	75-125%	---	---	
Zinc	476	---	4.09	mg/kg	10	51.1	354	239	75-125%	---	---	
Matrix Spike (24J0513-MS2)			Prepared: 10/11/24 16:35 Analyzed: 10/14/24 15:45									
QC Source Sample: BH-DUP1 (A4J1024-16RE1)												
Mercury	1.45	---	0.0818	mg/kg	10	1.02	0.259	117	75-125%	---	---	Q-16

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24K0065 - EPA 3015A						Water						
Blank (24K0065-BLK1)			Prepared: 11/04/24 08:23		Analyzed: 11/04/24 23:03							
<u>EPA 6020B</u>												
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
LCS (24K0065-BS1)			Prepared: 11/04/24 08:23		Analyzed: 11/04/24 23:09							
<u>EPA 6020B</u>												
Lead	58.8	---	0.200	ug/L	1	55.6	---	106	80-120%	---	---	
Duplicate (24K0065-DUP1)			Prepared: 11/04/24 08:23		Analyzed: 11/04/24 23:19							
<u>QC Source Sample: BH-Rinsate-20241002 (A4J1024-17)</u>												
<u>EPA 6020B</u>												
Lead	ND	---	0.200	ug/L	1	---	0.210	---	---	***	20%	
Matrix Spike (24K0065-MS1)			Prepared: 11/04/24 08:23		Analyzed: 11/04/24 23:30							
<u>QC Source Sample: Non-SDG (A4J1638-01)</u>												
<u>EPA 6020B</u>												
Lead	55.5	---	0.200	ug/L	1	55.6	ND	100	75-125%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1231 - EPA 1311/3015A						Soil						
Blank (24J1231-BLK1)			Prepared: 11/01/24 09:00		Analyzed: 11/01/24 23:03							
<u>1311/6020B</u>												
Lead	ND	---	0.0500	mg/L	10	---	---	---	---	---	---	TCLP
LCS (24J1231-BS1)			Prepared: 11/01/24 09:00		Analyzed: 11/01/24 23:09							
<u>1311/6020B</u>												
Lead	5.28	---	0.0500	mg/L	10	5.00	---	106	80-120%	---	---	TCLP
Duplicate (24J1231-DUP1)			Prepared: 11/01/24 09:00		Analyzed: 11/01/24 23:19							
<u>QC Source Sample: BH-TRH-3 1-1.5-20241002 (A4J1024-05)</u>												
<u>1311/6020B</u>												
Lead	ND	---	0.0500	mg/L	10	---	ND	---	---	---	20%	
Matrix Spike (24J1231-MS1)			Prepared: 11/01/24 09:00		Analyzed: 11/01/24 23:30							
<u>QC Source Sample: BH-TR2-1 0-0.5-20241002 (A4J1024-11)</u>												
<u>1311/6020B</u>												
Lead	5.28	---	0.0500	mg/L	10	5.00	0.0303	105	50-150%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0181 - Dry Weight Prep (EPA 8000D)						Soil						
Duplicate (24J0181-DUP1)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-05)</u>												
% Solids	82.1	---	1.00	%	1	---	82.0	---	---	0.07	10%	
Duplicate (24J0181-DUP2)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-06)</u>												
% Solids	54.9	---	1.00	%	1	---	49.3	---	---	11	10%	Q-17
Duplicate (24J0181-DUP3)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-07)</u>												
% Solids	83.7	---	1.00	%	1	---	82.5	---	---	1	10%	
Duplicate (24J0181-DUP4)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-08)</u>												
% Solids	79.0	---	1.00	%	1	---	76.8	---	---	3	10%	
Duplicate (24J0181-DUP5)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-09)</u>												
% Solids	80.6	---	1.00	%	1	---	80.9	---	---	0.3	10%	
Duplicate (24J0181-DUP6)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-10)</u>												
% Solids	57.8	---	1.00	%	1	---	51.9	---	---	11	10%	Q-17
Duplicate (24J0181-DUP7)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-11)</u>												
% Solids	84.0	---	1.00	%	1	---	82.4	---	---	2	10%	
Duplicate (24J0181-DUP8)			Prepared: 10/04/24 08:46		Analyzed: 10/07/24 05:57							
<u>QC Source Sample: Non-SDG (A4J0996-12)</u>												
% Solids	78.3	---	1.00	%	1	---	78.9	---	---	0.8	10%	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24J0181 - Dry Weight Prep (EPA 8000D)							Soil						
Duplicate (24J0181-DUP9)			Prepared: 10/04/24 08:46 Analyzed: 10/07/24 05:57										
QC Source Sample: Non-SDG (A4J0996-13)													
% Solids	88.2	---	1.00	%	1	---	89.1	---	---	0.9	10%		
Duplicate (24J0181-DUPA)			Prepared: 10/04/24 19:11 Analyzed: 10/07/24 05:57										COMP
QC Source Sample: Non-SDG (A4J1060-11)													
% Solids	95.9	---	1.00	%	1	---	95.7	---	---	0.2	10%		
Duplicate (24J0181-DUPB)			Prepared: 10/04/24 19:11 Analyzed: 10/07/24 05:57										
QC Source Sample: Non-SDG (A4J1064-01)													
% Solids	89.6	---	1.00	%	1	---	89.2	---	---	0.5	10%		
Duplicate (24J0181-DUPC)			Prepared: 10/04/24 19:11 Analyzed: 10/07/24 05:57										
QC Source Sample: Non-SDG (A4J1069-01)													
% Solids	80.6	---	1.00	%	1	---	82.7	---	---	3	10%		

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544****SAMPLE PREPARATION INFORMATION****Hydrocarbon Identification Screen by NWTPH-HCID****Prep: EPA 3546 (Fuels)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0195							
A4J1024-01	Solid	NWTPH-HCID	10/02/24 09:15	10/04/24 10:44	10.45g/10mL	10g/10mL	0.96
A4J1024-02	Solid	NWTPH-HCID	10/02/24 10:10	10/04/24 10:44	10.01g/10mL	10g/10mL	1.00
A4J1024-03	Solid	NWTPH-HCID	10/02/24 09:50	10/04/24 10:44	10.71g/10mL	10g/10mL	0.93
A4J1024-04	Solid	NWTPH-HCID	10/02/24 11:25	10/04/24 10:44	10.52g/10mL	10g/10mL	0.95
A4J1024-05	Solid	NWTPH-HCID	10/02/24 12:00	10/04/24 10:44	10.47g/10mL	10g/10mL	0.96
A4J1024-06	Solid	NWTPH-HCID	10/02/24 08:23	10/04/24 10:44	10.2g/10mL	10g/10mL	0.98
A4J1024-07	Solid	NWTPH-HCID	10/02/24 14:00	10/04/24 10:44	10.17g/10mL	10g/10mL	0.98
A4J1024-08	Solid	NWTPH-HCID	10/02/24 12:30	10/04/24 10:44	10.09g/10mL	10g/10mL	0.99
A4J1024-09	Solid	NWTPH-HCID	10/02/24 12:50	10/04/24 10:44	10.27g/10mL	10g/10mL	0.97
A4J1024-10	Solid	NWTPH-HCID	10/02/24 15:50	10/04/24 10:44	10.21g/10mL	10g/10mL	0.98
A4J1024-11	Solid	NWTPH-HCID	10/02/24 16:30	10/04/24 10:44	10.12g/10mL	10g/10mL	0.99
A4J1024-12	Solid	NWTPH-HCID	10/02/24 17:30	10/04/24 10:44	10.74g/10mL	10g/10mL	0.93
A4J1024-13	Solid	NWTPH-HCID	10/02/24 17:50	10/04/24 10:44	10.56g/10mL	10g/10mL	0.95
A4J1024-14	Solid	NWTPH-HCID	10/02/24 17:00	10/04/24 10:44	10.78g/10mL	10g/10mL	0.93
A4J1024-15	Solid	NWTPH-HCID	10/02/24 15:10	10/04/24 10:44	10.09g/10mL	10g/10mL	0.99
A4J1024-16	Solid	NWTPH-HCID	10/02/24 00:00	10/04/24 10:44	10.04g/10mL	10g/10mL	1.00

Diesel and/or Oil Hydrocarbons by NWTPH-Dx**Prep: EPA 3510C (Fuels/Acid Ext.)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0995							
A4J1024-17	Water	NWTPH-Dx	10/02/24 18:40	10/25/24 07:04	1040mL/5mL	1000mL/5mL	0.96

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0545							
A4J1024-01	Solid	NWTPH-Dx	10/02/24 09:15	10/14/24 09:47	2.97g/5mL	2g/5mL	0.67
A4J1024-03	Solid	NWTPH-Dx	10/02/24 09:50	10/14/24 09:47	2.08g/5mL	2g/5mL	0.96
A4J1024-05	Solid	NWTPH-Dx	10/02/24 12:00	10/14/24 09:47	2.85g/5mL	2g/5mL	0.70
A4J1024-06	Solid	NWTPH-Dx	10/02/24 08:23	10/14/24 09:47	2.99g/5mL	2g/5mL	0.67
A4J1024-07	Solid	NWTPH-Dx	10/02/24 14:00	10/14/24 09:47	2.44g/5mL	2g/5mL	0.82
A4J1024-08	Solid	NWTPH-Dx	10/02/24 12:30	10/14/24 09:47	2.2g/5mL	2g/5mL	0.91
A4J1024-09	Solid	NWTPH-Dx	10/02/24 12:50	10/14/24 09:47	2.14g/5mL	2g/5mL	0.94
A4J1024-10	Solid	NWTPH-Dx	10/02/24 15:50	10/14/24 09:47	2.5g/5mL	2g/5mL	0.80
A4J1024-11	Solid	NWTPH-Dx	10/02/24 16:30	10/14/24 09:47	2.44g/5mL	2g/5mL	0.82

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4J1024-12RE1	Solid	NWTPH-Dx	10/02/24 17:30	10/14/24 09:47	2.18g/5mL	2g/5mL	0.92
A4J1024-13	Solid	NWTPH-Dx	10/02/24 17:50	10/14/24 09:47	2.3g/5mL	2g/5mL	0.87
A4J1024-14	Solid	NWTPH-Dx	10/02/24 17:00	10/14/24 09:47	2.81g/5mL	2g/5mL	0.71
A4J1024-15	Solid	NWTPH-Dx	10/02/24 15:10	10/14/24 09:47	2.52g/5mL	2g/5mL	0.79
A4J1024-16	Solid	NWTPH-Dx	10/02/24 00:00	10/14/24 09:47	2.68g/5mL	2g/5mL	0.75

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0186							
A4J1024-01	Solid	EPA 8082A	10/02/24 09:15	10/04/24 09:15	2.24g/5mL	2g/5mL	0.89
A4J1024-02	Solid	EPA 8082A	10/02/24 10:10	10/04/24 09:15	2.11g/5mL	2g/5mL	0.95
A4J1024-03	Solid	EPA 8082A	10/02/24 09:50	10/04/24 09:15	2.17g/5mL	2g/5mL	0.92
A4J1024-04	Solid	EPA 8082A	10/02/24 11:25	10/04/24 09:15	2.53g/5mL	2g/5mL	0.79
A4J1024-05RE1	Solid	EPA 8082A	10/02/24 12:00	10/04/24 09:15	2.82g/5mL	2g/5mL	0.71
A4J1024-06	Solid	EPA 8082A	10/02/24 08:23	10/04/24 09:15	2.7g/5mL	2g/5mL	0.74
A4J1024-07	Solid	EPA 8082A	10/02/24 14:00	10/04/24 09:15	2.42g/5mL	2g/5mL	0.83
A4J1024-08	Solid	EPA 8082A	10/02/24 12:30	10/04/24 09:15	2.13g/5mL	2g/5mL	0.94
A4J1024-09	Solid	EPA 8082A	10/02/24 12:50	10/04/24 09:15	2.28g/5mL	2g/5mL	0.88
A4J1024-10	Solid	EPA 8082A	10/02/24 15:50	10/04/24 09:15	2.94g/5mL	2g/5mL	0.68
A4J1024-11	Solid	EPA 8082A	10/02/24 16:30	10/04/24 09:15	2.27g/5mL	2g/5mL	0.88
A4J1024-12	Solid	EPA 8082A	10/02/24 17:30	10/04/24 09:15	2.51g/5mL	2g/5mL	0.80
A4J1024-13	Solid	EPA 8082A	10/02/24 17:50	10/04/24 09:15	2.64g/5mL	2g/5mL	0.76
A4J1024-14	Solid	EPA 8082A	10/02/24 17:00	10/04/24 09:15	2.42g/5mL	2g/5mL	0.83
A4J1024-15	Solid	EPA 8082A	10/02/24 15:10	10/04/24 09:15	2.27g/5mL	2g/5mL	0.88
A4J1024-16	Solid	EPA 8082A	10/02/24 00:00	10/04/24 09:15	2.99g/5mL	2g/5mL	0.67

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0210							
A4J1024-01	Solid	EPA 8270E SIM	10/02/24 09:15	10/04/24 12:15	2.57g/5mL	2g/5mL	0.78
A4J1024-02	Solid	EPA 8270E SIM	10/02/24 10:10	10/04/24 12:15	2.12g/5mL	2g/5mL	0.94
A4J1024-03	Solid	EPA 8270E SIM	10/02/24 09:50	10/04/24 12:15	2.96g/5mL	2g/5mL	0.68
A4J1024-04	Solid	EPA 8270E SIM	10/02/24 11:25	10/04/24 12:15	2.3g/5mL	2g/5mL	0.87

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 60 of 70

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544****SAMPLE PREPARATION INFORMATION****Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (SIM)****Prep: EPA 3546**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4J1024-05	Solid	EPA 8270E SIM	10/02/24 12:00	10/04/24 12:15	2.07g/5mL	2g/5mL	0.97
A4J1024-05RE1	Solid	EPA 8270E SIM	10/02/24 12:00	10/04/24 12:15	2.07g/5mL	2g/5mL	0.97
A4J1024-06	Solid	EPA 8270E SIM	10/02/24 08:23	10/04/24 12:15	2.48g/5mL	2g/5mL	0.81
A4J1024-07	Solid	EPA 8270E SIM	10/02/24 14:00	10/04/24 12:15	2.88g/5mL	2g/5mL	0.69
A4J1024-08	Solid	EPA 8270E SIM	10/02/24 12:30	10/04/24 12:15	2.87g/5mL	2g/5mL	0.70
A4J1024-09	Solid	EPA 8270E SIM	10/02/24 12:50	10/04/24 12:15	2.55g/5mL	2g/5mL	0.78
A4J1024-10	Solid	EPA 8270E SIM	10/02/24 15:50	10/04/24 12:15	2.77g/5mL	2g/5mL	0.72
A4J1024-11	Solid	EPA 8270E SIM	10/02/24 16:30	10/04/24 12:15	2.7g/5mL	2g/5mL	0.74
A4J1024-12	Solid	EPA 8270E SIM	10/02/24 17:30	10/04/24 12:15	2.04g/5mL	2g/5mL	0.98
A4J1024-13	Solid	EPA 8270E SIM	10/02/24 17:50	10/04/24 12:15	2.69g/5mL	2g/5mL	0.74
A4J1024-14	Solid	EPA 8270E SIM	10/02/24 17:00	10/04/24 12:15	2.26g/5mL	2g/5mL	0.89
A4J1024-15	Solid	EPA 8270E SIM	10/02/24 15:10	10/04/24 12:15	2.06g/5mL	2g/5mL	0.97
A4J1024-16	Solid	EPA 8270E SIM	10/02/24 00:00	10/04/24 12:15	2.41g/5mL	2g/5mL	0.83

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)**Prep: EPA 3511 (Bottle Extraction)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0251							
A4J1024-17	Water	EPA 8270E LVI	10/02/24 18:40	10/07/24 10:00	122.65mL/5mL	125mL/5mL	1.02

Total Metals by EPA 6020B (ICPMS)**Prep: EPA 3015A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24K0065							
A4J1024-17	Water	EPA 6020B	10/02/24 18:40	11/04/24 08:23	45mL/50mL	45mL/50mL	1.00

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0442							
A4J1024-01	Solid	EPA 6020B	10/02/24 09:15	10/10/24 12:34	0.485g/50mL	0.5g/50mL	1.03
A4J1024-02	Solid	EPA 6020B	10/02/24 10:10	10/10/24 12:34	0.46g/50mL	0.5g/50mL	1.09
A4J1024-03	Solid	EPA 6020B	10/02/24 09:50	10/10/24 12:34	0.461g/50mL	0.5g/50mL	1.08
A4J1024-04	Solid	EPA 6020B	10/02/24 11:25	10/10/24 12:34	0.498g/50mL	0.5g/50mL	1.00
A4J1024-05	Solid	EPA 6020B	10/02/24 12:00	10/10/24 12:34	0.457g/50mL	0.5g/50mL	1.09
A4J1024-06	Solid	EPA 6020B	10/02/24 08:23	10/10/24 12:34	0.477g/50mL	0.5g/50mL	1.05

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544**

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020B (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4J1024-07	Solid	EPA 6020B	10/02/24 14:00	10/10/24 12:34	0.518g/50mL	0.5g/50mL	0.97
A4J1024-07RE2	Solid	EPA 6020B	10/02/24 14:00	10/10/24 12:34	0.518g/50mL	0.5g/50mL	0.97
A4J1024-08	Solid	EPA 6020B	10/02/24 12:30	10/10/24 12:34	0.472g/50mL	0.5g/50mL	1.06
A4J1024-09	Solid	EPA 6020B	10/02/24 12:50	10/10/24 12:34	0.474g/50mL	0.5g/50mL	1.05
A4J1024-09RE1	Solid	EPA 6020B	10/02/24 12:50	10/10/24 12:34	0.474g/50mL	0.5g/50mL	1.05
A4J1024-10	Solid	EPA 6020B	10/02/24 15:50	10/10/24 12:34	0.484g/50mL	0.5g/50mL	1.03
A4J1024-10RE1	Solid	EPA 6020B	10/02/24 15:50	10/10/24 12:34	0.484g/50mL	0.5g/50mL	1.03
A4J1024-10RE3	Solid	EPA 6020B	10/02/24 15:50	10/10/24 12:34	0.484g/50mL	0.5g/50mL	1.03
A4J1024-11	Solid	EPA 6020B	10/02/24 16:30	10/10/24 12:34	0.464g/50mL	0.5g/50mL	1.08
A4J1024-12	Solid	EPA 6020B	10/02/24 17:30	10/10/24 12:34	0.486g/50mL	0.5g/50mL	1.03
A4J1024-13	Solid	EPA 6020B	10/02/24 17:50	10/10/24 12:34	0.46g/50mL	0.5g/50mL	1.09
A4J1024-14	Solid	EPA 6020B	10/02/24 17:00	10/10/24 12:34	0.49g/50mL	0.5g/50mL	1.02
A4J1024-15	Solid	EPA 6020B	10/02/24 15:10	10/10/24 12:34	0.491g/50mL	0.5g/50mL	1.02
A4J1024-15RE1	Solid	EPA 6020B	10/02/24 15:10	10/10/24 12:34	0.491g/50mL	0.5g/50mL	1.02
A4J1024-15RE2	Solid	EPA 6020B	10/02/24 15:10	10/10/24 12:34	0.491g/50mL	0.5g/50mL	1.02
A4J1024-15RE3	Solid	EPA 6020B	10/02/24 15:10	10/10/24 12:34	0.491g/50mL	0.5g/50mL	1.02
Batch: 24J0513							
A4J1024-16	Solid	EPA 6020B	10/02/24 00:00	10/11/24 16:35	0.472g/50mL	0.5g/50mL	1.06
A4J1024-16RE1	Solid	EPA 6020B	10/02/24 00:00	10/11/24 16:35	0.472g/50mL	0.5g/50mL	1.06

TCLP Metals by EPA 6020B (ICPMS)

Prep: EPA 1311/3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J1231							
A4J1024-05	Solid	1311/6020B	10/02/24 12:00	11/01/24 09:00	10mL/50mL	10mL/50mL	1.00
A4J1024-11	Solid	1311/6020B	10/02/24 16:30	11/01/24 09:00	10mL/50mL	10mL/50mL	1.00
A4J1024-12	Solid	1311/6020B	10/02/24 17:30	11/01/24 09:00	10mL/50mL	10mL/50mL	1.00
A4J1024-15	Solid	1311/6020B	10/02/24 15:10	11/01/24 09:00	10mL/50mL	10mL/50mL	1.00

Percent Dry Weight

Prep: Dry Weight Prep (EPA 8000D)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0181							
A4J1024-01	Solid	EPA 8000D	10/02/24 09:15	10/04/24 08:46			NA
A4J1024-02	Solid	EPA 8000D	10/02/24 10:10	10/04/24 08:46			NA

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1024 - 11 05 24 1544****SAMPLE PREPARATION INFORMATION****Percent Dry Weight****Prep: Dry Weight Prep (EPA 8000D)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A4J1024-03	Solid	EPA 8000D	10/02/24 09:50	10/04/24 08:46			NA
A4J1024-04	Solid	EPA 8000D	10/02/24 11:25	10/04/24 08:46			NA
A4J1024-05	Solid	EPA 8000D	10/02/24 12:00	10/04/24 08:46			NA
A4J1024-06	Solid	EPA 8000D	10/02/24 08:23	10/04/24 08:46			NA
A4J1024-07	Solid	EPA 8000D	10/02/24 14:00	10/04/24 08:46			NA
A4J1024-08	Solid	EPA 8000D	10/02/24 12:30	10/04/24 08:46			NA
A4J1024-09	Solid	EPA 8000D	10/02/24 12:50	10/04/24 08:46			NA
A4J1024-10	Solid	EPA 8000D	10/02/24 15:50	10/04/24 08:46			NA
A4J1024-11	Solid	EPA 8000D	10/02/24 16:30	10/04/24 08:46			NA
A4J1024-12	Solid	EPA 8000D	10/02/24 17:30	10/04/24 08:46			NA
A4J1024-13	Solid	EPA 8000D	10/02/24 17:50	10/04/24 08:46			NA
A4J1024-14	Solid	EPA 8000D	10/02/24 17:00	10/04/24 08:46			NA
A4J1024-15	Solid	EPA 8000D	10/02/24 15:10	10/04/24 08:46			NA
A4J1024-16	Solid	EPA 8000D	10/02/24 00:00	10/04/24 08:46			NA

TCLP Extraction by EPA 1311**Prep: EPA 1311 (TCLP)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J1164							
A4J1024-05	Solid	EPA 1311	10/02/24 12:00	10/30/24 16:10	100g/2003g	100g/2000g	NA
A4J1024-11	Solid	EPA 1311	10/02/24 16:30	10/30/24 16:10	100.1g/1998g	100g/2000g	NA
A4J1024-12	Solid	EPA 1311	10/02/24 17:30	10/30/24 16:10	99.9g/2008g	100g/2000g	NA
A4J1024-15	Solid	EPA 1311	10/02/24 15:10	10/30/24 16:10	100g/2006g	100g/2000g	NA

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4J1024 - 11 05 24 1544

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- COMP** Analyzed sample is a composite of discrete samples that was performed in the laboratory.
- F-03** The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
- H-02** This sample was extracted outside of the recommended holding time.
- M-05** Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
- P-12** Result estimated due to the presence of multiple PCB Aroclors and/or PCB congeners not defined as Aroclors.
- PRO** Sample has undergone sample processing prior to extraction and analysis.
- Q-04** Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-05** Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-16** Reanalysis of an original Batch QC sample.
- Q-17** RPD between original and duplicate sample, or spike duplicates, is outside of established control limits.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-37** Sample results are less than the Reporting Level (MDL and/or MRL) and Duplicate results exceed this level. See QC Section of the report for Duplicate results. Sample may be non-homogenous, or results may bracket the reporting level.
- Q-39** Results for sample duplicate are higher than the sample results. See duplicate results in QC section of the report.
- Q-41** Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
- Q-42** Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
- Q-65** Spike recovery is estimated due to the high analyte concentration of the source sample.
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- R-04** Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
- S-01** Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
- S-05** Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
- TCLP** This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 24J1164.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1024 - 11 05 24 1544

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4J1024 - 11 05 24 1544

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).

Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

-For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1024 - 11 05 24 1544

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

Project: Blue Heron

15862 SW 72nd Ave. Suite 150

Project Number: G685.0793 Task 400

Portland, OR 97224

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

APEX LABS		CHAIN OF CUSTODY		Project Name: <u>Blue Heron</u>		Project #: <u>6685.0793 Task 400</u>																
Company: <u>WSP</u>		Project Mgr: <u>John Kuiper</u>		Email: <u>john.kuiper@wsp.com</u>		PO #																
Address: <u>15862 SW 72nd Ave, Suite 150, Portland, OR 97223</u>		Phone: <u>503-718-2323</u>		Project #: <u>6685.0793 Task 400</u>		Project #: <u>6685.0793 Task 400</u>																
Sampled by: <u>Matthew Brown</u>		Project Mgr: <u>John Kuiper</u>		Email: <u>john.kuiper@wsp.com</u>		Project #: <u>6685.0793 Task 400</u>																
Site Location: <u>OR</u>		Project Mgr: <u>John Kuiper</u>		Email: <u>john.kuiper@wsp.com</u>		Project #: <u>6685.0793 Task 400</u>																
State: <u>OR</u>		Project Mgr: <u>John Kuiper</u>		Email: <u>john.kuiper@wsp.com</u>		Project #: <u>6685.0793 Task 400</u>																
County: <u>Clack</u>		Project Mgr: <u>John Kuiper</u>		Email: <u>john.kuiper@wsp.com</u>		Project #: <u>6685.0793 Task 400</u>																
SAMPLE ID		DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 BTEX	8260 RBDM VOCs	8260 Halo VOCs	8260 VOCs Full List	8270 SIM PAHs	8270 Semi-Vols Full List	8082 PCBs	8081 Pesticides	RCRA Metals (8)	Priority Metals (13)	AL, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Hg, K, Mn, Mo, Ni, Pb, Se, Ag, Na, Ti, V, Zn, TCIP, TOTAL DISS, TCIP	TCIP Metals (8)	Hold Sample	Frozen Archive
BH-TR1-1-0-0.5-20041002	10/2	0915	S	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-2-0-0.5-20041002	10/2	0910	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-3-0-0.5-20041002	10/2	0950	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-4-0-0.5-20041002	10/2	1125	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-5-0-0.5-20041002	10/2	1200	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-6-0-0.5-20041002	10/2	0823	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-7-0-0.5-20041002	10/2	1400	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-8-0-0.5-20041002	10/2	1230	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-9-0-0.5-20041002	10/2	1250	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BH-TR1-10-0-0.5-20041002	10/2	1550	1	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SPECIAL INSTRUCTIONS: • Run TPH-HCID follow-up with Gx and/or Dx as needed • Hold TCIP, dependent on metals results																						
TAT Requested (circle) 1 Day 2 Day 3 Day 5 Day Standard Other: _____																						
SAMPLES ARE HELD FOR 30 DAYS																						
RELINQUISHED BY: Signature: <u>Matthew Brown</u> Date: <u>10/3/04</u>		RECEIVED BY: Signature: <u>John Kuiper</u> Date: <u>10/3/24</u>		RELINQUISHED BY: Signature: _____ Date: _____		RECEIVED BY: Signature: _____ Date: _____																
Printed Name: <u>Matthew Brown</u> Time: <u>1510</u>		Printed Name: <u>John Kuiper</u> Time: <u>1013/24</u>		Printed Name: _____ Time: _____		Printed Name: _____ Time: _____																
Company: <u>WSP</u>		Company: <u>WSP</u>		Company: _____		Company: _____																

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

Project: Blue Heron

15862 SW 72nd Ave. Suite 150

Project Number: G685.0793 Task 400

Portland, OR 97224

Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

CHAIN OF CUSTODY

APEX LABS

6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

Lab # A4J1024 coc 2 of 2

Company: <u>WSP</u>	Project Mgr: <u>John Kuiper</u>	Project Name: <u>Blue Heron</u>	Project #: <u>G685.0793 Task 400</u>
Address: <u>15862 SW 72nd Ave #150 Portland, OR 97224</u>	Phone: <u>---</u>	Email: <u>john.kuiper@wsp.com</u>	PO # <u>---</u>
Sampled by: <u>Matthew Brown</u>			
Site Location: <u>OR</u> State <u>Clack</u> County			
SAMPLE ID	DATE	TIME	MATRIX
BH-TR2-1-0-0-5-20241002	10/2/24	16:30	S
BH-TR2-2-0-0-5-20241002	10/2/24	17:30	S
BH-TR2-3-0-0-5-20241002	10/2/24	17:50	S
BH-TR2-4-0-0-5-20241002	10/2/24	17:00	S
BH-TR2-6-0-0-5-20241002	10/2/24	15:10	S
BH-DUP1	10/2/24	16:40	W
BH-Rinse-20241002	10/2/24	16:40	W
Standard Turn Around Time (TAT) = 10 Business Days			
TAT Requested (circle) 1 Day 2 Day 3 Day 5 Day Standard Other: <u>Standard</u>			
SPECIAL INSTRUCTIONS: • Run PPH-HCTD, follow-up with Gx and/or Dx, as needed. • Hold TCLP, dependent on metals results. • BH-DUP1 is duplicate sample for Q.C.			
SAMPLES ARE HELD FOR 30 DAYS			
RELINQUISHED BY: Signature: <u>Matthew Brown</u> Printed Name: <u>Matthew Brown</u> Company: <u>WSP</u>	RECEIVED BY: Signature: <u>John Kuiper</u> Printed Name: <u>John Kuiper</u> Company: <u>WSP</u>	Date: <u>10/3/24</u> Time: <u>15:10</u>	Date: <u>10/3/24</u> Time: <u>15:10</u>

Form Y-002 R-00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue HeronProject Number: G685.0793 Task 400Project Manager: John Kuiper

Report ID:

A4J1024 - 11 05 24 1544

APEX LABS COOLER RECEIPT FORM

Client: WSP Element WO#: A4J1024Project/Project #: Blue Heron / G685.0793 Task 400

Delivery Info:

Date/time received: 10/3/24 @ 15:10 By: JAMDelivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Radio ☐ Morgan ☐ SDS ☐ Evergreen ☐ Other ☐From USDA Regulated Origin? Yes ☐ No ☒Cooler Inspection Date/time inspected: 10/3/24 @ 15:10 By: JAMChain of Custody included? Yes ☒ No ☐Signed/dated by client? Yes ☒ No ☐Contains USDA Reg. Soils? Yes ☐ No ☒ Unsure (email RegSoils) ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>5.4</u>	<u>5.1</u>	<u>4.6</u>				

Custody seals? (Y/N) N ————— ————— ————— ————— ————— —————Received on ice? (Y/N) Y ————— ————— ————— ————— ————— —————Temp. blanks? (Y/N) Y ————— ————— ————— ————— ————— —————Ice type: (Gel/Real/Other) Real ————— ————— ————— ————— ————— —————Condition (In/Out): IN ————— ————— ————— ————— ————— —————Cooler out of temp? (Y/N) (N) Possible reason why: —————Green dots applied to out of temperature samples? Yes ☒ No ☐Out of temperature samples form initiated? Yes ☒ No ☐Sample Inspection: Date/time inspected: 10/3/24 @ 15:38 By: JAMAll samples intact? Yes ☒ No ☐ Comments: —————Bottle labels/COCs agree? Yes ☒ No ☐ Comments: —————COC/container discrepancies form initiated? Yes ☐ No ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: —————Do VOA vials have visible headspace? Yes ☐ No ☒ NA ☐Comments: —————Water samples: pH checked: Yes ☒ No ☐ NA ☐ pH appropriate? Yes ☒ No ☐ NA ☐ pH ID: A231172Comments: —————

Labeled by:

JAM

Witness:

W

Cooler Inspected by:

JAM

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Sunday, November 3, 2024

John Kuiper

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

RE: A4J1445 - Blue Heron - G685.0793 Task 400

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4J1445, which was received by the laboratory on 10/16/2024 at 4:05:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information

Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.

(See Cooler Receipt Form for details)

Default Cooler 5.6 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1445 - 11 03 24 1416

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-DS8Pre-20241016	A4J1445-01	Water	10/16/24 13:50	10/16/24 16:05
BH-DS8Post-20241016	A4J1445-02	Water	10/16/24 13:55	10/16/24 16:05
BH-DS14Pre-20241016	A4J1445-03	Water	10/16/24 14:00	10/16/24 16:05
BH-DS14Post-20241016	A4J1445-04	Water	10/16/24 14:05	10/16/24 16:05
BH-DS24Pre-20241016	A4J1445-05	Water	10/16/24 14:15	10/16/24 16:05
BH-DS24Post-20241016	A4J1445-06	Water	10/16/24 14:20	10/16/24 16:05

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS8Pre-20241016 (A4J1445-01) Matrix: Water								
Batch: 24J1054								
Antimony	ND	---	1.00	ug/L	1	10/29/24 20:02	EPA 6020B	
Arsenic	ND	---	1.00	ug/L	1	10/29/24 20:02	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	10/29/24 20:02	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	10/29/24 20:02	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	10/29/24 20:02	EPA 6020B	
Lead	1.77	---	0.200	ug/L	1	10/29/24 20:02	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	10/29/24 20:02	EPA 6020B	
Nickel	2.75	---	2.00	ug/L	1	10/29/24 20:02	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	10/29/24 20:02	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	10/29/24 20:02	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	10/29/24 20:02	EPA 6020B	
Zinc	107	---	4.00	ug/L	1	10/29/24 20:02	EPA 6020B	
BH-DS8Pre-20241016 (A4J1445-01RE1) Matrix: Water								
Batch: 24J1202								
Copper	5.84	---	2.00	ug/L	1	11/01/24 03:05	EPA 6020B	
BH-DS8Post-20241016 (A4J1445-02) Matrix: Water								
Batch: 24J1054								
Antimony	ND	---	1.00	ug/L	1	10/29/24 20:07	EPA 6020B	
Arsenic	ND	---	1.00	ug/L	1	10/29/24 20:07	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	10/29/24 20:07	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	10/29/24 20:07	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	10/29/24 20:07	EPA 6020B	
Lead	0.764	---	0.200	ug/L	1	10/29/24 20:07	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	10/29/24 20:07	EPA 6020B	
Nickel	3.68	---	2.00	ug/L	1	10/29/24 20:07	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	10/29/24 20:07	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	10/29/24 20:07	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	10/29/24 20:07	EPA 6020B	
Zinc	21.6	---	4.00	ug/L	1	10/29/24 20:07	EPA 6020B	
BH-DS8Post-20241016 (A4J1445-02RE1) Matrix: Water								
Batch: 24J1202								

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1445 - 11 03 24 1416**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS8Post-20241016 (A4J1445-02RE1)				Matrix: Water				
Copper	4.18	---	2.00	ug/L	1	11/01/24 03:10	EPA 6020B	
BH-DS14Pre-20241016 (A4J1445-03)				Matrix: Water				
Batch: 24J1054								
Antimony	ND	---	1.00	ug/L	1	10/29/24 20:12	EPA 6020B	
Arsenic	14.3	---	1.00	ug/L	1	10/29/24 20:12	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	10/29/24 20:12	EPA 6020B	
Cadmium	0.510	---	0.200	ug/L	1	10/29/24 20:12	EPA 6020B	
Chromium	28.6	---	2.00	ug/L	1	10/29/24 20:12	EPA 6020B	
Copper	514	---	2.00	ug/L	1	10/29/24 20:12	EPA 6020B	B-02
Lead	204	---	0.200	ug/L	1	10/29/24 20:12	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	10/29/24 20:12	EPA 6020B	
Nickel	9.25	---	2.00	ug/L	1	10/29/24 20:12	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	10/29/24 20:12	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	10/29/24 20:12	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	10/29/24 20:12	EPA 6020B	
Zinc	123	---	4.00	ug/L	1	10/29/24 20:12	EPA 6020B	
BH-DS14Post-20241016 (A4J1445-04)				Matrix: Water				
Batch: 24J1054								
Antimony	ND	---	1.00	ug/L	1	10/29/24 20:18	EPA 6020B	
Arsenic	1.66	---	1.00	ug/L	1	10/29/24 20:18	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	10/29/24 20:18	EPA 6020B	
Cadmium	0.273	---	0.200	ug/L	1	10/29/24 20:18	EPA 6020B	
Chromium	6.96	---	2.00	ug/L	1	10/29/24 20:18	EPA 6020B	
Copper	21.7	---	2.00	ug/L	1	10/29/24 20:18	EPA 6020B	B-02
Lead	0.289	---	0.200	ug/L	1	10/29/24 20:18	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	10/29/24 20:18	EPA 6020B	
Nickel	3.23	---	2.00	ug/L	1	10/29/24 20:18	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	10/29/24 20:18	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	10/29/24 20:18	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	10/29/24 20:18	EPA 6020B	
Zinc	21.5	---	4.00	ug/L	1	10/29/24 20:18	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1445 - 11 03 24 1416

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS24Pre-20241016 (A4J1445-05) Matrix: Water								
Batch: 24J1054								
Antimony	13.1	---	1.00	ug/L	1	10/29/24 20:23	EPA 6020B	
Arsenic	2.31	---	1.00	ug/L	1	10/29/24 20:23	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	10/29/24 20:23	EPA 6020B	
Cadmium	0.227	---	0.200	ug/L	1	10/29/24 20:23	EPA 6020B	
Chromium	4.09	---	2.00	ug/L	1	10/29/24 20:23	EPA 6020B	
Copper	40.2	---	2.00	ug/L	1	10/29/24 20:23	EPA 6020B	B-02
Lead	5.28	---	0.200	ug/L	1	10/29/24 20:23	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	10/29/24 20:23	EPA 6020B	
Nickel	2.64	---	2.00	ug/L	1	10/29/24 20:23	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	10/29/24 20:23	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	10/29/24 20:23	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	10/29/24 20:23	EPA 6020B	
Zinc	67.0	---	4.00	ug/L	1	10/29/24 20:23	EPA 6020B	
BH-DS24Post-20241016 (A4J1445-06) Matrix: Water								
Batch: 24J1054								
Antimony	12.7	---	1.00	ug/L	1	10/29/24 20:29	EPA 6020B	
Arsenic	ND	---	1.00	ug/L	1	10/29/24 20:29	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	10/29/24 20:29	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	10/29/24 20:29	EPA 6020B	
Chromium	2.36	---	2.00	ug/L	1	10/29/24 20:29	EPA 6020B	
Copper	35.4	---	2.00	ug/L	1	10/29/24 20:29	EPA 6020B	B-02
Lead	0.420	---	0.200	ug/L	1	10/29/24 20:29	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	10/29/24 20:29	EPA 6020B	
Nickel	4.37	---	2.00	ug/L	1	10/29/24 20:29	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	10/29/24 20:29	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	10/29/24 20:29	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	10/29/24 20:29	EPA 6020B	
Zinc	33.7	---	4.00	ug/L	1	10/29/24 20:29	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1445 - 11 03 24 1416

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS8Pre-20241016 (A4J1445-01) Matrix: Water								
Batch: 24J0960								
Antimony	ND	---	1.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Arsenic	ND	---	1.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Chromium	ND	---	2.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Copper	ND	---	2.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Lead	ND	---	0.200	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Nickel	ND	---	2.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
Zinc	69.6	---	4.00	ug/L	1	10/24/24 13:38	EPA 6020B (Diss)	FILT1
BH-DS8Post-20241016 (A4J1445-02) Matrix: Water								
Batch: 24J0960								
Antimony	ND	---	1.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Arsenic	ND	---	1.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Chromium	ND	---	2.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Copper	2.50	---	2.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Lead	ND	---	0.200	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Nickel	ND	---	2.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
Zinc	5.09	---	4.00	ug/L	1	10/24/24 13:49	EPA 6020B (Diss)	FILT1
BH-DS14Pre-20241016 (A4J1445-03) Matrix: Water								
Batch: 24J0960								
Antimony	ND	---	1.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1445 - 11 03 24 1416**

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS14Pre-20241016 (A4J1445-03)				Matrix: Water				
Arsenic	4.15	---	1.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Chromium	9.32	---	2.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Copper	63.7	---	2.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Lead	2.99	---	0.200	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Nickel	ND	---	2.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
Zinc	55.3	---	4.00	ug/L	1	10/24/24 13:59	EPA 6020B (Diss)	FILT1
BH-DS14Post-20241016 (A4J1445-04)				Matrix: Water				
Batch: 24J0960								
Antimony	ND	---	1.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Arsenic	1.49	---	1.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Cadmium	0.225	---	0.200	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Chromium	6.52	---	2.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Copper	20.5	---	2.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Lead	ND	---	0.200	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Nickel	2.22	---	2.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
Zinc	22.0	---	4.00	ug/L	1	10/24/24 14:05	EPA 6020B (Diss)	FILT1
BH-DS24Pre-20241016 (A4J1445-05)				Matrix: Water				
Batch: 24J0960								
Antimony	11.6	---	1.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Arsenic	2.20	---	1.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1445 - 11 03 24 1416

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS24Pre-20241016 (A4J1445-05)				Matrix: Water				
Cadmium	0.217	---	0.200	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Chromium	3.03	---	2.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Copper	38.0	---	2.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Lead	3.96	---	0.200	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Nickel	ND	---	2.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
Zinc	66.5	---	4.00	ug/L	1	10/24/24 14:10	EPA 6020B (Diss)	FILT1
BH-DS24Post-20241016 (A4J1445-06)				Matrix: Water				
Batch: 24J0960								
Antimony	10.9	---	1.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Arsenic	ND	---	1.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Chromium	2.13	---	2.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Copper	32.7	---	2.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Lead	ND	---	0.200	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Nickel	3.56	---	2.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1
Zinc	32.6	---	4.00	ug/L	1	10/24/24 14:15	EPA 6020B (Diss)	FILT1

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

ANALYTICAL SAMPLE RESULTS

Lab Filtration

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DS8Pre-20241016 (A4J1445-01)				Matrix: Water		Batch: 24J0693		
Lab Filtration (prep only)	PREP	---		N/A	1	10/17/24 09:45	NA	
BH-DS8Post-20241016 (A4J1445-02)				Matrix: Water		Batch: 24J0693		
Lab Filtration (prep only)	PREP	---		N/A	1	10/17/24 09:46	NA	
BH-DS14Pre-20241016 (A4J1445-03)				Matrix: Water		Batch: 24J0693		
Lab Filtration (prep only)	PREP	---		N/A	1	10/17/24 09:46	NA	
BH-DS14Post-20241016 (A4J1445-04)				Matrix: Water		Batch: 24J0693		
Lab Filtration (prep only)	PREP	---		N/A	1	10/17/24 09:47	NA	
BH-DS24Pre-20241016 (A4J1445-05)				Matrix: Water		Batch: 24J0693		
Lab Filtration (prep only)	PREP	---		N/A	1	10/17/24 09:48	NA	
BH-DS24Post-20241016 (A4J1445-06)				Matrix: Water		Batch: 24J0693		
Lab Filtration (prep only)	PREP	---		N/A	1	10/17/24 09:48	NA	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1054 - EPA 3015A Water												
Blank (24J1054-BLK1) Prepared: 10/29/24 08:55 Analyzed: 10/29/24 17:52												
EPA 6020B												
Antimony	ND	---	1.00	ug/L	1	---	---	---	---	---	---	B-02
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Beryllium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Thallium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Zinc	ND	---	4.00	ug/L	1	---	---	---	---	---	---	

LCS (24J1054-BS1) Prepared: 10/29/24 08:55 Analyzed: 10/29/24 17:58

EPA 6020B												
Antimony	26.9	---	1.00	ug/L	1	27.8	---	97	80-120%	---	---	B-02
Arsenic	54.2	---	1.00	ug/L	1	55.6	---	98	80-120%	---	---	
Beryllium	27.8	---	0.200	ug/L	1	27.8	---	100	80-120%	---	---	
Cadmium	55.1	---	0.200	ug/L	1	55.6	---	99	80-120%	---	---	
Chromium	53.7	---	2.00	ug/L	1	55.6	---	97	80-120%	---	---	
Copper	56.0	---	2.00	ug/L	1	55.6	---	101	80-120%	---	---	
Lead	56.7	---	0.200	ug/L	1	55.6	---	102	80-120%	---	---	
Mercury	1.09	---	0.0800	ug/L	1	1.11	---	98	80-120%	---	---	
Nickel	56.2	---	2.00	ug/L	1	55.6	---	101	80-120%	---	---	
Selenium	27.9	---	1.00	ug/L	1	27.8	---	100	80-120%	---	---	
Silver	28.5	---	0.200	ug/L	1	27.8	---	103	80-120%	---	---	
Thallium	27.9	---	0.200	ug/L	1	27.8	---	100	80-120%	---	---	
Zinc	55.7	---	4.00	ug/L	1	55.6	---	100	80-120%	---	---	

Duplicate (24J1054-DUP1) Prepared: 10/29/24 08:55 Analyzed: 10/29/24 18:08

QC Source Sample: Non-SDG (A4J1393-10)

Antimony	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%
----------	----	-----	------	------	---	-----	----	-----	-----	-----	-----

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1054 - EPA 3015A							Water					
Duplicate (24J1054-DUP1)			Prepared: 10/29/24 08:55		Analyzed: 10/29/24 18:08							
QC Source Sample: Non-SDG (A4J1393-10)												
Arsenic	2.28	---	1.00	ug/L	1	---	2.30	---	---	0.9	20%	
Beryllium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Cadmium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Chromium	ND	---	2.00	ug/L	1	---	ND	---	---	---	20%	
Copper	ND	---	2.00	ug/L	1	---	ND	---	---	---	20%	
Lead	ND	---	0.200	ug/L	1	---	0.168	---	---	***	20%	
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	
Nickel	2.10	---	2.00	ug/L	1	---	2.52	---	---	18	20%	
Selenium	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	
Silver	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Thallium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Zinc	ND	---	4.00	ug/L	1	---	2.38	---	---	***	20%	

Matrix Spike (24J1054-MS1)

Prepared: 10/29/24 08:55 Analyzed: 10/29/24 18:19

QC Source Sample: Non-SDG (A4J1393-11)												
EPA 6020B												
Antimony	28.4	---	1.00	ug/L	1	27.8	ND	102	75-125%	---	---	
Arsenic	58.4	---	1.00	ug/L	1	55.6	2.37	101	75-125%	---	---	
Beryllium	29.5	---	0.200	ug/L	1	27.8	ND	106	75-125%	---	---	
Cadmium	57.5	---	0.200	ug/L	1	55.6	ND	104	75-125%	---	---	
Chromium	55.0	---	2.00	ug/L	1	55.6	ND	99	75-125%	---	---	
Copper	54.6	---	2.00	ug/L	1	55.6	1.13	96	75-125%	---	---	
Lead	54.5	---	0.200	ug/L	1	55.6	ND	98	75-125%	---	---	
Mercury	1.11	---	0.0800	ug/L	1	1.11	ND	100	75-125%	---	---	
Nickel	55.5	---	2.00	ug/L	1	55.6	1.44	97	75-125%	---	---	
Selenium	28.8	---	1.00	ug/L	1	27.8	ND	104	75-125%	---	---	
Silver	28.6	---	0.200	ug/L	1	27.8	ND	103	75-125%	---	---	
Thallium	26.6	---	0.200	ug/L	1	27.8	ND	96	75-125%	---	---	
Zinc	55.0	---	4.00	ug/L	1	55.6	ND	99	75-125%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 11 of 21



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1445 - 11 03 24 1416

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1202 - EPA 3015A						Water						
Blank (24J1202-BLK1)			Prepared: 10/31/24 09:34 Analyzed: 11/01/24 02:54									
EPA 6020B												
Copper	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
LCS (24J1202-BS1)			Prepared: 10/31/24 09:34 Analyzed: 11/01/24 02:59									
EPA 6020B												
Copper	53.4	---	2.00	ug/L	1	55.6	---	96	80-120%	---	---	
Duplicate (24J1202-DUP1)			Prepared: 10/31/24 09:34 Analyzed: 11/01/24 03:21									
QC Source Sample: Non-SDG (A4J1505-05)												
Copper	ND	---	2.00	ug/L	1	---	1.19	---	---	***	20%	
Matrix Spike (24J1202-MS1)			Prepared: 10/31/24 09:34 Analyzed: 11/01/24 03:32									
QC Source Sample: Non-SDG (A4J1505-06)												
EPA 6020B												
Copper	54.0	---	2.00	ug/L	1	55.6	2.83	92	75-125%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0960 - Matrix Matched Direct Inject							Water					
Blank (24J0960-BLK1)			Prepared: 10/24/24 09:10		Analyzed: 10/24/24 12:48							
EPA 6020B (Diss)												
Antimony	ND	---	1.00	ug/L	1	---	---	---	---	---	---	FILT3
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	FILT3
Beryllium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Chromium	ND	---	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Copper	ND	---	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	FILT3
Nickel	ND	---	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	FILT3
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Thallium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Zinc	ND	---	4.00	ug/L	1	---	---	---	---	---	---	FILT3

LCS (24J0960-BS1)

Prepared: 10/24/24 09:10 Analyzed: 10/24/24 13:32

EPA 6020B (Diss)												
Antimony	26.4	---	1.00	ug/L	1	27.8	---	95	80-120%	---	---	
Arsenic	52.0	---	1.00	ug/L	1	55.6	---	94	80-120%	---	---	
Beryllium	26.5	---	0.200	ug/L	1	27.8	---	95	80-120%	---	---	
Cadmium	53.8	---	0.200	ug/L	1	55.6	---	97	80-120%	---	---	
Chromium	53.7	---	2.00	ug/L	1	55.6	---	97	80-120%	---	---	
Copper	54.7	---	2.00	ug/L	1	55.6	---	99	80-120%	---	---	
Lead	56.1	---	0.200	ug/L	1	55.6	---	101	80-120%	---	---	
Mercury	1.11	---	0.0800	ug/L	1	1.11	---	100	80-120%	---	---	
Nickel	53.6	---	2.00	ug/L	1	55.6	---	97	80-120%	---	---	
Selenium	28.2	---	1.00	ug/L	1	27.8	---	101	80-120%	---	---	
Silver	28.9	---	0.200	ug/L	1	27.8	---	104	80-120%	---	---	
Thallium	28.4	---	0.200	ug/L	1	27.8	---	102	80-120%	---	---	
Zinc	55.3	---	4.00	ug/L	1	55.6	---	100	80-120%	---	---	

Duplicate (24J0960-DUP1)

Prepared: 10/24/24 09:10 Analyzed: 10/24/24 13:43

QC Source Sample: BH-DS8Pre-20241016 (A4J1445-01)

EPA 6020B (Diss)

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John KuiperReport ID:
A4J1445 - 11 03 24 1416

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0960 - Matrix Matched Direct Inject							Water					
Duplicate (24J0960-DUP1)			Prepared: 10/24/24 09:10		Analyzed: 10/24/24 13:43							
QC Source Sample: BH-DS8Pre-20241016 (A4J1445-01)												
Antimony	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Arsenic	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Beryllium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Cadmium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Chromium	ND	---	2.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Copper	ND	---	2.00	ug/L	1	---	1.88	---	---	***	20%	FILT1
Lead	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	FILT1
Nickel	ND	---	2.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Selenium	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Silver	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Thallium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Zinc	70.0	---	4.00	ug/L	1	---	69.6	---	---	0.6	20%	FILT1

Matrix Spike (24J0960-MS1)

Prepared: 10/24/24 09:10 Analyzed: 10/24/24 13:54

QC Source Sample: BH-DS8Post-20241016 (A4J1445-02)

EPA 6020B (Diss)

Antimony	27.3	---	1.00	ug/L	1	27.8	ND	98	75-125%	---	---	FILT1
Arsenic	53.0	---	1.00	ug/L	1	55.6	ND	95	75-125%	---	---	FILT1
Beryllium	25.8	---	0.200	ug/L	1	27.8	ND	93	75-125%	---	---	FILT1
Cadmium	54.0	---	0.200	ug/L	1	55.6	ND	97	75-125%	---	---	FILT1
Chromium	54.1	---	2.00	ug/L	1	55.6	ND	97	75-125%	---	---	FILT1
Copper	57.7	---	2.00	ug/L	1	55.6	2.50	99	75-125%	---	---	FILT1
Lead	56.4	---	0.200	ug/L	1	55.6	ND	101	75-125%	---	---	FILT1
Mercury	1.07	---	0.0800	ug/L	1	1.11	ND	96	75-125%	---	---	FILT1
Nickel	55.3	---	2.00	ug/L	1	55.6	ND	100	75-125%	---	---	FILT1
Selenium	27.0	---	1.00	ug/L	1	27.8	ND	97	75-125%	---	---	FILT1
Silver	28.1	---	0.200	ug/L	1	27.8	ND	101	75-125%	---	---	FILT1
Thallium	27.4	---	0.200	ug/L	1	27.8	ND	99	75-125%	---	---	FILT1
Zinc	60.3	---	4.00	ug/L	1	55.6	5.09	99	75-125%	---	---	FILT1

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1445 - 11 03 24 1416****SAMPLE PREPARATION INFORMATION****Total Metals by EPA 6020B (ICPMS)**Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24J1054</u>							
A4J1445-01	Water	EPA 6020B	10/16/24 13:50	10/29/24 08:55	45mL/50mL	45mL/50mL	1.00
A4J1445-02	Water	EPA 6020B	10/16/24 13:55	10/29/24 08:55	45mL/50mL	45mL/50mL	1.00
A4J1445-03	Water	EPA 6020B	10/16/24 14:00	10/29/24 08:55	45mL/50mL	45mL/50mL	1.00
A4J1445-04	Water	EPA 6020B	10/16/24 14:05	10/29/24 08:55	45mL/50mL	45mL/50mL	1.00
A4J1445-05	Water	EPA 6020B	10/16/24 14:15	10/29/24 08:55	45mL/50mL	45mL/50mL	1.00
A4J1445-06	Water	EPA 6020B	10/16/24 14:20	10/29/24 08:55	45mL/50mL	45mL/50mL	1.00
<u>Batch: 24J1202</u>							
A4J1445-01RE1	Water	EPA 6020B	10/16/24 13:50	10/31/24 09:34	45mL/50mL	45mL/50mL	1.00
A4J1445-02RE1	Water	EPA 6020B	10/16/24 13:55	10/31/24 09:34	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 6020B (ICPMS)Prep: Matrix Matched Direct Inject

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24J0960</u>							
A4J1445-01	Water	EPA 6020B (Diss)	10/16/24 13:50	10/24/24 09:10	45mL/50mL	45mL/50mL	1.00
A4J1445-02	Water	EPA 6020B (Diss)	10/16/24 13:55	10/24/24 09:10	45mL/50mL	45mL/50mL	1.00
A4J1445-03	Water	EPA 6020B (Diss)	10/16/24 14:00	10/24/24 09:10	45mL/50mL	45mL/50mL	1.00
A4J1445-04	Water	EPA 6020B (Diss)	10/16/24 14:05	10/24/24 09:10	45mL/50mL	45mL/50mL	1.00
A4J1445-05	Water	EPA 6020B (Diss)	10/16/24 14:15	10/24/24 09:10	45mL/50mL	45mL/50mL	1.00
A4J1445-06	Water	EPA 6020B (Diss)	10/16/24 14:20	10/24/24 09:10	45mL/50mL	45mL/50mL	1.00

Lab FiltrationPrep: Lab Filtration

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24J0693</u>							
A4J1445-01	Water	NA	10/16/24 13:50	10/17/24 09:45	150mL/150mL		NA
A4J1445-02	Water	NA	10/16/24 13:55	10/17/24 09:46	150mL/150mL		NA
A4J1445-03	Water	NA	10/16/24 14:00	10/17/24 09:46	150mL/150mL		NA
A4J1445-04	Water	NA	10/16/24 14:05	10/17/24 09:47	150mL/150mL		NA
A4J1445-05	Water	NA	10/16/24 14:15	10/17/24 09:48	150mL/150mL		NA
A4J1445-06	Water	NA	10/16/24 14:20	10/17/24 09:48	150mL/150mL		NA

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4J1445 - 11 03 24 1416

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- B-02** Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
- FILT1** Sample was lab filtered and acid preserved prior to analysis. See sample preparation section of report for date and time of filtration.
- FILT3** This is a laboratory filtration blank, associated with filtration batch 24J0693. See Prep page of report for associated samples.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1445 - 11 03 24 1416

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4J1445 - 11 03 24 1416

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL). Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

- For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
- For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

- Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1445 - 11 03 24 1416

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

Project: Blue Heron

15862 SW 72nd Ave. Suite 150

Project Number: G685.0793 Task 400

Portland, OR 97224

Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

CHAIN OF CUSTODY

APEX LABS

6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

Lab # Ag11145 coc 1 of 1

Company: <u>WSP</u>	Project Mgr: <u>John Kuiper</u>	Project Name: <u>Blue Heron</u>	Project #: <u>G685.0793 Task 400</u>
Address: <u>15862 SW 72nd Ave. Suite 150 Portland, OR 97224</u>		Email: <u>John.Kuiper@wsp.com</u>	PO #
Sampled by: <u>Joanne Chen</u>		Phone:	
Site Location:			
State: <u>OR</u>		County: <u>Clack</u>	
SAMPLE ID			
DATE		TIME	MATRIX
10/16		1350	W
10/16		1355	↓
10/16		1400	↓
10/16		1405	↓
10/16		1415	↓
10/16		1420	↓
NWTPH-HCID			
NWTPH-DX			
NWTPH-GX			
8260 BTEX			
8260 RBDM VOCs			
8260 Halo VOCs			
8260 VOCs Full List			
8270 SIM PAHs			
8270 Semi-Vols Full List			
8082 PCBs			
8081 Pesticides			
RCRA Metals (8)			
Priority Metals (13)			
Al, Sb, As, Ba, Be, Cd, Cr, Cu, Fe, Pb, Hg, Mn, Mo, Ni, K, Se, Ag, Na, TL, V, Zn			
TOTAL DISS. TCLP			
TCLP Metals (8)			
Total & Dissolved			
Hold Sample			
Frozen Archive			

SPECIAL INSTRUCTIONS:
Total and dissolved Priority Pollutant (13) Metals.
Please lab filter for d.s.s.
Also email daniel.shall@wsp.com

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle) 1 Day 2 Day 3 Day 5 Day Standard Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: <u>[Signature]</u> Date: <u>10/16</u>	RECEIVED BY: Signature: <u>[Signature]</u> Date: <u>10/16/2014</u>
Printed Name: <u>Joanne Chen</u> Time: <u>1605</u>	Printed Name: <u>Missa Wilcox</u> Time: <u>1605</u>
Company: <u>WSP</u>	Company: <u>[Signature]</u>

Form Y-002 R-00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue HeronProject Number: G685.0793 Task 400Project Manager: John Kuiper

Report ID:

A4J1445 - 11 03 24 1416

APEX LABS COOLER RECEIPT FORM

Client: WSP Element WO#: A4J1445Project/Project #: Blue Heron G685.0793 Task 400

Delivery Info:

Date/time received: 10/16/14 @ 1605 By: AWDelivered by: Apex ☒ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Radio ☐ Morgan ☐ SDS ☐ Evergreen ☐ Other ☐From USDA Regulated Origin? Yes ☐ No ☒Cooler Inspection Date/time inspected: 10/16/14 @ 1605 By: AWChain of Custody included? Yes ☒ No ☐Signed/dated by client? Yes ☒ No ☐Contains USDA Reg. Soils? Yes ☐ No ☒ Unsure (email RegSoils) ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>5.6</u>						
Custody seals? (Y/N)	<u>N</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>N</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition (In/Out):	<u>In</u>						

Cooler out of temp? (Y/N) Possible reason why: YesGreen dots applied to out of temperature samples? Yes ☒ No ☐Out of temperature samples form initiated? Yes ☒ No ☐Sample Inspection: Date/time inspected: 10/16/14 @ 1830 By: ZAAll samples intact? Yes ☒ No ☐ Comments: Bottle labels/COCs agree? Yes ☒ No ☐ Comments: COC/container discrepancies form initiated? Yes ☐ No ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: Do VOA vials have visible headspace? Yes ☐ No ☐ NA ☒Comments: Water samples: pH checked: Yes ☒ No ☐ NA ☐ pH appropriate? Yes ☒ No ☐ NA ☐ pH ID: A25072Comments: Labeled by: ZAWitness: JAMCooler Inspected by: ZA

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Tuesday, November 5, 2024

John Kuiper

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

RE: A4J1568 - Blue Heron - G685.0793 Task 400

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4J1568, which was received by the laboratory on 10/21/2024 at 5:17:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information			
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>			
(See Cooler Receipt Form for details)			
Cooler #1	4.5	degC	Cooler #2 5.5 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1568 - 11 05 24 1631

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH_TRH_PreGab_20241021	A4J1568-01	Water	10/21/24 13:45	10/21/24 17:17
BH_TRH_PostGab_20241021	A4J1568-02	Water	10/21/24 14:10	10/21/24 17:17
BH_TR1_PreGab_20241021	A4J1568-03	Water	10/21/24 15:00	10/21/24 17:17
BH_TR1_PostGab_20241021	A4J1568-04	Water	10/21/24 15:20	10/21/24 17:17

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01)		Matrix: Water			Batch: 24J0927			
Gasoline Range Organics	ND	---	0.0962	mg/L	1	10/23/24 19:33	NWTPH-HCID	
Diesel Range Organics	ND	---	0.240	mg/L	1	10/23/24 19:33	NWTPH-HCID	
Oil Range Organics	ND	---	0.240	mg/L	1	10/23/24 19:33	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	78 %	Limits:	50-150 %	1	10/23/24 19:33	NWTPH-HCID
4-Bromofluorobenzene (Surr)			44 %		10-120 %	1	10/23/24 19:33	NWTPH-HCID
BH_TRH_PostGab_20241021 (A4J1568-02)		Matrix: Water			Batch: 24J0927			
Gasoline Range Organics	ND	---	0.0952	mg/L	1	10/23/24 19:56	NWTPH-HCID	
Diesel Range Organics	ND	---	0.238	mg/L	1	10/23/24 19:56	NWTPH-HCID	
Oil Range Organics	ND	---	0.238	mg/L	1	10/23/24 19:56	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	80 %	Limits:	50-150 %	1	10/23/24 19:56	NWTPH-HCID
4-Bromofluorobenzene (Surr)			46 %		10-120 %	1	10/23/24 19:56	NWTPH-HCID
BH_TR1_PreGab_20241021 (A4J1568-03)		Matrix: Water			Batch: 24J0927			
Gasoline Range Organics	ND	---	0.0952	mg/L	1	10/23/24 20:43	NWTPH-HCID	
Diesel Range Organics	ND	---	0.238	mg/L	1	10/23/24 20:43	NWTPH-HCID	
Oil Range Organics	DET	---	0.238	mg/L	1	10/23/24 20:43	NWTPH-HCID	F-03
Surrogate: o-Terphenyl (Surr)		Recovery:	84 %	Limits:	50-150 %	1	10/23/24 20:43	NWTPH-HCID
4-Bromofluorobenzene (Surr)			43 %		10-120 %	1	10/23/24 20:43	NWTPH-HCID
BH_TR1_PostGab_20241021 (A4J1568-04)		Matrix: Water			Batch: 24J0927			
Gasoline Range Organics	ND	---	0.0952	mg/L	1	10/23/24 20:20	NWTPH-HCID	
Diesel Range Organics	ND	---	0.238	mg/L	1	10/23/24 20:20	NWTPH-HCID	
Oil Range Organics	ND	---	0.238	mg/L	1	10/23/24 20:20	NWTPH-HCID	
Surrogate: o-Terphenyl (Surr)		Recovery:	83 %	Limits:	50-150 %	1	10/23/24 20:20	NWTPH-HCID
4-Bromofluorobenzene (Surr)			45 %		10-120 %	1	10/23/24 20:20	NWTPH-HCID

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water		Batch: 24K0042		
Diesel	ND	---	0.190	mg/L	1	11/01/24 21:12	NWTPH-Dx/SG	
Oil	7.72	---	0.381	mg/L	1	11/01/24 21:12	NWTPH-Dx/SG	F-03
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>	<i>1</i>	<i>11/01/24 21:12</i>	<i>NWTPH-Dx/SG</i>	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01)		Matrix: Water			Batch: 24J1191		C-07	
Aroclor 1016	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Aroclor 1221	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Aroclor 1232	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Aroclor 1242	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Aroclor 1248	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Aroclor 1254	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Aroclor 1260	ND	---	0.0943	ug/L	1	10/31/24 15:42	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 88 %		Limits: 40-135 %	1	10/31/24 15:42	EPA 8082A	
BH_TRH_PostGab_20241021 (A4J1568-02)		Matrix: Water			Batch: 24J1191		C-07	
Aroclor 1016	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Aroclor 1221	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Aroclor 1232	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Aroclor 1242	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Aroclor 1248	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Aroclor 1254	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Aroclor 1260	ND	---	0.0952	ug/L	1	10/31/24 16:00	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 75 %		Limits: 40-135 %	1	10/31/24 16:00	EPA 8082A	
BH_TR1_PreGab_20241021 (A4J1568-03)		Matrix: Water			Batch: 24J1191		C-07	
Aroclor 1016	ND	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	
Aroclor 1221	ND	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	
Aroclor 1232	ND	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	
Aroclor 1242	0.146	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	P-12
Aroclor 1248	ND	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	
Aroclor 1254	0.272	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	P-12
Aroclor 1260	ND	---	0.0952	ug/L	1	10/31/24 16:18	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 61 %		Limits: 40-135 %	1	10/31/24 16:18	EPA 8082A	
BH_TR1_PostGab_20241021 (A4J1568-04)		Matrix: Water			Batch: 24J1191		C-07	
Aroclor 1016	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	
Aroclor 1221	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	
Aroclor 1232	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	
Aroclor 1242	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TR1_PostGab_20241021 (A4J1568-04)				Matrix: Water		Batch: 24J1191		C-07
Aroclor 1248	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	
Aroclor 1254	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	
Aroclor 1260	ND	---	0.0957	ug/L	1	10/31/24 16:53	EPA 8082A	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 40-135 %</i>	<i>1</i>	<i>10/31/24 16:53</i>	<i>EPA 8082A</i>	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1568 - 11 05 24 1631**

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01)				Matrix: Water		Batch: 24J0849		
Acenaphthene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Anthracene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Chrysene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Fluoranthene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Fluorene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0162	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0647	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0647	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Naphthalene	ND	---	0.0647	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Phenanthrene	ND	---	0.0647	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Pyrene	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0323	ug/L	1	10/22/24 14:21	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 94 %		Limits: 78-134 %	1	10/22/24 14:21	EPA 8270E LVI	
Benzo(a)pyrene-d12 (Surr)		116 %		80-132 %	1	10/22/24 14:21	EPA 8270E LVI	

BH_TRH_PostGab_20241021 (A4J1568-02)**Matrix: Water****Batch: 24J0849**

Acenaphthene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Acenaphthylene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Anthracene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Benz(a)anthracene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Benzo(a)pyrene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Benzo(b)fluoranthene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Benzo(k)fluoranthene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Benzo(g,h,i)perylene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Chrysene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI
Dibenz(a,h)anthracene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PostGab_20241021 (A4J1568-02)				Matrix: Water		Batch: 24J0849		
Fluoranthene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Fluorene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0161	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0643	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0643	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Naphthalene	ND	---	0.0643	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Phenanthrene	ND	---	0.0643	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Pyrene	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0322	ug/L	1	10/22/24 14:54	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 91 %		Limits: 78-134 %	1	10/22/24 14:54	EPA 8270E LVI	
Benzo(a)pyrene-d12 (Surr)		116 %		80-132 %	1	10/22/24 14:54	EPA 8270E LVI	
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water		Batch: 24J0849		
Acenaphthene	ND	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Anthracene	0.0489	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Benz(a)anthracene	0.0669	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Benzo(a)pyrene	0.0881	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Benzo(b)fluoranthene	0.107	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Benzo(k)fluoranthene	0.0395	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	M-05
Benzo(g,h,i)perylene	ND	---	0.0611	ug/L	1	10/22/24 15:26	EPA 8270E LVI	R-02
Chrysene	0.114	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Dibenz(a,h)anthracene	0.0167	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Fluoranthene	0.148	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Fluorene	ND	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	0.0461	---	0.0163	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0652	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0652	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Naphthalene	ND	---	0.0652	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Phenanthrene	0.102	---	0.0652	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Pyrene	0.196	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0326	ug/L	1	10/22/24 15:26	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 92 %		Limits: 78-134 %	1	10/22/24 15:26	EPA 8270E LVI	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water		Batch: 24J0849		
Surrogate: Benzo(a)pyrene-d12 (Surr)		Recovery: 119 %	Limits: 80-132 %	1	10/22/24 15:26	EPA 8270E LVI		
BH_TR1_PostGab_20241021 (A4J1568-04)				Matrix: Water		Batch: 24J0849		
Acenaphthene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Acenaphthylene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Anthracene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Benz(a)anthracene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Benzo(a)pyrene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Benzo(b)fluoranthene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Benzo(k)fluoranthene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Benzo(g,h,i)perylene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Chrysene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Dibenz(a,h)anthracene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Fluoranthene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Fluorene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Indeno(1,2,3-cd)pyrene	ND	---	0.0161	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
1-Methylnaphthalene	ND	---	0.0644	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
2-Methylnaphthalene	ND	---	0.0644	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Naphthalene	ND	---	0.0644	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Phenanthrene	ND	---	0.0644	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Pyrene	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Dibenzofuran	ND	---	0.0322	ug/L	1	10/22/24 15:59	EPA 8270E LVI	
Surrogate: Acenaphthylene-d8 (Surr)		Recovery: 92 %	Limits: 78-134 %	1	10/22/24 15:59	EPA 8270E LVI		
Benzo(a)pyrene-d12 (Surr)		117 %	80-132 %	1	10/22/24 15:59	EPA 8270E LVI		

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1568 - 11 05 24 1631**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01) Matrix: Water								
Batch: 24J1202								
Antimony	ND	---	1.00	ug/L	1	11/01/24 04:09	EPA 6020B	
Arsenic	1.34	---	1.00	ug/L	1	11/01/24 04:09	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	11/01/24 04:09	EPA 6020B	
Cadmium	0.223	---	0.200	ug/L	1	11/01/24 04:09	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	11/01/24 04:09	EPA 6020B	
Copper	112	---	2.00	ug/L	1	11/01/24 04:09	EPA 6020B	
Lead	7.32	---	0.200	ug/L	1	11/01/24 04:09	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	11/01/24 04:09	EPA 6020B	
Nickel	5.84	---	2.00	ug/L	1	11/01/24 04:09	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	11/01/24 04:09	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	11/01/24 04:09	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	11/01/24 04:09	EPA 6020B	
Zinc	53.8	---	4.00	ug/L	1	11/01/24 04:09	EPA 6020B	
BH_TRH_PostGab_20241021 (A4J1568-02) Matrix: Water								
Batch: 24J1202								
Antimony	ND	---	1.00	ug/L	1	11/01/24 04:14	EPA 6020B	
Arsenic	1.25	---	1.00	ug/L	1	11/01/24 04:14	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	11/01/24 04:14	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	11/01/24 04:14	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	11/01/24 04:14	EPA 6020B	
Copper	119	---	2.00	ug/L	1	11/01/24 04:14	EPA 6020B	
Lead	7.00	---	0.200	ug/L	1	11/01/24 04:14	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	11/01/24 04:14	EPA 6020B	
Nickel	6.34	---	2.00	ug/L	1	11/01/24 04:14	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	11/01/24 04:14	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	11/01/24 04:14	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	11/01/24 04:14	EPA 6020B	
Zinc	60.8	---	4.00	ug/L	1	11/01/24 04:14	EPA 6020B	
BH_TR1_PreGab_20241021 (A4J1568-03) Matrix: Water								
Batch: 24J1202								
Antimony	2.90	---	1.00	ug/L	1	11/01/24 04:20	EPA 6020B	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water				
Arsenic	2.45	---	1.00	ug/L	1	11/01/24 04:20	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	11/01/24 04:20	EPA 6020B	
Cadmium	0.211	---	0.200	ug/L	1	11/01/24 04:20	EPA 6020B	
Chromium	3.19	---	2.00	ug/L	1	11/01/24 04:20	EPA 6020B	
Copper	29.4	---	2.00	ug/L	1	11/01/24 04:20	EPA 6020B	
Lead	9.26	---	0.200	ug/L	1	11/01/24 04:20	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	11/01/24 04:20	EPA 6020B	
Nickel	4.68	---	2.00	ug/L	1	11/01/24 04:20	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	11/01/24 04:20	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	11/01/24 04:20	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	11/01/24 04:20	EPA 6020B	
Zinc	168	---	4.00	ug/L	1	11/01/24 04:20	EPA 6020B	
BH_TR1_PostGab_20241021 (A4J1568-04)				Matrix: Water				
Batch: 24J1202								
Antimony	2.50	---	1.00	ug/L	1	11/01/24 04:25	EPA 6020B	
Arsenic	1.51	---	1.00	ug/L	1	11/01/24 04:25	EPA 6020B	
Beryllium	ND	---	0.200	ug/L	1	11/01/24 04:25	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	11/01/24 04:25	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	11/01/24 04:25	EPA 6020B	
Copper	11.7	---	2.00	ug/L	1	11/01/24 04:25	EPA 6020B	
Lead	0.573	---	0.200	ug/L	1	11/01/24 04:25	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	11/01/24 04:25	EPA 6020B	
Nickel	2.01	---	2.00	ug/L	1	11/01/24 04:25	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	11/01/24 04:25	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	11/01/24 04:25	EPA 6020B	
Thallium	ND	---	0.200	ug/L	1	11/01/24 04:25	EPA 6020B	
Zinc	59.7	---	4.00	ug/L	1	11/01/24 04:25	EPA 6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01)				Matrix: Water				
Batch: 24J1227								
Antimony	ND	---	1.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Arsenic	1.04	---	1.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Cadmium	0.204	---	0.200	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Chromium	ND	---	2.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Copper	124	---	2.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Lead	3.84	---	0.200	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Nickel	5.55	---	2.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
Zinc	49.0	---	4.00	ug/L	1	11/01/24 04:57	EPA 6020B (Diss)	FILT1
BH_TRH_PostGab_20241021 (A4J1568-02)				Matrix: Water				
Batch: 24J1227								
Antimony	ND	---	1.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Arsenic	ND	---	1.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Chromium	ND	---	2.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Copper	113	---	2.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Lead	2.40	---	0.200	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Nickel	6.15	---	2.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
Zinc	52.2	---	4.00	ug/L	1	11/01/24 05:03	EPA 6020B (Diss)	FILT1
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water				
Batch: 24J1227								
Antimony	2.68	---	1.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water				
Arsenic	1.73	---	1.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Chromium	ND	---	2.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Copper	9.99	---	2.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Lead	ND	---	0.200	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Nickel	ND	---	2.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
Zinc	42.6	---	4.00	ug/L	1	11/01/24 05:08	EPA 6020B (Diss)	FILT1
BH_TR1_PostGab_20241021 (A4J1568-04)				Matrix: Water				
Batch: 24J1227								
Antimony	2.43	---	1.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Arsenic	1.50	---	1.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Beryllium	ND	---	0.200	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Cadmium	ND	---	0.200	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Chromium	ND	---	2.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Copper	10.6	---	2.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Lead	ND	---	0.200	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Mercury	ND	---	0.0800	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Nickel	ND	---	2.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Selenium	ND	---	1.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Silver	ND	---	0.200	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Thallium	ND	---	0.200	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1
Zinc	52.4	---	4.00	ug/L	1	11/01/24 05:19	EPA 6020B (Diss)	FILT1

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Solid and Moisture Determinations

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01)				Matrix: Water				
Batch: 24J0866								
Total Suspended Solids	6.00	---	5.00	mg/L	1	10/22/24 10:58	SM 2540 D	TSS
BH_TRH_PostGab_20241021 (A4J1568-02)				Matrix: Water				
Batch: 24J0866								
Total Suspended Solids	6.00	---	5.00	mg/L	1	10/22/24 10:58	SM 2540 D	TSS
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water				
Batch: 24J0866								
Total Suspended Solids	45.0	---	5.00	mg/L	1	10/22/24 10:58	SM 2540 D	
BH_TR1_PostGab_20241021 (A4J1568-04)				Matrix: Water				
Batch: 24J0866								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/22/24 10:58	SM 2540 D	TSS

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4J1568 - 11 05 24 1631

ANALYTICAL SAMPLE RESULTS

Lab Filtration

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_TRH_PreGab_20241021 (A4J1568-01)				Matrix: Water		Batch: 24J0880		FILT1
Lab Filtration (prep only)	PREP	---		N/A	1	10/22/24 12:34	NA	
BH_TRH_PostGab_20241021 (A4J1568-02)				Matrix: Water		Batch: 24J0880		FILT1
Lab Filtration (prep only)	PREP	---		N/A	1	10/22/24 12:36	NA	
BH_TR1_PreGab_20241021 (A4J1568-03)				Matrix: Water		Batch: 24J0880		FILT1
Lab Filtration (prep only)	PREP	---		N/A	1	10/22/24 12:37	NA	
BH_TR1_PostGab_20241021 (A4J1568-04)				Matrix: Water		Batch: 24J0880		FILT1
Lab Filtration (prep only)	PREP	---		N/A	1	10/22/24 12:39	NA	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0927 - EPA 3510C (Fuels/Acid Ext.)							Water					
Blank (24J0927-BLK1)			Prepared: 10/23/24 11:07		Analyzed: 10/23/24 18:23							
<u>NWTPH-HCID</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	0.250	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	0.250	mg/L	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		Recovery: 85 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		57 %		10-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24K0042 - EPA 3510C (Fuels/Acid Ext.) w/SG+Acid						Water							
Blank (24K0042-BLK1)			Prepared: 10/23/24 11:07 Analyzed: 11/01/24 20:11										
NWTPH-Dx/SG													
Diesel	ND	---	0.200	mg/L	1	---	---	---	---	---	---		
Oil	ND	---	0.400	mg/L	1	---	---	---	---	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 90 %		Limits: 50-150 %		Dilution: 1x							
LCS (24K0042-BS1)			Prepared: 10/23/24 11:07 Analyzed: 11/01/24 20:31										
NWTPH-Dx/SG													
Diesel	1.00	---	0.200	mg/L	1	1.25	---	80	36-132%	---	---		
Surr: o-Terphenyl (Surr)		Recovery: 93 %		Limits: 50-150 %		Dilution: 1x							
LCS Dup (24K0042-BSD1)			Prepared: 10/23/24 11:07 Analyzed: 11/01/24 20:51										Q-19
NWTPH-Dx/SG													
Diesel	1.02	---	0.200	mg/L	1	1.25	---	82	36-132%	2	30%		
Surr: o-Terphenyl (Surr)		Recovery: 96 %		Limits: 50-150 %		Dilution: 1x							

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1191 - EPA 3510C (Neutral pH)						Water						
Blank (24J1191-BLK1)			Prepared: 10/31/24 07:07		Analyzed: 10/31/24 14:49		C-07					
EPA 8082A												
Aroclor 1016	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 81 %		Limits: 40-135 %		Dilution: 1x						
LCS (24J1191-BS1)			Prepared: 10/31/24 07:07		Analyzed: 10/31/24 15:07		C-07					
EPA 8082A												
Aroclor 1016	2.16	---	0.100	ug/L	1	2.50	---	86	46-129%	---	---	
Aroclor 1260	2.25	---	0.100	ug/L	1	2.50	---	90	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 84 %		Limits: 40-135 %		Dilution: 1x						
LCS Dup (24J1191-BSD1)			Prepared: 10/31/24 07:07		Analyzed: 10/31/24 15:24		C-07, Q-19					
EPA 8082A												
Aroclor 1016	2.09	---	0.100	ug/L	1	2.50	---	83	46-129%	3	30%	
Aroclor 1260	2.22	---	0.100	ug/L	1	2.50	---	89	45-134%	1	30%	
Surr: Decachlorobiphenyl (Surr)		Recovery: 92 %		Limits: 40-135 %		Dilution: 1x						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper**

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0849 - EPA 3511 (Bottle Extraction)						Water						
Blank (24J0849-BLK1)			Prepared: 10/22/24 06:18		Analyzed: 10/22/24 12:43							
EPA 8270E LVI												
Acenaphthene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0160	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0640	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Carbazole	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0320	ug/L	1	---	---	---	---	---	---	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 89 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		114 %		80-132 %		"						

LCS (24J0849-BS1)

Prepared: 10/22/24 06:18 Analyzed: 10/22/24 13:16

EPA 8270E LVI

Acenaphthene	1.59	---	0.0320	ug/L	1	1.60	---	99	80-120%	---	---
Acenaphthylene	1.70	---	0.0320	ug/L	1	1.60	---	106	80-124%	---	---
Anthracene	1.61	---	0.0320	ug/L	1	1.60	---	100	80-123%	---	---
Benz(a)anthracene	1.61	---	0.0160	ug/L	1	1.60	---	100	80-122%	---	---
Benzo(a)pyrene	1.76	---	0.0160	ug/L	1	1.60	---	110	80-129%	---	---
Benzo(b)fluoranthene	1.69	---	0.0160	ug/L	1	1.60	---	105	80-124%	---	---
Benzo(k)fluoranthene	1.66	---	0.0160	ug/L	1	1.60	---	104	80-125%	---	---
Benzo(g,h,i)perylene	1.43	---	0.0320	ug/L	1	1.60	---	89	80-120%	---	---

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0849 - EPA 3511 (Bottle Extraction)						Water						
LCS (24J0849-BS1)			Prepared: 10/22/24 06:18		Analyzed: 10/22/24 13:16							
Chrysene	1.50	---	0.0160	ug/L	1	1.60	---	94	80-120%	---	---	
Dibenz(a,h)anthracene	1.49	---	0.0160	ug/L	1	1.60	---	93	80-120%	---	---	
Fluoranthene	1.80	---	0.0320	ug/L	1	1.60	---	113	80-126%	---	---	
Fluorene	1.68	---	0.0320	ug/L	1	1.60	---	105	77-127%	---	---	
Indeno(1,2,3-cd)pyrene	1.37	---	0.0160	ug/L	1	1.60	---	86	80-121%	---	---	
1-Methylnaphthalene	1.65	---	0.0640	ug/L	1	1.60	---	103	53-148%	---	---	
2-Methylnaphthalene	1.59	---	0.0640	ug/L	1	1.60	---	100	48-150%	---	---	
Naphthalene	1.58	---	0.0640	ug/L	1	1.60	---	99	78-120%	---	---	
Phenanthrene	1.49	---	0.0640	ug/L	1	1.60	---	93	80-120%	---	---	
Pyrene	1.80	---	0.0320	ug/L	1	1.60	---	112	80-125%	---	---	
Carbazole	1.69	---	0.0320	ug/L	1	1.60	---	105	65-141%	---	---	
Dibenzofuran	1.67	---	0.0320	ug/L	1	1.60	---	104	76-121%	---	---	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 89 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		112 %		80-132 %		"						

LCS Dup (24J0849-BSD1)			Prepared: 10/22/24 06:18 Analyzed: 10/22/24 13:48								Q-19	
EPA 8270E LVI												
Acenaphthene	1.56	---	0.0320	ug/L	1	1.60	---	98	80-120%	2	30%	
Acenaphthylene	1.66	---	0.0320	ug/L	1	1.60	---	104	80-124%	3	30%	
Anthracene	1.53	---	0.0320	ug/L	1	1.60	---	96	80-123%	5	30%	
Benz(a)anthracene	1.54	---	0.0160	ug/L	1	1.60	---	96	80-122%	4	30%	
Benzo(a)pyrene	1.75	---	0.0160	ug/L	1	1.60	---	109	80-129%	0.5	30%	
Benzo(b)fluoranthene	1.63	---	0.0160	ug/L	1	1.60	---	102	80-124%	4	30%	
Benzo(k)fluoranthene	1.64	---	0.0160	ug/L	1	1.60	---	102	80-125%	1	30%	
Benzo(g,h,i)perylene	1.41	---	0.0320	ug/L	1	1.60	---	88	80-120%	2	30%	
Chrysene	1.45	---	0.0160	ug/L	1	1.60	---	90	80-120%	4	30%	
Dibenz(a,h)anthracene	1.44	---	0.0160	ug/L	1	1.60	---	90	80-120%	3	30%	
Fluoranthene	1.75	---	0.0320	ug/L	1	1.60	---	109	80-126%	3	30%	
Fluorene	1.64	---	0.0320	ug/L	1	1.60	---	102	77-127%	3	30%	
Indeno(1,2,3-cd)pyrene	1.34	---	0.0160	ug/L	1	1.60	---	84	80-121%	2	30%	
1-Methylnaphthalene	1.54	---	0.0640	ug/L	1	1.60	---	96	53-148%	7	30%	
2-Methylnaphthalene	1.48	---	0.0640	ug/L	1	1.60	---	93	48-150%	7	30%	
Naphthalene	1.64	---	0.0640	ug/L	1	1.60	---	102	78-120%	3	30%	
Phenanthrene	1.43	---	0.0640	ug/L	1	1.60	---	89	80-120%	4	30%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 20 of 34



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0849 - EPA 3511 (Bottle Extraction)						Water						
LCS Dup (24J0849-BSD1)			Prepared: 10/22/24 06:18 Analyzed: 10/22/24 13:48						Q-19			
Pyrene	1.71	---	0.0320	ug/L	1	1.60	---	107	80-125%	5	30%	
Carbazole	1.65	---	0.0320	ug/L	1	1.60	---	103	65-141%	2	30%	
Dibenzofuran	1.61	---	0.0320	ug/L	1	1.60	---	101	76-121%	4	30%	
Surr: Acenaphthylene-d8 (Surr)		Recovery: 89 %		Limits: 78-134 %		Dilution: 1x						
Benzo(a)pyrene-d12 (Surr)		114 %		80-132 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1202 - EPA 3015A Water												
Blank (24J1202-BLK1) Prepared: 10/31/24 09:34 Analyzed: 11/01/24 02:54												
EPA 6020B												
Antimony	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Beryllium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Copper	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
Nickel	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Thallium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Zinc	ND	---	4.00	ug/L	1	---	---	---	---	---	---	

LCS (24J1202-BS1)

Prepared: 10/31/24 09:34 Analyzed: 11/01/24 02:59

EPA 6020B												
Antimony	27.0	---	1.00	ug/L	1	27.8	---	97	80-120%	---	---	
Arsenic	52.5	---	1.00	ug/L	1	55.6	---	95	80-120%	---	---	
Beryllium	28.4	---	0.200	ug/L	1	27.8	---	102	80-120%	---	---	
Cadmium	54.7	---	0.200	ug/L	1	55.6	---	98	80-120%	---	---	
Chromium	50.5	---	2.00	ug/L	1	55.6	---	91	80-120%	---	---	
Copper	53.4	---	2.00	ug/L	1	55.6	---	96	80-120%	---	---	
Lead	55.7	---	0.200	ug/L	1	55.6	---	100	80-120%	---	---	
Mercury	1.09	---	0.0800	ug/L	1	1.11	---	98	80-120%	---	---	
Nickel	52.5	---	2.00	ug/L	1	55.6	---	94	80-120%	---	---	
Selenium	27.0	---	1.00	ug/L	1	27.8	---	97	80-120%	---	---	
Silver	28.6	---	0.200	ug/L	1	27.8	---	103	80-120%	---	---	
Thallium	27.3	---	0.200	ug/L	1	27.8	---	98	80-120%	---	---	
Zinc	53.4	---	4.00	ug/L	1	55.6	---	96	80-120%	---	---	

Duplicate (24J1202-DUP1)

Prepared: 10/31/24 09:34 Analyzed: 11/01/24 03:21

QC Source Sample: Non-SDG (A4J1505-05)												
Antimony	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1202 - EPA 3015A							Water					
Duplicate (24J1202-DUP1)			Prepared: 10/31/24 09:34		Analyzed: 11/01/24 03:21							
QC Source Sample: Non-SDG (A4J1505-05)												
Arsenic	1.29	---	1.00	ug/L	1	---	1.30	---	---	1	20%	
Beryllium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Cadmium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Chromium	ND	---	2.00	ug/L	1	---	ND	---	---	---	20%	
Copper	ND	---	2.00	ug/L	1	---	1.19	---	---	***	20%	
Lead	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	
Nickel	ND	---	2.00	ug/L	1	---	1.21	---	---	***	20%	
Selenium	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	
Silver	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Thallium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Zinc	ND	---	4.00	ug/L	1	---	2.13	---	---	***	20%	

Matrix Spike (24J1202-MS1)

Prepared: 10/31/24 09:34 Analyzed: 11/01/24 03:32

QC Source Sample: Non-SDG (A4J1505-06)												
EPA 6020B												
Antimony	28.5	---	1.00	ug/L	1	27.8	ND	102	75-125%	---	---	
Arsenic	55.4	---	1.00	ug/L	1	55.6	0.747	98	75-125%	---	---	
Beryllium	28.7	---	0.200	ug/L	1	27.8	ND	103	75-125%	---	---	
Cadmium	54.9	---	0.200	ug/L	1	55.6	ND	99	75-125%	---	---	
Chromium	51.2	---	2.00	ug/L	1	55.6	ND	92	75-125%	---	---	
Copper	54.0	---	2.00	ug/L	1	55.6	2.83	92	75-125%	---	---	
Lead	54.1	---	0.200	ug/L	1	55.6	0.367	97	75-125%	---	---	
Mercury	1.11	---	0.0800	ug/L	1	1.11	ND	100	75-125%	---	---	
Nickel	52.8	---	2.00	ug/L	1	55.6	2.04	91	75-125%	---	---	
Selenium	27.9	---	1.00	ug/L	1	27.8	ND	100	75-125%	---	---	
Silver	28.6	---	0.200	ug/L	1	27.8	ND	103	75-125%	---	---	
Thallium	26.5	---	0.200	ug/L	1	27.8	ND	95	75-125%	---	---	
Zinc	53.6	---	4.00	ug/L	1	55.6	ND	96	75-125%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1227 - Matrix Matched Direct Inject							Water					
Blank (24J1227-BLK1)			Prepared: 10/31/24 14:07		Analyzed: 11/01/24 04:47							
EPA 6020B (Diss)												
Antimony	ND	---	1.00	ug/L	1	---	---	---	---	---	---	FILT3
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	FILT3
Beryllium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Chromium	ND	---	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Copper	ND	---	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	FILT3
Nickel	ND	---	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	FILT3
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Thallium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	FILT3
Zinc	ND	---	4.00	ug/L	1	---	---	---	---	---	---	FILT3

LCS (24J1227-BS1)

Prepared: 10/31/24 14:07 Analyzed: 11/01/24 04:52

EPA 6020B (Diss)												
Antimony	26.7	---	1.00	ug/L	1	27.8	---	96	80-120%	---	---	
Arsenic	53.1	---	1.00	ug/L	1	55.6	---	96	80-120%	---	---	
Beryllium	28.2	---	0.200	ug/L	1	27.8	---	102	80-120%	---	---	
Cadmium	54.0	---	0.200	ug/L	1	55.6	---	97	80-120%	---	---	
Chromium	51.8	---	2.00	ug/L	1	55.6	---	93	80-120%	---	---	
Copper	55.2	---	2.00	ug/L	1	55.6	---	99	80-120%	---	---	
Lead	55.4	---	0.200	ug/L	1	55.6	---	100	80-120%	---	---	
Mercury	1.05	---	0.0800	ug/L	1	1.11	---	95	80-120%	---	---	
Nickel	53.6	---	2.00	ug/L	1	55.6	---	96	80-120%	---	---	
Selenium	27.0	---	1.00	ug/L	1	27.8	---	97	80-120%	---	---	
Silver	28.4	---	0.200	ug/L	1	27.8	---	102	80-120%	---	---	
Thallium	27.9	---	0.200	ug/L	1	27.8	---	100	80-120%	---	---	
Zinc	53.9	---	4.00	ug/L	1	55.6	---	97	80-120%	---	---	

Duplicate (24J1227-DUP1)

Prepared: 10/31/24 14:07 Analyzed: 11/01/24 05:14

QC Source Sample: BH TR1 PreGab 20241021 (A4J1568-03)

EPA 6020B (Diss)

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J1227 - Matrix Matched Direct Inject							Water					
Duplicate (24J1227-DUP1)			Prepared: 10/31/24 14:07		Analyzed: 11/01/24 05:14							
QC Source Sample: BH TR1 PreGab 20241021 (A4J1568-03)												
Antimony	2.70	---	1.00	ug/L	1	---	2.68	---	---	0.8	20%	FILT1
Arsenic	1.72	---	1.00	ug/L	1	---	1.73	---	---	0.8	20%	FILT1
Beryllium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Cadmium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Chromium	ND	---	2.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Copper	10.1	---	2.00	ug/L	1	---	9.99	---	---	1	20%	FILT1
Lead	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	FILT1
Nickel	ND	---	2.00	ug/L	1	---	1.34	---	---	***	20%	FILT1
Selenium	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	FILT1
Silver	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Thallium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	FILT1
Zinc	42.8	---	4.00	ug/L	1	---	42.6	---	---	0.6	20%	FILT1

Matrix Spike (24J1227-MS1)

Prepared: 10/31/24 14:07 Analyzed: 11/01/24 05:24

QC Source Sample: BH TR1 PostGab 20241021 (A4J1568-04)												
EPA 6020B (Diss)												
Antimony	30.4	---	1.00	ug/L	1	27.8	2.43	101	75-125%	---	---	FILT1
Arsenic	55.1	---	1.00	ug/L	1	55.6	1.50	96	75-125%	---	---	FILT1
Beryllium	28.8	---	0.200	ug/L	1	27.8	ND	104	75-125%	---	---	FILT1
Cadmium	54.6	---	0.200	ug/L	1	55.6	ND	98	75-125%	---	---	FILT1
Chromium	52.1	---	2.00	ug/L	1	55.6	ND	94	75-125%	---	---	FILT1
Copper	65.4	---	2.00	ug/L	1	55.6	10.6	99	75-125%	---	---	FILT1
Lead	55.5	---	0.200	ug/L	1	55.6	ND	100	75-125%	---	---	FILT1
Mercury	1.08	---	0.0800	ug/L	1	1.11	ND	97	75-125%	---	---	FILT1
Nickel	54.6	---	2.00	ug/L	1	55.6	1.97	95	75-125%	---	---	FILT1
Selenium	27.1	---	1.00	ug/L	1	27.8	ND	98	75-125%	---	---	FILT1
Silver	29.0	---	0.200	ug/L	1	27.8	ND	104	75-125%	---	---	FILT1
Thallium	28.1	---	0.200	ug/L	1	27.8	ND	101	75-125%	---	---	FILT1
Zinc	104	---	4.00	ug/L	1	55.6	52.4	94	75-125%	---	---	FILT1

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 25 of 34



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

QUALITY CONTROL (QC) SAMPLE RESULTS

Solid and Moisture Determinations

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24J0866 - Total Suspended Solids - 2022						Water						
Blank (24J0866-BLK1)			Prepared: 10/22/24 10:58		Analyzed: 10/22/24 10:58							
<u>SM 2540 D</u>												
Total Suspended Solids	ND	---	5.00	mg/L	1	---	---	---	---	---	---	
Duplicate (24J0866-DUP1)			Prepared: 10/22/24 10:58		Analyzed: 10/22/24 10:58							
<u>QC Source Sample: BH TRH PreGab 20241021 (A4J1568-01)</u>												
<u>SM 2540 D</u>												
Total Suspended Solids	ND	---	5.00	mg/L	1	---	6.00	---	---	***	10%	Q-05, TSS
Duplicate (24J0866-DUP2)			Prepared: 10/22/24 10:58		Analyzed: 10/22/24 10:58							
<u>QC Source Sample: Non-SDG (A4J1550-01)</u>												
Total Suspended Solids	9.00	---	5.00	mg/L	1	---	9.00	---	---	0.00	10%	TSS
Reference (24J0866-SRM1)			Prepared: 10/22/24 10:58		Analyzed: 10/22/24 10:58							
<u>SM 2540 D</u>												
Total Suspended Solids	871	---		mg/L	1	828		105	85-115%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1568 - 11 05 24 1631**

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0927							
A4J1568-01	Water	NWTPH-HCID	10/21/24 13:45	10/23/24 11:07	1040mL/5mL	1000mL/5mL	0.96
A4J1568-02	Water	NWTPH-HCID	10/21/24 14:10	10/23/24 11:07	1050mL/5mL	1000mL/5mL	0.95
A4J1568-03	Water	NWTPH-HCID	10/21/24 15:00	10/23/24 11:07	1050mL/5mL	1000mL/5mL	0.95
A4J1568-04	Water	NWTPH-HCID	10/21/24 15:20	10/23/24 11:07	1050mL/5mL	1000mL/5mL	0.95

Diesel and/or Oil Hydrocarbons by NWTPH-Dx with Acid/Silica Gel Cleanup

Prep: EPA 3510C (Fuels/Acid Ext.) w/SG+Acid

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24K0042							
A4J1568-03	Water	NWTPH-Dx/SG	10/21/24 15:00	10/23/24 11:07	1050mL/5mL	1000mL/5mL	0.95

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J1191							
A4J1568-01	Water	EPA 8082A	10/21/24 13:45	10/31/24 07:07	1060mL/5mL	1000mL/5mL	0.94
A4J1568-02	Water	EPA 8082A	10/21/24 14:10	10/31/24 07:07	1050mL/5mL	1000mL/5mL	0.95
A4J1568-03	Water	EPA 8082A	10/21/24 15:00	10/31/24 07:07	1050mL/5mL	1000mL/5mL	0.95
A4J1568-04	Water	EPA 8082A	10/21/24 15:20	10/31/24 07:07	1045mL/5mL	1000mL/5mL	0.96

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E (Large Volume Injection)

Prep: EPA 3511 (Bottle Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0849							
A4J1568-01	Water	EPA 8270E LVI	10/21/24 13:45	10/22/24 11:24	123.74mL/5mL	125mL/5mL	1.01
A4J1568-02	Water	EPA 8270E LVI	10/21/24 14:10	10/22/24 11:24	124.39mL/5mL	125mL/5mL	1.00
A4J1568-03	Water	EPA 8270E LVI	10/21/24 15:00	10/22/24 11:24	122.65mL/5mL	125mL/5mL	1.02
A4J1568-04	Water	EPA 8270E LVI	10/21/24 15:20	10/22/24 11:24	124.15mL/5mL	125mL/5mL	1.01

Total Metals by EPA 6020B (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
------------	--------	--------	---------	----------	----------------------	-----------------------	----------------

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4J1568 - 11 05 24 1631****SAMPLE PREPARATION INFORMATION****Total Metals by EPA 6020B (ICPMS)****Prep: EPA 3015A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J1202							
A4J1568-01	Water	EPA 6020B	10/21/24 13:45	10/31/24 09:34	45mL/50mL	45mL/50mL	1.00
A4J1568-02	Water	EPA 6020B	10/21/24 14:10	10/31/24 09:34	45mL/50mL	45mL/50mL	1.00
A4J1568-03	Water	EPA 6020B	10/21/24 15:00	10/31/24 09:34	45mL/50mL	45mL/50mL	1.00
A4J1568-04	Water	EPA 6020B	10/21/24 15:20	10/31/24 09:34	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 6020B (ICPMS)**Prep: Matrix Matched Direct Inject**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J1227							
A4J1568-01	Water	EPA 6020B (Diss)	10/21/24 13:45	10/31/24 14:07	45mL/50mL	45mL/50mL	1.00
A4J1568-02	Water	EPA 6020B (Diss)	10/21/24 14:10	10/31/24 14:07	45mL/50mL	45mL/50mL	1.00
A4J1568-03	Water	EPA 6020B (Diss)	10/21/24 15:00	10/31/24 14:07	45mL/50mL	45mL/50mL	1.00
A4J1568-04	Water	EPA 6020B (Diss)	10/21/24 15:20	10/31/24 14:07	45mL/50mL	45mL/50mL	1.00

Solid and Moisture Determinations**Prep: Total Suspended Solids - 2022**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0866							
A4J1568-01	Water	SM 2540 D	10/21/24 13:45	10/22/24 10:58			NA
A4J1568-02	Water	SM 2540 D	10/21/24 14:10	10/22/24 10:58			NA
A4J1568-03	Water	SM 2540 D	10/21/24 15:00	10/22/24 10:58			NA
A4J1568-04	Water	SM 2540 D	10/21/24 15:20	10/22/24 10:58			NA

Lab Filtration**Prep: Lab Filtration**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24J0880							
A4J1568-01	Water	NA	10/21/24 13:45	10/22/24 12:34	150mL/150mL		NA
A4J1568-02	Water	NA	10/21/24 14:10	10/22/24 12:36	150mL/150mL		NA
A4J1568-03	Water	NA	10/21/24 15:00	10/22/24 12:37	150mL/150mL		NA
A4J1568-04	Water	NA	10/21/24 15:20	10/22/24 12:39	150mL/150mL		NA

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 28 of 34



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4J1568 - 11 05 24 1631

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- F-03** The result for this hydrocarbon range is elevated due to the presence of individual analyte peaks in the quantitation range that are not representative of the fuel pattern reported.
- FILT1** Sample was lab filtered and acid preserved prior to analysis. See sample preparation section of report for date and time of filtration.
- FILT3** This is a laboratory filtration blank, associated with filtration batch 24J0880. See Prep page of report for associated samples.
- M-05** Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
- P-12** Result estimated due to the presence of multiple PCB Aroclors and/or PCB congeners not defined as Aroclors.
- Q-05** Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- TSS** Dried residue was less than 2.5mg as specified in the method. Results meet regulatory requirements.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1568 - 11 05 24 1631

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1568 - 11 05 24 1631

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4J1568 - 11 05 24 1631

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

Project: Blue Heron

15862 SW 72nd Ave. Suite 150

Project Number: G685.0793 Task 400

Portland, OR 97224

Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

Lab # A4J1568 coc 1 of 1

CHAIN OF CUSTODY

APEX LABS

6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

Company: WSP	Project Mgr: John Kuiper	Project Name: Blue Heron	Project #: G685.0793 Task 400
Address: 15862 SW 72nd Ave #150 Portland, OR 97224		Email: John.Kuiper@wsp.com	PO #
Sampled by: Joanne Chen, Matthew Brown			
Site Location: OR			
State: OR	County: Clark		
SAMPLE ID	DATE	TIME	MATRIX
BHL-TRH-Pre-Gab-2024021	10/21/24	1345	W
BHL-TRH-Pre-Gab-2024021	1410		
BHL-TRH-Pre-Gab-2024021	1500		
BHL-TRH-Pre-Gab-2024021	1520		
ANALYSIS REQUEST			
8081 Pesticides			
8082 PCBs			
8270 Semi-Vols Full List			
8270 SIM PAHs			
8260 VOCs Full List			
8260 Halo VOCs			
8260 RBDM VOCs			
8260 BTEX			
NWTPH-Gx			
NWTPH-Dx			
NWTPH-HCID			
# OF CONTAINERS			
MATRIX			
DATE			
TIME			
MATRIX			
# OF CONTAINERS			
NWTPH-HCID			
NWTPH-Dx			
NWTPH-Gx			
8260 BTEX			
8260 RBDM VOCs			
8260 Halo VOCs			
8260 VOCs Full List			
8270 SIM PAHs			
8270 Semi-Vols Full List			
8082 PCBs			
8081 Pesticides			
RCRA Metals (8)			
Priority Metals (13)			
Al, Sb, As, Ba, Be, Bi, Cd, Cr, Cu, Fe, Pb, Pp, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, TL, V, Zn			
TOTAL DISS. TCLP			
TCLP Metals (8)			
PAHs (270E-SIM)			
Priority Metals (13)			
Hold Sample			
Frozen Archive			

SPECIAL INSTRUCTIONS:
Run TPH-HCID, follow-up with Gx and/or Dx as needed.
Total & Dissolved priority pollutant (13) metals.
Please lab filter for diss.
Also email daniel.schall@wsp.com

RECEIVED BY: Signature: Date: Time: Company: WSP

RELINQUISHED BY: Signature: Date: Time: Company: APEX

SAMPLES ARE HELD FOR 30 DAYS

TAT Requested (circle) 1 Day 2 Day 3 Day 5 Day Standard Other: 10/21/24

RELINQUISHED BY: Signature: Date: Time: Company: WSP

RELINQUISHED BY: Signature: Date: Time: Company: APEX

Form Y-002 R-00

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue HeronProject Number: G685.0793 Task 400Project Manager: John Kuiper

Report ID:

A4J1568 - 11 05 24 1631

APEX LABS COOLER RECEIPT FORM

Client: WSP Element WO#: A4 J1568Project/Project #: Blue Heron / G685.0793 Task 400

Delivery Info:

Date/time received: 10/21/24 @ 17:17 By: SKMDelivered by: Apex ☒ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Radio ☐ Morgan ☐ SDS ☐ Evergreen ☐ Other ☐From USDA Regulated Origin? Yes ☐ No ☒Cooler Inspection Date/time inspected: 10/21/24 @ 17:17 By: SKMChain of Custody included? Yes ☒ No ☐Signed/dated by client? Yes ☒ No ☐Contains USDA Reg. Soils? Yes ☐ No ☒ Unsure (email RegSoils) ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>4.5</u>	<u>5.5</u>					
Custody seals? (Y/N)	<u>N</u>	<u>D</u>					
Received on ice? (Y/N)	<u>Y</u>	<u>D</u>					
Temp. blanks? (Y/N)	<u>Y</u>	<u>D</u>					
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>D</u>					
Condition (In/Out):	<u>IN</u>	<u>D</u>					

Cooler out of temp? (Y/N) Possible reason why:

Green dots applied to out of temperature samples? Yes ☒ No ☐Out of temperature samples form initiated? Yes ☒ No ☐Sample Inspection: Date/time inspected: 10/21/24 @ 1906 By: ZAAll samples intact? Yes ☒ No ☐ Comments: _____Bottle labels/COCs agree? Yes ☒ No ☐ Comments: _____COC/container discrepancies form initiated? Yes ☐ No ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: _____Do VOA vials have visible headspace? Yes ☐ No ☒ NA ☐

Comments: _____

Water samples: pH checked: Yes ☒ No ☐ NA ☐ pH appropriate? Yes ☒ No ☐ NA ☐ pH ID: A231172

Comments: _____

Labeled by: JKWitness: JKCooler Inspected by: ZA

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Monday, December 30, 2024

John Kuiper

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

RE: A4L0877 - Blue Heron - Waste Pile - G685.0793 task 400

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4L0877, which was received by the laboratory on 12/4/2024 at 11:30:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information

Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.

(See Cooler Receipt Form for details)

Default Cooler 5.6 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron - Waste Pile
Project Number: G685.0793 task 400
Project Manager: John Kuiper

Report ID:
A4L0877 - 12 30 24 1713

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH_DPSed#3_20241203	A4L0877-01	Solid	12/03/24 15:30	12/04/24 11:30

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0877 - 12 30 24 1713

ANALYTICAL SAMPLE RESULTS

Regulated TCLP Volatile Organic Compounds by EPA 1311/8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_DPSed#3_20241203 (A4L0877-01)			Matrix: Solid		Batch: 24L0372			
Benzene	ND	---	0.0100	mg/L	50	12/11/24 14:56	1311/8260D	
2-Butanone (MEK)	ND	---	0.500	mg/L	50	12/11/24 14:56	1311/8260D	
Carbon tetrachloride	ND	---	0.0500	mg/L	50	12/11/24 14:56	1311/8260D	
Chlorobenzene	ND	---	0.0250	mg/L	50	12/11/24 14:56	1311/8260D	
Chloroform	ND	---	0.0500	mg/L	50	12/11/24 14:56	1311/8260D	
1,4-Dichlorobenzene	ND	---	0.0250	mg/L	50	12/11/24 14:56	1311/8260D	
1,1-Dichloroethene	ND	---	0.0200	mg/L	50	12/11/24 14:56	1311/8260D	
1,2-Dichloroethane (EDC)	ND	---	0.0200	mg/L	50	12/11/24 14:56	1311/8260D	
Tetrachloroethene (PCE)	ND	---	0.0200	mg/L	50	12/11/24 14:56	1311/8260D	
Trichloroethene (TCE)	ND	---	0.0200	mg/L	50	12/11/24 14:56	1311/8260D	
Vinyl chloride	ND	---	0.0100	mg/L	50	12/11/24 14:56	1311/8260D	
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	109 %	Limits:	80-120 %	1	12/11/24 14:56	1311/8260D
Toluene-d8 (Surr)			101 %		80-120 %	1	12/11/24 14:56	1311/8260D
4-Bromofluorobenzene (Surr)			102 %		80-120 %	1	12/11/24 14:56	1311/8260D

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: Blue Heron - Waste Pile
Project Number: G685.0793 task 400
Project Manager: John KuiperReport ID:
A4L0877 - 12 30 24 1713

ANALYTICAL SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_DPSed#3_20241203 (A4L0877-01)				Matrix: Solid		Batch: 24L0640		R-04
2-Methylphenol	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
3+4-Methylphenol(s)	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
Pentachlorophenol (PCP)	ND	---	0.500	mg/L	50	12/17/24 22:32	1311/8270E	
2,4,5-Trichlorophenol	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
2,4,6-Trichlorophenol	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
Hexachlorobenzene	ND	---	0.100	mg/L	50	12/17/24 22:32	1311/8270E	
Hexachlorobutadiene	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
Hexachloroethane	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
Nitrobenzene	ND	---	0.250	mg/L	50	12/17/24 22:32	1311/8270E	
2,4-Dinitrotoluene	ND	---	0.100	mg/L	50	12/17/24 22:32	1311/8270E	
Pyridine	ND	---	0.500	mg/L	50	12/17/24 22:32	1311/8270E	
Surrogate: Nitrobenzene-d5 (Surr)		Recovery:	79 %	Limits: 44-120 %	50	12/17/24 22:32	1311/8270E	S-05
2-Fluorobiphenyl (Surr)			69 %	44-120 %	50	12/17/24 22:32	1311/8270E	S-05
Phenol-d6 (Surr)			27 %	10-133 %	50	12/17/24 22:32	1311/8270E	S-05
p-Terphenyl-d14 (Surr)			87 %	50-134 %	50	12/17/24 22:32	1311/8270E	S-05
2-Fluorophenol (Surr)			41 %	19-120 %	50	12/17/24 22:32	1311/8270E	S-05
2,4,6-Tribromophenol (Surr)			133 %	43-140 %	50	12/17/24 22:32	1311/8270E	S-05

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0877 - 12 30 24 1713

ANALYTICAL SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH_DPSed#3_20241203 (A4L0877-01)				Matrix: Solid				
Batch: 24L0468								
Arsenic	ND	---	0.100	mg/L	10	12/12/24 23:10	1311/6020B	
Barium	ND	---	5.00	mg/L	10	12/12/24 23:10	1311/6020B	
Cadmium	ND	---	0.100	mg/L	10	12/12/24 23:10	1311/6020B	
Chromium	ND	---	0.100	mg/L	10	12/12/24 23:10	1311/6020B	
Lead	0.149	---	0.0500	mg/L	10	12/12/24 23:10	1311/6020B	
Mercury	ND	---	0.00700	mg/L	10	12/12/24 23:10	1311/6020B	
Selenium	ND	---	0.100	mg/L	10	12/12/24 23:10	1311/6020B	
Silver	ND	---	0.100	mg/L	10	12/12/24 23:10	1311/6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron - Waste Pile

Project Number: G685.0793 task 400

Project Manager: John Kuiper

Report ID:

A4L0877 - 12 30 24 1713

QUALITY CONTROL (QC) SAMPLE RESULTS

Regulated TCLP Volatile Organic Compounds by EPA 1311/8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0372 - EPA 1311/5030C TCLP Volatiles						Water						
Blank (24L0372-BLK1)			Prepared: 12/11/24 07:00		Analyzed: 12/11/24 13:33						TCLP	
1311/8260D												
Benzene	ND	---	0.0100	mg/L	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	0.500	mg/L	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	0.0500	mg/L	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.0250	mg/L	50	---	---	---	---	---	---	
Chloroform	ND	---	0.0500	mg/L	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.0250	mg/L	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.0200	mg/L	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.0200	mg/L	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.0200	mg/L	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.0200	mg/L	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.0100	mg/L	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 107 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						
LCS (24L0372-BS1)			Prepared: 12/11/24 07:00		Analyzed: 12/11/24 12:17						TCLP	
1311/8260D												
Benzene	0.940	---	0.0100	mg/L	50	1.00	---	94	80-120%	---	---	
2-Butanone (MEK)	1.63	---	0.500	mg/L	50	2.00	---	82	80-120%	---	---	
Carbon tetrachloride	1.20	---	0.0500	mg/L	50	1.00	---	120	80-120%	---	---	
Chlorobenzene	0.952	---	0.0250	mg/L	50	1.00	---	95	80-120%	---	---	
Chloroform	0.976	---	0.0500	mg/L	50	1.00	---	98	80-120%	---	---	
1,4-Dichlorobenzene	0.929	---	0.0250	mg/L	50	1.00	---	93	80-120%	---	---	
1,1-Dichloroethene	1.20	---	0.0200	mg/L	50	1.00	---	120	80-120%	---	---	
1,2-Dichloroethane (EDC)	0.978	---	0.0200	mg/L	50	1.00	---	98	80-120%	---	---	
Tetrachloroethene (PCE)	1.04	---	0.0200	mg/L	50	1.00	---	104	80-120%	---	---	
Trichloroethene (TCE)	0.848	---	0.0200	mg/L	50	1.00	---	85	80-120%	---	---	
Vinyl chloride	1.00	---	0.0100	mg/L	50	1.00	---	100	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		95 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		94 %		80-120 %		"						
Duplicate (24L0372-DUP1)			Prepared: 12/09/24 15:09		Analyzed: 12/11/24 14:29							

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0877 - 12 30 24 1713

QUALITY CONTROL (QC) SAMPLE RESULTS

Regulated TCLP Volatile Organic Compounds by EPA 1311/8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	Limits	RPD	RPD Limit	Notes
Batch 24L0372 - EPA 1311/5030C TCLP Volatiles						Water						
Duplicate (24L0372-DUP1)			Prepared: 12/09/24 15:09 Analyzed: 12/11/24 14:29									
QC Source Sample: Non-SDG (A4K1690-01)												
Benzene	ND	---	0.0100	mg/L	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	0.500	mg/L	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	0.0500	mg/L	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	0.0250	mg/L	50	---	ND	---	---	---	30%	
Chloroform	0.112	---	0.0500	mg/L	50	---	0.110	---	---	2	30%	
1,4-Dichlorobenzene	ND	---	0.0250	mg/L	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	0.0200	mg/L	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.0200	mg/L	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	0.0200	mg/L	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	---	0.0200	mg/L	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	0.0100	mg/L	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 108 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		104 %		80-120 %		"						

Matrix Spike (24L0372-MS1)

Prepared: 12/09/24 15:09 Analyzed: 12/11/24 15:24

QC Source Sample: BH DPSed#3 20241203 (A4L0877-01)												
1311/8260D												
Benzene	1.02	---	0.0100	mg/L	50	1.00	ND	102	79-120%	---	---	
2-Butanone (MEK)	1.67	---	0.500	mg/L	50	2.00	ND	83	56-143%	---	---	
Carbon tetrachloride	1.37	---	0.0500	mg/L	50	1.00	ND	137	72-136%	---	---	Q-01
Chlorobenzene	1.02	---	0.0250	mg/L	50	1.00	ND	102	80-120%	---	---	
Chloroform	1.07	---	0.0500	mg/L	50	1.00	ND	107	79-124%	---	---	
1,4-Dichlorobenzene	0.986	---	0.0250	mg/L	50	1.00	ND	99	79-120%	---	---	
1,1-Dichloroethene	1.36	---	0.0200	mg/L	50	1.00	ND	136	71-131%	---	---	Q-01
1,2-Dichloroethane (EDC)	1.04	---	0.0200	mg/L	50	1.00	ND	104	73-128%	---	---	
Tetrachloroethene (PCE)	1.13	---	0.0200	mg/L	50	1.00	ND	113	74-129%	---	---	
Trichloroethene (TCE)	0.924	---	0.0200	mg/L	50	1.00	ND	92	79-123%	---	---	
Vinyl chloride	1.06	---	0.0100	mg/L	50	1.00	ND	106	58-137%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		94 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		92 %		80-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron - Waste Pile

Project Number: G685.0793 task 400

Project Manager: John Kuiper

Report ID:

A4L0877 - 12 30 24 1713

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	Limits	RPD	RPD Limit	Notes
Batch 24L0640 - EPA 1311/3510C (BNA Extraction)						Solid						
Blank (24L0640-BLK1)			Prepared: 12/17/24 14:17		Analyzed: 12/17/24 21:25		TCLPa					
1311/8270E												
2-Methylphenol	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	---	0.0100	mg/L	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	---	0.00200	mg/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Hexachloroethane	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Nitrobenzene	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	---	0.00200	mg/L	1	---	---	---	---	---	---	
Pyridine	ND	---	0.0100	mg/L	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)												
			Recovery:	92 %	Limits:	44-120 %	Dilution: 1x					
2-Fluorobiphenyl (Surr)				77 %		44-120 %	"					
Phenol-d6 (Surr)				28 %		10-133 %	"					
p-Terphenyl-d14 (Surr)				100 %		50-134 %	"					
2-Fluorophenol (Surr)				43 %		19-120 %	"					
2,4,6-Tribromophenol (Surr)				101 %		43-140 %	"					
LCS (24L0640-BS1)												
			Prepared: 12/17/24 14:17		Analyzed: 12/17/24 21:58		Q-18, TCLPa					
1311/8270E												
2-Methylphenol	0.0318	---	0.0200	mg/L	4	0.0400	---	79	30-120%	---	---	
3+4-Methylphenol(s)	0.0311	---	0.0200	mg/L	4	0.0400	---	78	29-120%	---	---	Q-41
Pentachlorophenol (PCP)	ND	---	0.0400	mg/L	4	0.0400	---	95	35-138%	---	---	
2,4,5-Trichlorophenol	0.0481	---	0.0200	mg/L	4	0.0400	---	120	53-123%	---	---	Q-41
2,4,6-Trichlorophenol	0.0425	---	0.0200	mg/L	4	0.0400	---	106	50-125%	---	---	Q-41
Hexachlorobenzene	0.0376	---	0.00800	mg/L	4	0.0400	---	94	53-125%	---	---	
Hexachlorobutadiene	0.0267	---	0.0200	mg/L	4	0.0400	---	67	22-124%	---	---	
Hexachloroethane	0.0250	---	0.0200	mg/L	4	0.0400	---	63	21-120%	---	---	
Nitrobenzene	0.0377	---	0.0200	mg/L	4	0.0400	---	94	45-121%	---	---	
2,4-Dinitrotoluene	0.0405	---	0.00800	mg/L	4	0.0400	---	101	57-128%	---	---	
Pyridine	ND	---	0.0400	mg/L	4	0.0400	---	58	10-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)												
			Recovery:	95 %	Limits:	44-120 %	Dilution: 4x					
2-Fluorobiphenyl (Surr)				79 %		44-120 %	"					

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron - Waste Pile**Project Number: **G685.0793 task 400**Project Manager: **John Kuiper****Report ID:****A4L0877 - 12 30 24 1713**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0640 - EPA 1311/3510C (BNA Extraction)							Solid					
LCS (24L0640-BS1)			Prepared: 12/17/24 14:17 Analyzed: 12/17/24 21:58					Q-18, TCLPa				
Surr: Phenol-d6 (Surr)		Recovery:	31 %	Limits:	10-133 %	Dilution:		4x				
p-Terphenyl-d14 (Surr)			102 %		50-134 %			"				
2-Fluorophenol (Surr)			46 %		19-120 %			"				
2,4,6-Tribromophenol (Surr)			109 %		43-140 %			"				
Duplicate (24L0640-DUP1)			Prepared: 12/17/24 14:17 Analyzed: 12/17/24 23:06					R-04				
QC Source Sample: BH_DPSed#3_20241203 (A4L0877-01)												
1311/8270E												
2-Methylphenol	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	---	0.500	mg/L	50	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	---	0.100	mg/L	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
Hexachloroethane	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
Nitrobenzene	ND	---	0.250	mg/L	50	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	---	0.100	mg/L	50	---	ND	---	---	---	30%	
Pyridine	ND	---	0.500	mg/L	50	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)		Recovery:	80 %	Limits:	44-120 %	Dilution:		50x	S-05			
2-Fluorobiphenyl (Surr)			70 %		44-120 %			"	S-05			
Phenol-d6 (Surr)			27 %		10-133 %			"	S-05			
p-Terphenyl-d14 (Surr)			93 %		50-134 %			"	S-05			
2-Fluorophenol (Surr)			42 %		19-120 %			"	S-05			
2,4,6-Tribromophenol (Surr)			131 %		43-140 %			"	S-05			

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron - Waste Pile

Project Number: G685.0793 task 400

Project Manager: John Kuiper

Report ID:

A4L0877 - 12 30 24 1713

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0468 - EPA 1311/3015A						Solid						
Blank (24L0468-BLK1)			Prepared: 12/12/24 14:30		Analyzed: 12/12/24 22:59							
1311/6020B												
Arsenic	ND	---	0.100	mg/L	10	---	---	---	---	---	---	TCLPa
Barium	ND	---	5.00	mg/L	10	---	---	---	---	---	---	TCLPa
Cadmium	ND	---	0.100	mg/L	10	---	---	---	---	---	---	TCLPa
Chromium	ND	---	0.100	mg/L	10	---	---	---	---	---	---	TCLPa
Lead	ND	---	0.0500	mg/L	10	---	---	---	---	---	---	TCLPa
Mercury	ND	---	0.00700	mg/L	10	---	---	---	---	---	---	TCLPa
Selenium	ND	---	0.100	mg/L	10	---	---	---	---	---	---	TCLPa
Silver	ND	---	0.100	mg/L	10	---	---	---	---	---	---	TCLPa
LCS (24L0468-BS1)			Prepared: 12/12/24 14:30		Analyzed: 12/12/24 23:04							
1311/6020B												
Arsenic	5.02	---	0.100	mg/L	10	5.00	---	100	80-120%	---	---	TCLPa
Barium	10.3	---	5.00	mg/L	10	10.0	---	103	80-120%	---	---	TCLPa
Cadmium	1.01	---	0.100	mg/L	10	1.00	---	101	80-120%	---	---	TCLPa
Chromium	5.03	---	0.100	mg/L	10	5.00	---	101	80-120%	---	---	TCLPa
Lead	5.10	---	0.0500	mg/L	10	5.00	---	102	80-120%	---	---	TCLPa
Mercury	0.0979	---	0.00700	mg/L	10	0.100	---	98	80-120%	---	---	TCLPa
Selenium	1.00	---	0.100	mg/L	10	1.00	---	100	80-120%	---	---	TCLPa
Silver	0.983	---	0.100	mg/L	10	1.00	---	98	80-120%	---	---	TCLPa
Duplicate (24L0468-DUP1)			Prepared: 12/12/24 14:30		Analyzed: 12/12/24 23:15							
QC Source Sample: BH DPSed#3 20241203 (A4L0877-01)												
1311/6020B												
Arsenic	ND	---	0.100	mg/L	10	---	ND	---	---	---	20%	
Barium	ND	---	5.00	mg/L	10	---	ND	---	---	---	20%	
Cadmium	ND	---	0.100	mg/L	10	---	ND	---	---	---	20%	
Chromium	ND	---	0.100	mg/L	10	---	ND	---	---	---	20%	
Lead	0.142	---	0.0500	mg/L	10	---	0.149	---	---	5	20%	
Mercury	ND	---	0.00700	mg/L	10	---	ND	---	---	---	20%	
Selenium	ND	---	0.100	mg/L	10	---	ND	---	---	---	20%	
Silver	ND	---	0.100	mg/L	10	---	ND	---	---	---	20%	
Matrix Spike (24L0468-MS1)			Prepared: 12/12/24 14:30		Analyzed: 12/12/24 23:20							

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0877 - 12 30 24 1713

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0468 - EPA 1311/3015A							Solid					
Matrix Spike (24L0468-MS1)			Prepared: 12/12/24 14:30		Analyzed: 12/12/24 23:20							
QC Source Sample: BH DPSed#3 20241203 (A4L0877-01)												
1311/6020B												
Arsenic	5.04	---	0.100	mg/L	10	5.00	ND	101	50-150%	---	---	
Barium	10.9	---	5.00	mg/L	10	10.0	ND	109	50-150%	---	---	
Cadmium	1.04	---	0.100	mg/L	10	1.00	ND	104	50-150%	---	---	
Chromium	5.08	---	0.100	mg/L	10	5.00	ND	102	50-150%	---	---	
Lead	5.26	---	0.0500	mg/L	10	5.00	0.149	102	50-150%	---	---	
Mercury	0.0975	---	0.00700	mg/L	10	0.100	ND	97	50-150%	---	---	
Selenium	1.01	---	0.100	mg/L	10	1.00	ND	101	50-150%	---	---	
Silver	0.985	---	0.100	mg/L	10	1.00	ND	98	50-150%	---	---	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

**ANALYTICAL REPORT****Apex Laboratories, LLC**6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062**WSP USA Environment & Infrastructure Inc.**
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0877 - 12 30 24 1713**SAMPLE PREPARATION INFORMATION****Regulated TCLP Volatile Organic Compounds by EPA 1311/8260D**Prep: EPA 1311/5030C TCLP Volatiles

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0372</u>							
A4L0877-01	Solid	1311/8260D	12/03/24 15:30	12/09/24 15:09	5mL/5mL	5mL/5mL	1.00

TCLP Semivolatile Organic Compounds by EPA 1311/8270EPrep: EPA 1311/3510C (BNA Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0640</u>							
A4L0877-01	Solid	1311/8270E	12/03/24 15:30	12/17/24 14:17	200mL/2mL	200mL/2mL	1.00

TCLP Metals by EPA 6020B (ICPMS)Prep: EPA 1311/3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0468</u>							
A4L0877-01	Solid	1311/6020B	12/03/24 15:30	12/12/24 14:30	10mL/50mL	10mL/50mL	1.00

TCLP Extraction by EPA 1311Prep: EPA 1311 (TCLP)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0385</u>							
A4L0877-01	Solid	EPA 1311	12/03/24 15:30	12/11/24 14:15	100g/2000g	100g/2000g	NA

Prep: EPA 1311 TCLP/ZHE

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0308</u>							
A4L0877-01	Solid	EPA 1311 ZHE	12/03/24 15:30	12/09/24 14:33	25g/501.7g	25g/500g	NA

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**

Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0877 - 12 30 24 1713

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-18** Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source sample.
- Q-41** Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
- R-04** Reporting levels elevated due to preparation and/or analytical dilution necessary for analysis.
- S-05** Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
- TCLP** This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 24L0308.
- TCLPa** This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 24L0385.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0877 - 12 30 24 1713

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0877 - 12 30 24 1713

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**

Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:

A4L0877 - 12 30 24 1713

Decanted Samples:

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses.

In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron - Waste Pile**
Project Number: **G685.0793 task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0877 - 12 30 24 1713

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

Project: Blue Heron - Waste Pile

15862 SW 72nd Ave. Suite 150

Project Number: G685.0793 task 400

Portland, OR 97224

Project Manager: John Kuiper

Report ID:

A4L0877 - 12 30 24 1713

APEX LABS
6700 SW Sandburg St., Tigard, OR 97223 Ph: 503-718-2323

CHAIN OF CUSTODY

Lab # A4L0877 Loc 1 of 3

Company: <u>WSP</u>	Project Mgr: <u>John Kuiper</u>	Project Name: <u>Blue Heron</u>	Project #: <u>G685.0793 task 400</u>
Address: <u>15862 SW 72nd Ave #150 Portland OR 97224</u>	Phone: _____	Email: <u>john.kuiper@wsp.com</u>	PO # _____
Sampled by: <u>Joanne Chen, Guyar Jensen</u>			
Site Location: _____			
State: <u>OR</u>	County: <u>Clack</u>	ANALYSIS REQUEST	
SAMPLE ID: <u>BH-DP84#3-0024203</u>	DATE: <u>12/3/13</u>	TIME: <u>5:12</u>	MATRIX: _____
# OF CONTAINERS: _____			
NWTPH-HCID: _____			
NWTPH-DX: _____			
NWTPH-GX: _____			
8260 RTEK: _____			
8260 RBDM VOCs: _____			
8260 Halo VOCs: _____			
8260 VOCs Full List: _____			
8270 SEMI-VOL Full List: _____			
8082 PCBs: _____			
8081 Pesticides: _____			
RCRA Metals (8): _____			
Priority Metals (13): _____			
Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mn, Mo, Ni, K, Se, Ag, Na, Ti, V, Zn, TCIP			
TOTAL DISS. TCIP: _____			
TCIP Metals (8): _____			
See notes			
Hold Sample: _____			
Frozen Archive: _____			

SPECIAL INSTRUCTIONS:
See list of TCIP compliance criteria, run all analytes
Also cc daniel.schall@wsp.com

Standard Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 5 Day Standard Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: <u>[Signature]</u> Printed Name: <u>Joanne Chen</u> Company: <u>WSP</u>	RECEIVED BY: Signature: <u>[Signature]</u> Printed Name: <u>Kathleen M. [Signature]</u> Company: <u>Apex</u>	Date: <u>12/4/14</u>	Date: _____
Time: <u>11:30</u>	Time: _____	Time: _____	Time: _____

Form Y-002 R-00

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron - Waste Pile**

Project Number: **G685.0793 task 400**

Project Manager: **John Kuiper**

Report ID:

A4L0877 - 12 30 24 1713

AUG 877

Requirements and Procedures

T C L P - Compliance Criteria

Toxicity - A solid waste exhibits the characteristics of toxicity if the extract from a representative sample of the waste contains any contaminants listed by EPA at a concentration to or greater than a respective thresholds value.

Maximum Concentrations

Metals:		mg/l
Arsenic		5.0
Barium		100
Cadmium		1.0
Chromium		5.0
Lead		5.0
Mercury		0.2
Selenium		1.0
Silver		5.0
Volatiles:		mg/l
Benzene		0.5
Carbon Tetrachloride		0.5
Chlorobenzene		100
Chloroform		6.0
1,2-Dichloroethane		0.5
1,1-Dichloroethane		0.7
Methyl Ethyl Ketone		200
Tetrachloroethylene		0.7
Trichloroethylene		0.5
Vinyl Chloride		0.2
Semivolatiles:		mg/l
o-Cresol		200
m-Cresol		200
p-Cresol		200
2,4-Dinitrotoluene		0.13
Hexachlorobenzene		0.13

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron - Waste Pile

Project Number: G685.0793 task 400

Project Manager: John Kuiper

Report ID:

A4L0877 - 12 30 24 1713

Hexachlorobutadiene	0.5
Hexachloroethane	3.0
Nitrobenzene	2.0
Pentachlorophenol	100
Pyridine	5.0
2,4,5-Trichlorophenol	400
2,4,6-Trichlorophenol	2.0
1,4-Dichlorobenzene	7.5
Chloride:	mg/l
Chloride	250.0

A4L0877
AKC for AAW
12/30/24

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron - Waste Pile

Project Number: G685.0793 task 400

Project Manager: John Kuiper

Report ID:

A4L0877 - 12 30 24 1713

APEX LABS COOLER RECEIPT FORM

Client: WSP Element WO#: A4L0877

Project/Project #: Blue Heron / G685.0793 Task 400

Delivery Info:

Date/time received: 12/1/24 @ 11:30 By: JKM

Delivered by: Apex Client ☒ ESS ☐ FedEx ☐ UPS ☐ Radio ☐ Morgan ☐ SDS ☐ Evergreen ☐ Other ☐From USDA Regulated Origin? Yes ☐ No ☒

Cooler Inspection Date/time inspected: 12/1/24 @ 11:30 By: JKM

Chain of Custody included? Yes ☒ No ☐Signed/dated by client? Yes ☒ No ☐Contains USDA Reg. Soils? Yes ☐ No ☒ Unsure (email RegSoils) ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	5.6						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	Real						
Condition (In/Out):	IN						

Cooler out of temp? (Y/N) Possible reason why: ☒ NGreen dots applied to out of temperature samples? Yes ☒ No ☐Out of temperature samples form initiated? Yes ☒ No ☐

Sample Inspection: Date/time inspected: 12/1/24 @ 13:31 By: JKM

All samples intact? Yes ☒ No ☐ Comments: Bottle labels/COCs agree? Yes ☒ No ☐ Comments: COC/container discrepancies form initiated? Yes ☐ No ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: Do VOA vials have visible headspace? Yes ☐ No ☐ NA ☒Comments: Water samples: pH checked: Yes ☐ No ☐ NA ☒ pH appropriate? Yes ☐ No ☐ NA ☒ pH ID: Comments:

Labeled by: JKM

Witness: JKM

Cooler Inspected by: JKM

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Monday, December 30, 2024

John Kuiper

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

RE: A4L0926 - Blue Heron - G685.0793 Task 400

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4L0926, which was received by the laboratory on 12/4/2024 at 11:30:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information	
<u>Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.</u>	
(See Cooler Receipt Form for details)	
Default Cooler	5.6 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

Philip Nerenberg

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4L0926 - 12 30 24 1725

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-DPSed#1_20241203	A4L0926-01	Soil	12/03/24 14:55	12/04/24 11:30
BH-DPSed#2_20241203	A4L0926-02	Soil	12/03/24 15:10	12/04/24 11:30

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0926 - 12 30 24 1725**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil		Batch: 24L0206		
Acetone	ND	---	1090	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Acrylonitrile	ND	---	109	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Benzene	ND	---	10.9	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Bromobenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Bromochloromethane	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Bromodichloromethane	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Bromoform	ND	---	109	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Bromomethane	ND	---	545	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
2-Butanone (MEK)	ND	---	545	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
n-Butylbenzene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
sec-Butylbenzene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
tert-Butylbenzene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Carbon disulfide	ND	---	545	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Carbon tetrachloride	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Chlorobenzene	113	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Chloroethane	ND	---	545	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Chloroform	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Chloromethane	ND	---	273	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
2-Chlorotoluene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
4-Chlorotoluene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Dibromochloromethane	ND	---	109	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2-Dibromo-3-chloropropane	ND	---	273	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Dibromomethane	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2-Dichlorobenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,3-Dichlorobenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,4-Dichlorobenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Dichlorodifluoromethane	ND	---	109	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1-Dichloroethane	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1-Dichloroethene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
cis-1,2-Dichloroethene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
trans-1,2-Dichloroethene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil		Batch: 24L0206		
1,2-Dichloropropane	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,3-Dichloropropane	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
2,2-Dichloropropane	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1-Dichloropropene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
cis-1,3-Dichloropropene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
trans-1,3-Dichloropropene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Ethylbenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Hexachlorobutadiene	ND	---	109	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
2-Hexanone	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Isopropylbenzene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
4-Isopropyltoluene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Methylene chloride	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
4-Methyl-2-pentanone (MIBK)	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Naphthalene	ND	---	109	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
n-Propylbenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Styrene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1,1,2-Tetrachloroethane	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1,2,2-Tetrachloroethane	ND	---	164	ug/kg dry	50	12/06/24 18:47	5035A/8260D	R-02
Tetrachloroethene (PCE)	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Toluene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2,3-Trichlorobenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2,4-Trichlorobenzene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1,1-Trichloroethane	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,1,2-Trichloroethane	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Trichloroethene (TCE)	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Trichlorofluoromethane	746	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	Q-54h, V-14
1,2,3-Trichloropropane	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
Vinyl chloride	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
m,p-Xylene	ND	---	54.5	ug/kg dry	50	12/06/24 18:47	5035A/8260D	
o-Xylene	ND	---	27.3	ug/kg dry	50	12/06/24 18:47	5035A/8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 4 of 45



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil		Batch: 24L0206		
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery: 99 %	Limits: 80-120 %	1	12/06/24 18:47	5035A/8260D		
Toluene-d8 (Surr)		99 %	80-120 %	1	12/06/24 18:47	5035A/8260D		
4-Bromofluorobenzene (Surr)		102 %	79-120 %	1	12/06/24 18:47	5035A/8260D		
BH-DPSed#2_20241203 (A4L0926-02)				Matrix: Soil		Batch: 24L0206		
Acetone	ND	---	1270	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Acrylonitrile	ND	---	127	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Benzene	ND	---	12.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Bromobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Bromochloromethane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Bromodichloromethane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Bromoform	ND	---	127	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Bromomethane	ND	---	633	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
2-Butanone (MEK)	ND	---	633	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
n-Butylbenzene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
sec-Butylbenzene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
tert-Butylbenzene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Carbon disulfide	ND	---	633	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Carbon tetrachloride	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Chlorobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Chloroethane	ND	---	633	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Chloroform	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Chloromethane	ND	---	317	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
2-Chlorotoluene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
4-Chlorotoluene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Dibromochloromethane	ND	---	127	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2-Dibromo-3-chloropropane	ND	---	317	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Dibromomethane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2-Dichlorobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,3-Dichlorobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,4-Dichlorobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Dichlorodifluoromethane	ND	---	127	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1-Dichloroethane	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#2_20241203 (A4L0926-02)				Matrix: Soil		Batch: 24L0206		
1,2-Dichloroethane (EDC)	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1-Dichloroethene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
cis-1,2-Dichloroethene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
trans-1,2-Dichloroethene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2-Dichloropropane	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,3-Dichloropropane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
2,2-Dichloropropane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1-Dichloropropene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
cis-1,3-Dichloropropene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
trans-1,3-Dichloropropene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Ethylbenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Hexachlorobutadiene	ND	---	127	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
2-Hexanone	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Isopropylbenzene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
4-Isopropyltoluene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Methylene chloride	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
4-Methyl-2-pentanone (MIBK)	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Naphthalene	ND	---	127	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
n-Propylbenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Styrene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1,1,2-Tetrachloroethane	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1,2,2-Tetrachloroethane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Tetrachloroethene (PCE)	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Toluene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2,3-Trichlorobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2,4-Trichlorobenzene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1,1-Trichloroethane	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,1,2-Trichloroethane	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Trichloroethene (TCE)	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Trichlorofluoromethane	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2,3-Trichloropropane	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
1,2,4-Trimethylbenzene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#2_20241203 (A4L0926-02)				Matrix: Soil		Batch: 24L0206		
1,3,5-Trimethylbenzene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
Vinyl chloride	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
m,p-Xylene	ND	---	63.3	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
o-Xylene	ND	---	31.7	ug/kg dry	50	12/06/24 15:36	5035A/8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/06/24 15:36</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>	<i>1</i>	<i>12/06/24 15:36</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>100 %</i>		<i>79-120 %</i>	<i>1</i>	<i>12/06/24 15:36</i>	<i>5035A/8260D</i>	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil		Batch: 24L0546		C-07
Aroclor 1016	ND	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	
Aroclor 1221	ND	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	
Aroclor 1232	ND	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	
Aroclor 1242	231	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	P-12
Aroclor 1248	ND	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	
Aroclor 1254	234	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	P-12
Aroclor 1260	132	---	11.2	ug/kg dry	1	12/16/24 19:58	EPA 8082A	P-12
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 111 %		Limits: 60-125 %	1	12/16/24 19:58	EPA 8082A	
BH-DPSed#2_20241203 (A4L0926-02)				Matrix: Soil		Batch: 24L0546		C-07
Aroclor 1016	ND	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	
Aroclor 1221	ND	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	
Aroclor 1232	ND	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	
Aroclor 1242	61.5	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	P-12
Aroclor 1248	ND	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	
Aroclor 1254	135	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	P-12
Aroclor 1260	56.0	---	11.5	ug/kg dry	1	12/16/24 20:34	EPA 8082A	P-12
Surrogate: Decachlorobiphenyl (Surr)		Recovery: 113 %		Limits: 60-125 %	1	12/16/24 20:34	EPA 8082A	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil				
Batch: 24L0557								
Arsenic	7.22	---	1.35	mg/kg dry	10	12/16/24 22:22	EPA 6020B	Q-42
Barium	117	---	1.35	mg/kg dry	10	12/16/24 22:22	EPA 6020B	Q-42
Cadmium	1.14	---	0.270	mg/kg dry	10	12/16/24 22:22	EPA 6020B	
Chromium	81.6	---	1.35	mg/kg dry	10	12/16/24 22:22	EPA 6020B	Q-42
Selenium	ND	---	1.35	mg/kg dry	10	12/16/24 22:22	EPA 6020B	
Silver	10.1	---	0.270	mg/kg dry	10	12/16/24 22:22	EPA 6020B	Q-42
BH-DPSed#1_20241203 (A4L0926-01RE1)				Matrix: Soil				
Batch: 24L0557								
Lead	875	---	2.70	mg/kg dry	100	12/17/24 22:02	EPA 6020B	Q-42
Mercury	21.7	---	1.08	mg/kg dry	100	12/17/24 22:02	EPA 6020B	Q-42
BH-DPSed#2_20241203 (A4L0926-02)				Matrix: Soil				
Batch: 24L0557								
Arsenic	4.53	---	1.43	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Barium	125	---	1.43	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Cadmium	1.04	---	0.286	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Chromium	28.0	---	1.43	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Lead	86.3	---	0.286	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Mercury	1.33	---	0.114	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Selenium	ND	---	1.43	mg/kg dry	10	12/16/24 22:48	EPA 6020B	
Silver	ND	---	0.286	mg/kg dry	10	12/16/24 22:48	EPA 6020B	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil				
Batch: 24L0997								
Lead	0.799	---	0.0500	mg/L	10	12/27/24 23:54	1311/6020B	
Mercury	ND	---	0.00700	mg/L	10	12/27/24 23:54	1311/6020B	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSed#1_20241203 (A4L0926-01)				Matrix: Soil		Batch: 24L0168		
% Solids	81.1	---	1.00	%	1	12/06/24 05:52	EPA 8000D	
BH-DPSed#2_20241203 (A4L0926-02)				Matrix: Soil		Batch: 24L0168		
% Solids	77.1	---	1.00	%	1	12/06/24 05:52	EPA 8000D	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
Blank (24L0206-BLK1)			Prepared: 12/06/24 09:00		Analyzed: 12/06/24 11:31							
5035A/8260D												
Acetone	ND	---	1000	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	10.0	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 12 of 45



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
Blank (24L0206-BLK1)						Prepared: 12/06/24 09:00 Analyzed: 12/06/24 11:31						
1,2-Dichloropropane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 97 % Limits: 80-120 % Dilution: 1x												

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes	
Batch 24L0206 - EPA 5035A						Soil							
Blank (24L0206-BLK1)			Prepared: 12/06/24 09:00		Analyzed: 12/06/24 11:31								
Surr: Toluene-d8 (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x							
4-Bromofluorobenzene (Surr)		98 %		79-120 %		"							
LCS (24L0206-BS1)						Prepared: 12/06/24 09:00		Analyzed: 12/06/24 10:36					
5035A/8260D													
Acetone	1980	---	1000	ug/kg wet	50	2000	---	99	80-120%	---	---	ICV-01	
Acrylonitrile	1070	---	100	ug/kg wet	50	1000	---	107	80-120%	---	---		
Benzene	1120	---	10.0	ug/kg wet	50	1000	---	112	80-120%	---	---		
Bromobenzene	1080	---	25.0	ug/kg wet	50	1000	---	108	80-120%	---	---		
Bromochloromethane	1130	---	50.0	ug/kg wet	50	1000	---	113	80-120%	---	---		
Bromodichloromethane	1160	---	50.0	ug/kg wet	50	1000	---	116	80-120%	---	---		
Bromoform	1020	---	100	ug/kg wet	50	1000	---	102	80-120%	---	---		
Bromomethane	1510	---	500	ug/kg wet	50	1000	---	151	80-120%	---	---		Q-56
2-Butanone (MEK)	2200	---	500	ug/kg wet	50	2000	---	110	80-120%	---	---		
n-Butylbenzene	1170	---	50.0	ug/kg wet	50	1000	---	117	80-120%	---	---		
sec-Butylbenzene	1200	---	50.0	ug/kg wet	50	1000	---	120	80-120%	---	---		
tert-Butylbenzene	1170	---	50.0	ug/kg wet	50	1000	---	117	80-120%	---	---		
Carbon disulfide	1120	---	500	ug/kg wet	50	1000	---	112	80-120%	---	---		
Carbon tetrachloride	1200	---	50.0	ug/kg wet	50	1000	---	120	80-120%	---	---		
Chlorobenzene	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---		
Chloroethane	1010	---	500	ug/kg wet	50	1000	---	101	80-120%	---	---		
Chloroform	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---		
Chloromethane	862	---	250	ug/kg wet	50	1000	---	86	80-120%	---	---		
2-Chlorotoluene	1140	---	50.0	ug/kg wet	50	1000	---	114	80-120%	---	---		
4-Chlorotoluene	1130	---	50.0	ug/kg wet	50	1000	---	113	80-120%	---	---		
Dibromochloromethane	1250	---	100	ug/kg wet	50	1000	---	125	80-120%	---	---	Q-56	
1,2-Dibromo-3-chloropropane	860	---	250	ug/kg wet	50	1000	---	86	80-120%	---	---		
1,2-Dibromoethane (EDB)	1110	---	50.0	ug/kg wet	50	1000	---	111	80-120%	---	---		
Dibromomethane	1110	---	50.0	ug/kg wet	50	1000	---	111	80-120%	---	---		
1,2-Dichlorobenzene	1040	---	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---		
1,3-Dichlorobenzene	1070	---	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---		
1,4-Dichlorobenzene	1040	---	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---		
Dichlorodifluoromethane	862	---	100	ug/kg wet	50	1000	---	86	80-120%	---	---		
1,1-Dichloroethane	1130	---	25.0	ug/kg wet	50	1000	---	113	80-120%	---	---		

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
LCS (24L0206-BS1)						Prepared: 12/06/24 09:00 Analyzed: 12/06/24 10:36						
1,2-Dichloroethane (EDC)	1120	---	25.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
1,1-Dichloroethene	1220	---	25.0	ug/kg wet	50	1000	---	122	80-120%	---	---	Q-56
cis-1,2-Dichloroethene	1140	---	25.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
trans-1,2-Dichloroethene	1170	---	25.0	ug/kg wet	50	1000	---	117	80-120%	---	---	
1,2-Dichloropropane	1140	---	25.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
1,3-Dichloropropane	1120	---	50.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
2,2-Dichloropropane	1400	---	50.0	ug/kg wet	50	1000	---	140	80-120%	---	---	Q-56
1,1-Dichloropropene	1140	---	50.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
cis-1,3-Dichloropropene	1240	---	50.0	ug/kg wet	50	1000	---	124	80-120%	---	---	Q-56
trans-1,3-Dichloropropene	1350	---	50.0	ug/kg wet	50	1000	---	135	80-120%	---	---	Q-56
Ethylbenzene	1140	---	25.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
Hexachlorobutadiene	1000	---	100	ug/kg wet	50	1000	---	100	80-120%	---	---	
2-Hexanone	1870	---	500	ug/kg wet	50	2000	---	93	80-120%	---	---	
Isopropylbenzene	1090	---	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
4-Isopropyltoluene	1180	---	50.0	ug/kg wet	50	1000	---	118	80-120%	---	---	
Methylene chloride	1070	---	500	ug/kg wet	50	1000	---	107	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2200	---	500	ug/kg wet	50	2000	---	110	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	1130	---	50.0	ug/kg wet	50	1000	---	113	80-120%	---	---	
Naphthalene	887	---	100	ug/kg wet	50	1000	---	89	80-120%	---	---	
n-Propylbenzene	1180	---	25.0	ug/kg wet	50	1000	---	118	80-120%	---	---	
Styrene	930	---	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1180	---	25.0	ug/kg wet	50	1000	---	118	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1160	---	50.0	ug/kg wet	50	1000	---	116	80-120%	---	---	
Tetrachloroethene (PCE)	1050	---	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Toluene	1040	---	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,2,3-Trichlorobenzene	960	---	250	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,2,4-Trichlorobenzene	993	---	250	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,1,1-Trichloroethane	1140	---	25.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
1,1,2-Trichloroethane	1070	---	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Trichloroethene (TCE)	1010	---	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Trichlorofluoromethane	724	---	250	ug/kg wet	50	1000	---	72	80-120%	---	---	Q-55
1,2,3-Trichloropropane	1090	---	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,2,4-Trimethylbenzene	1190	---	50.0	ug/kg wet	50	1000	---	119	80-120%	---	---	
1,3,5-Trimethylbenzene	1220	---	50.0	ug/kg wet	50	1000	---	122	80-120%	---	---	Q-56

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
LCS (24L0206-BS1)						Prepared: 12/06/24 09:00 Analyzed: 12/06/24 10:36						
Vinyl chloride	1120	---	25.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
m,p-Xylene	2370	---	50.0	ug/kg wet	50	2000	---	118	80-120%	---	---	
o-Xylene	1120	---	25.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 97 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		96 %		79-120 %		"						

Duplicate (24L0206-DUP1)

Prepared: 12/05/24 15:11 Analyzed: 12/06/24 14:42

V-15

QC Source Sample: Non-SDG (A4L0948-01)

Acetone	ND	---	7000	ug/kg dry	200	---	ND	---	---	---	30%
Acrylonitrile	ND	---	700	ug/kg dry	200	---	ND	---	---	---	30%
Benzene	ND	---	70.0	ug/kg dry	200	---	52.5	---	---	***	30%
Bromobenzene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%
Bromochloromethane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Bromodichloromethane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Bromoform	ND	---	700	ug/kg dry	200	---	ND	---	---	---	30%
Bromomethane	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%
2-Butanone (MEK)	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%
n-Butylbenzene	619	---	350	ug/kg dry	200	---	745	---	---	18	30%
sec-Butylbenzene	ND	---	350	ug/kg dry	200	---	315	---	---	***	30%
tert-Butylbenzene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Carbon disulfide	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%
Carbon tetrachloride	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Chlorobenzene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%
Chloroethane	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%
Chloroform	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Chloromethane	ND	---	1750	ug/kg dry	200	---	ND	---	---	---	30%
2-Chlorotoluene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
4-Chlorotoluene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Dibromochloromethane	ND	---	700	ug/kg dry	200	---	ND	---	---	---	30%
1,2-Dibromo-3-chloropropane	ND	---	1750	ug/kg dry	200	---	ND	---	---	---	30%
1,2-Dibromoethane (EDB)	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
Dibromomethane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%
1,2-Dichlorobenzene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 16 of 45



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
Duplicate (24L0206-DUP1)			Prepared: 12/05/24 15:11 Analyzed: 12/06/24 14:42				V-15					
QC Source Sample: Non-SDG (A4L0948-01)												
1,3-Dichlorobenzene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	700	ug/kg dry	200	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
Ethylbenzene	871	---	175	ug/kg dry	200	---	899	---	---	3	30%	
Hexachlorobutadiene	ND	---	700	ug/kg dry	200	---	ND	---	---	---	30%	
2-Hexanone	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%	
Isopropylbenzene	357	---	350	ug/kg dry	200	---	378	---	---	6	30%	
4-Isopropyltoluene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
Methylene chloride	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	3500	ug/kg dry	200	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
Naphthalene	1080	---	700	ug/kg dry	200	---	1370	---	---	24	30%	
n-Propylbenzene	1830	---	175	ug/kg dry	200	---	1910	---	---	4	30%	
Styrene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
Toluene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	1750	ug/kg dry	200	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	1750	ug/kg dry	200	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0926 - 12 30 24 1725**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
Duplicate (24L0206-DUP1)			Prepared: 12/05/24 15:11 Analyzed: 12/06/24 14:42						V-15			
QC Source Sample: Non-SDG (A4L0948-01)												
Trichloroethene (TCE)	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	1750	ug/kg dry	200	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	350	ug/kg dry	200	---	ND	---	---	---	30%	
o-Xylene	ND	---	175	ug/kg dry	200	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		101 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		102 %		79-120 %		"						

Matrix Spike (24L0206-MS1)

Prepared: 12/05/24 12:54 Analyzed: 12/06/24 17:25

QC Source Sample: Non-SDG (A4L0921-01)

5035A/8260D

Acetone	2180	---	1050	ug/kg dry	50	2090	ND	104	36-164%	---	---	ICV-01
Acrylonitrile	1110	---	105	ug/kg dry	50	1040	ND	106	65-134%	---	---	
Benzene	1230	---	10.5	ug/kg dry	50	1040	ND	118	77-121%	---	---	
Bromobenzene	1080	---	26.2	ug/kg dry	50	1040	ND	104	78-121%	---	---	
Bromochloromethane	1220	---	52.3	ug/kg dry	50	1040	ND	117	78-125%	---	---	
Bromodichloromethane	1200	---	52.3	ug/kg dry	50	1040	ND	115	75-127%	---	---	
Bromoform	1070	---	105	ug/kg dry	50	1040	ND	102	67-132%	---	---	
Bromomethane	1740	---	523	ug/kg dry	50	1040	ND	166	53-143%	---	---	Q-54d
2-Butanone (MEK)	2260	---	523	ug/kg dry	50	2090	ND	108	51-148%	---	---	
n-Butylbenzene	1190	---	52.3	ug/kg dry	50	1040	ND	114	70-128%	---	---	
sec-Butylbenzene	1240	---	52.3	ug/kg dry	50	1040	ND	119	73-126%	---	---	
tert-Butylbenzene	1210	---	52.3	ug/kg dry	50	1040	ND	116	73-125%	---	---	
Carbon disulfide	1470	---	523	ug/kg dry	50	1040	ND	141	63-132%	---	---	Q-01
Carbon tetrachloride	1370	---	52.3	ug/kg dry	50	1040	ND	131	70-135%	---	---	
Chlorobenzene	1140	---	26.2	ug/kg dry	50	1040	ND	109	79-120%	---	---	
Chloroethane	1140	---	523	ug/kg dry	50	1040	ND	109	59-139%	---	---	
Chloroform	1190	---	52.3	ug/kg dry	50	1040	ND	114	78-123%	---	---	
Chloromethane	1040	---	262	ug/kg dry	50	1040	ND	100	50-136%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
Matrix Spike (24L0206-MS1)			Prepared: 12/05/24 12:54		Analyzed: 12/06/24 17:25							
QC Source Sample: Non-SDG (A4L0921-01)												
2-Chlorotoluene	1170	---	52.3	ug/kg dry	50	1040	ND	112	75-122%	---	---	Q-54f
4-Chlorotoluene	1180	---	52.3	ug/kg dry	50	1040	ND	113	72-124%	---	---	
Dibromochloromethane	1320	---	105	ug/kg dry	50	1040	ND	126	74-126%	---	---	
1,2-Dibromo-3-chloropropane	852	---	262	ug/kg dry	50	1040	ND	82	61-132%	---	---	
1,2-Dibromoethane (EDB)	1180	---	52.3	ug/kg dry	50	1040	ND	113	78-122%	---	---	Q-54b
Dibromomethane	1150	---	52.3	ug/kg dry	50	1040	ND	110	78-125%	---	---	
1,2-Dichlorobenzene	1080	---	26.2	ug/kg dry	50	1040	ND	103	78-121%	---	---	
1,3-Dichlorobenzene	1110	---	26.2	ug/kg dry	50	1040	ND	106	77-121%	---	---	
1,4-Dichlorobenzene	1080	---	26.2	ug/kg dry	50	1040	ND	103	75-120%	---	---	Q-54c
Dichlorodifluoromethane	1240	---	105	ug/kg dry	50	1040	ND	119	29-149%	---	---	
1,1-Dichloroethane	1240	---	26.2	ug/kg dry	50	1040	ND	118	76-125%	---	---	
1,2-Dichloroethane (EDC)	1200	---	26.2	ug/kg dry	50	1040	ND	115	73-128%	---	---	
1,1-Dichloroethene	1480	---	26.2	ug/kg dry	50	1040	ND	142	70-131%	---	---	Q-54a
cis-1,2-Dichloroethene	1230	---	26.2	ug/kg dry	50	1040	ND	118	77-123%	---	---	
trans-1,2-Dichloroethene	1300	---	26.2	ug/kg dry	50	1040	ND	125	74-125%	---	---	
1,2-Dichloropropane	1210	---	26.2	ug/kg dry	50	1040	ND	116	76-123%	---	---	
1,3-Dichloropropane	1170	---	52.3	ug/kg dry	50	1040	ND	112	77-121%	---	---	Q-54e
2,2-Dichloropropane	1480	---	52.3	ug/kg dry	50	1040	ND	142	67-133%	---	---	
1,1-Dichloropropene	1280	---	52.3	ug/kg dry	50	1040	ND	122	76-125%	---	---	
cis-1,3-Dichloropropene	1320	---	52.3	ug/kg dry	50	1040	ND	126	74-126%	---	---	
trans-1,3-Dichloropropene	1390	---	52.3	ug/kg dry	50	1040	ND	133	71-130%	---	---	Q-54a
Ethylbenzene	1200	---	26.2	ug/kg dry	50	1040	ND	114	76-122%	---	---	
Hexachlorobutadiene	1050	---	105	ug/kg dry	50	1040	ND	101	61-135%	---	---	
2-Hexanone	1870	---	523	ug/kg dry	50	2090	ND	89	53-145%	---	---	
Isopropylbenzene	1110	---	52.3	ug/kg dry	50	1040	ND	106	68-134%	---	---	Q-54e
4-Isopropyltoluene	1200	---	52.3	ug/kg dry	50	1040	ND	115	73-127%	---	---	
Methylene chloride	1120	---	523	ug/kg dry	50	1040	ND	107	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2210	---	523	ug/kg dry	50	2090	ND	106	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1190	---	52.3	ug/kg dry	50	1040	ND	114	73-125%	---	---	Q-54a
Naphthalene	900	---	105	ug/kg dry	50	1040	ND	86	62-129%	---	---	
n-Propylbenzene	1250	---	26.2	ug/kg dry	50	1040	ND	119	73-125%	---	---	
Styrene	966	---	52.3	ug/kg dry	50	1040	ND	92	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1200	---	26.2	ug/kg dry	50	1040	ND	115	78-125%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 19 of 45



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0206 - EPA 5035A						Soil						
Matrix Spike (24L0206-MS1)			Prepared: 12/05/24 12:54 Analyzed: 12/06/24 17:25									
QC Source Sample: Non-SDG (A4L0921-01)												
1,1,2,2-Tetrachloroethane	1150	---	52.3	ug/kg dry	50	1040	ND	110	70-124%	---	---	
Tetrachloroethene (PCE)	1190	---	26.2	ug/kg dry	50	1040	ND	114	73-128%	---	---	
Toluene	1120	---	52.3	ug/kg dry	50	1040	ND	107	77-121%	---	---	
1,2,3-Trichlorobenzene	979	---	262	ug/kg dry	50	1040	ND	94	66-130%	---	---	
1,2,4-Trichlorobenzene	984	---	262	ug/kg dry	50	1040	ND	94	67-129%	---	---	
1,1,1-Trichloroethane	1250	---	26.2	ug/kg dry	50	1040	ND	120	73-130%	---	---	
1,1,2-Trichloroethane	1140	---	26.2	ug/kg dry	50	1040	ND	109	78-121%	---	---	
Trichloroethene (TCE)	1130	---	26.2	ug/kg dry	50	1040	ND	108	77-123%	---	---	
Trichlorofluoromethane	1240	---	262	ug/kg dry	50	1040	ND	119	62-140%	---	---	Q-54h
1,2,3-Trichloropropane	1070	---	52.3	ug/kg dry	50	1040	ND	103	73-125%	---	---	
1,2,4-Trimethylbenzene	1200	---	52.3	ug/kg dry	50	1040	ND	115	75-123%	---	---	
1,3,5-Trimethylbenzene	1250	---	52.3	ug/kg dry	50	1040	ND	120	73-124%	---	---	Q-54b
Vinyl chloride	1370	---	26.2	ug/kg dry	50	1040	ND	131	56-135%	---	---	
m,p-Xylene	2500	---	52.3	ug/kg dry	50	2090	ND	120	77-124%	---	---	
o-Xylene	1140	---	26.2	ug/kg dry	50	1040	ND	109	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 98 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		102 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		97 %		79-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John KuiperReport ID:
A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Blank (24L0392-BLK1)			Prepared: 12/11/24 10:00		Analyzed: 12/11/24 12:07							
5035A/8260D												
Acetone	ND	---	1000	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	10.0	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Blank (24L0392-BLK1)						Prepared: 12/11/24 10:00 Analyzed: 12/11/24 12:07						
1,2-Dichloropropane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	500	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	100	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	250	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	50.0	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	25.0	ug/kg wet	50	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 100 % Limits: 80-120 % Dilution: 1x												

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Blank (24L0392-BLK1)				Prepared: 12/11/24 10:00		Analyzed: 12/11/24 12:07						
Surr: Toluene-d8 (Surr)			Recovery: 99 %		Limits: 80-120 %		Dilution: 1x					
4-Bromo fluorobenzene (Surr)			99 %		79-120 %		"					
LCS (24L0392-BS1)						Prepared: 12/11/24 10:00		Analyzed: 12/11/24 11:13				
5035A/8260D												
Acetone	1840	---	1000	ug/kg wet	50	2000	---	92	80-120%	---	---	Q-56
Acrylonitrile	1010	---	100	ug/kg wet	50	1000	---	101	80-120%	---	---	
Benzene	996	---	10.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Bromobenzene	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Bromochloromethane	1060	---	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Bromodichloromethane	937	---	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Bromoform	905	---	100	ug/kg wet	50	1000	---	90	80-120%	---	---	
Bromomethane	1300	---	500	ug/kg wet	50	1000	---	130	80-120%	---	---	
2-Butanone (MEK)	1910	---	500	ug/kg wet	50	2000	---	95	80-120%	---	---	
n-Butylbenzene	1060	---	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
sec-Butylbenzene	1090	---	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
tert-Butylbenzene	1020	---	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Carbon disulfide	934	---	500	ug/kg wet	50	1000	---	93	80-120%	---	---	
Carbon tetrachloride	1120	---	50.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
Chlorobenzene	1030	---	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Chloroethane	839	---	500	ug/kg wet	50	1000	---	84	80-120%	---	---	
Chloroform	1050	---	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Chloromethane	894	---	250	ug/kg wet	50	1000	---	89	80-120%	---	---	
2-Chlorotoluene	1090	---	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
4-Chlorotoluene	1050	---	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Dibromochloromethane	944	---	100	ug/kg wet	50	1000	---	94	80-120%	---	---	
1,2-Dibromo-3-chloropropane	855	---	250	ug/kg wet	50	1000	---	86	80-120%	---	---	
1,2-Dibromoethane (EDB)	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Dibromomethane	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
1,2-Dichlorobenzene	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
1,3-Dichlorobenzene	1090	---	25.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,4-Dichlorobenzene	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Dichlorodifluoromethane	1010	---	100	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,1-Dichloroethane	1010	---	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 23 of 45



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
LCS (24L0392-BS1)						Prepared: 12/11/24 10:00 Analyzed: 12/11/24 11:13						
1,2-Dichloroethane (EDC)	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
1,1-Dichloroethene	996	---	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
cis-1,2-Dichloroethene	1000	---	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
trans-1,2-Dichloroethene	1000	---	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dichloropropane	1000	---	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,3-Dichloropropane	1030	---	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
2,2-Dichloropropane	1270	---	50.0	ug/kg wet	50	1000	---	127	80-120%	---	---	Q-56
1,1-Dichloropropene	1040	---	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
cis-1,3-Dichloropropene	953	---	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
trans-1,3-Dichloropropene	972	---	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Ethylbenzene	1030	---	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Hexachlorobutadiene	1130	---	100	ug/kg wet	50	1000	---	113	80-120%	---	---	
2-Hexanone	1810	---	500	ug/kg wet	50	2000	---	91	80-120%	---	---	
Isopropylbenzene	1070	---	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
4-Isopropyltoluene	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Methylene chloride	921	---	500	ug/kg wet	50	1000	---	92	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2040	---	500	ug/kg wet	50	2000	---	102	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	1020	---	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Naphthalene	1010	---	100	ug/kg wet	50	1000	---	101	80-120%	---	---	
n-Propylbenzene	1070	---	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Styrene	1080	---	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
1,1,1,2-Tetrachloroethane	998	---	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1140	---	50.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
Tetrachloroethene (PCE)	1070	---	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Toluene	961	---	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,2,3-Trichlorobenzene	1070	---	250	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,2,4-Trichlorobenzene	1070	---	250	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,1,1-Trichloroethane	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
1,1,2-Trichloroethane	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Trichloroethene (TCE)	1020	---	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Trichlorofluoromethane	921	---	250	ug/kg wet	50	1000	---	92	80-120%	---	---	
1,2,3-Trichloropropane	1130	---	50.0	ug/kg wet	50	1000	---	113	80-120%	---	---	
1,2,4-Trimethylbenzene	1090	---	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,3,5-Trimethylbenzene	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
LCS (24L0392-BS1)						Prepared: 12/11/24 10:00 Analyzed: 12/11/24 11:13						
Vinyl chloride	1020	---	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
m,p-Xylene	2120	---	50.0	ug/kg wet	50	2000	---	106	80-120%	---	---	
o-Xylene	1050	---	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)												
			Recovery: 101 %	Limits: 80-120 %	Dilution: 1x							
Toluene-d8 (Surr)			98 %	80-120 %	"							
4-Bromofluorobenzene (Surr)			100 %	79-120 %	"							

Duplicate (24L0392-DUP1)

Prepared: 12/06/24 14:00 Analyzed: 12/11/24 19:53

QC Source Sample: Non-SDG (A4L1015-01)

Acetone	ND	---	2940	ug/kg dry	100	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	294	ug/kg dry	100	---	ND	---	---	---	30%	
Benzene	41.1	---	29.4	ug/kg dry	100	---	39.7	---	---	4	30%	
Bromobenzene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Bromoform	ND	---	294	ug/kg dry	100	---	ND	---	---	---	30%	
Bromomethane	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
n-Butylbenzene	4940	---	147	ug/kg dry	100	---	5000	---	---	1	30%	M-02
sec-Butylbenzene	2030	---	147	ug/kg dry	100	---	2020	---	---	0.7	30%	
tert-Butylbenzene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
Chloroethane	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
Chloroform	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Chloromethane	ND	---	735	ug/kg dry	100	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	294	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	735	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Dibromomethane	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Duplicate (24L0392-DUP1)			Prepared: 12/06/24 14:00		Analyzed: 12/11/24 19:53							
QC Source Sample: Non-SDG (A4L1015-01)												
1,3-Dichlorobenzene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	294	ug/kg dry	100	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Ethylbenzene	2160	---	73.5	ug/kg dry	100	---	2100	---	---	3	30%	
Hexachlorobutadiene	ND	---	294	ug/kg dry	100	---	ND	---	---	---	30%	
2-Hexanone	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
Isopropylbenzene	1300	---	147	ug/kg dry	100	---	1260	---	---	3	30%	
4-Isopropyltoluene	1490	---	147	ug/kg dry	100	---	1490	---	---	0.3	30%	M-02
Methylene chloride	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	1470	ug/kg dry	100	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
Naphthalene	3690	---	294	ug/kg dry	100	---	3550	---	---	4	30%	
n-Propylbenzene	4100	---	73.5	ug/kg dry	100	---	3980	---	---	3	30%	
Styrene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	808	ug/kg dry	100	---	ND	---	---	---	30%	R-02
Tetrachloroethene (PCE)	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
Toluene	ND	---	147	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	735	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	735	ug/kg dry	100	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	735	ug/kg dry	100	---	ND	---	---	---	30%	R-02

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Duplicate (24L0392-DUP1)			Prepared: 12/06/24 14:00 Analyzed: 12/11/24 19:53									
QC Source Sample: Non-SDG (A4L1015-01)												
Trichloroethene (TCE)	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	R-02
Trichlorofluoromethane	ND	---	735	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	441	ug/kg dry	100	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	21900	---	147	ug/kg dry	100	---	21100	---	---	3	30%	
1,3,5-Trimethylbenzene	6180	---	147	ug/kg dry	100	---	5980	---	---	3	30%	
Vinyl chloride	ND	---	73.5	ug/kg dry	100	---	ND	---	---	---	30%	
m,p-Xylene	8400	---	147	ug/kg dry	100	---	8090	---	---	4	30%	
o-Xylene	4920	---	73.5	ug/kg dry	100	---	4740	---	---	4	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		101 %		79-120 %		"						

Matrix Spike (24L0392-MS1)

Prepared: 12/04/24 14:00 Analyzed: 12/11/24 15:47

QC Source Sample: Non-SDG (A4L0916-02)

5035A/8260D

Acetone	7570	---	4050	ug/kg dry	50	8090	ND	94	36-164%	---	---	Q-54
Acrylonitrile	4080	---	405	ug/kg dry	50	4040	ND	101	65-134%	---	---	
Benzene	4200	---	40.5	ug/kg dry	50	4040	ND	104	77-121%	---	---	
Bromobenzene	4140	---	101	ug/kg dry	50	4040	ND	102	78-121%	---	---	
Bromochloromethane	4320	---	202	ug/kg dry	50	4040	ND	107	78-125%	---	---	
Bromodichloromethane	3930	---	202	ug/kg dry	50	4040	ND	97	75-127%	---	---	
Bromoform	3910	---	405	ug/kg dry	50	4040	ND	97	67-132%	---	---	
Bromomethane	5190	---	2020	ug/kg dry	50	4040	ND	128	53-143%	---	---	
2-Butanone (MEK)	8090	---	2020	ug/kg dry	50	8090	ND	100	51-148%	---	---	
n-Butylbenzene	4290	---	202	ug/kg dry	50	4040	ND	106	70-128%	---	---	
sec-Butylbenzene	4260	---	202	ug/kg dry	50	4040	ND	105	73-126%	---	---	
tert-Butylbenzene	4030	---	202	ug/kg dry	50	4040	ND	100	73-125%	---	---	
Carbon disulfide	4130	---	2020	ug/kg dry	50	4040	ND	102	63-132%	---	---	
Carbon tetrachloride	4990	---	202	ug/kg dry	50	4040	ND	123	70-135%	---	---	
Chlorobenzene	4230	---	101	ug/kg dry	50	4040	ND	105	79-120%	---	---	
Chloroethane	5180	---	2020	ug/kg dry	50	4040	ND	128	59-139%	---	---	
Chloroform	4420	---	202	ug/kg dry	50	4040	ND	109	78-123%	---	---	
Chloromethane	3730	---	1010	ug/kg dry	50	4040	ND	92	50-136%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Matrix Spike (24L0392-MS1)			Prepared: 12/04/24 14:00		Analyzed: 12/11/24 15:47							
QC Source Sample: Non-SDG (A4L0916-02)												
2-Chlorotoluene	4210	---	202	ug/kg dry	50	4040	ND	104	75-122%	---	---	Q-54g
4-Chlorotoluene	4050	---	202	ug/kg dry	50	4040	ND	100	72-124%	---	---	
Dibromochloromethane	3860	---	405	ug/kg dry	50	4040	ND	95	74-126%	---	---	
1,2-Dibromo-3-chloropropane	3380	---	1010	ug/kg dry	50	4040	ND	84	61-132%	---	---	
1,2-Dibromoethane (EDB)	4460	---	202	ug/kg dry	50	4040	ND	110	78-122%	---	---	
Dibromomethane	4400	---	202	ug/kg dry	50	4040	ND	109	78-125%	---	---	
1,2-Dichlorobenzene	4190	---	101	ug/kg dry	50	4040	ND	104	78-121%	---	---	
1,3-Dichlorobenzene	4270	---	101	ug/kg dry	50	4040	ND	106	77-121%	---	---	
1,4-Dichlorobenzene	4140	---	101	ug/kg dry	50	4040	ND	102	75-120%	---	---	
Dichlorodifluoromethane	4480	---	405	ug/kg dry	50	4040	ND	111	29-149%	---	---	
1,1-Dichloroethane	4350	---	101	ug/kg dry	50	4040	ND	108	76-125%	---	---	
1,2-Dichloroethane (EDC)	4260	---	101	ug/kg dry	50	4040	ND	105	73-128%	---	---	
1,1-Dichloroethene	4480	---	101	ug/kg dry	50	4040	ND	111	70-131%	---	---	
cis-1,2-Dichloroethene	4170	---	101	ug/kg dry	50	4040	ND	103	77-123%	---	---	
trans-1,2-Dichloroethene	4360	---	101	ug/kg dry	50	4040	ND	108	74-125%	---	---	
1,2-Dichloropropane	4150	---	101	ug/kg dry	50	4040	ND	103	76-123%	---	---	
1,3-Dichloropropane	4140	---	202	ug/kg dry	50	4040	ND	102	77-121%	---	---	
2,2-Dichloropropane	5030	---	202	ug/kg dry	50	4040	ND	124	67-133%	---	---	
1,1-Dichloropropene	4520	---	202	ug/kg dry	50	4040	ND	112	76-125%	---	---	
cis-1,3-Dichloropropene	3840	---	202	ug/kg dry	50	4040	ND	95	74-126%	---	---	
trans-1,3-Dichloropropene	3930	---	202	ug/kg dry	50	4040	ND	97	71-130%	---	---	
Ethylbenzene	4260	---	101	ug/kg dry	50	4040	ND	105	76-122%	---	---	
Hexachlorobutadiene	4520	---	405	ug/kg dry	50	4040	ND	112	61-135%	---	---	
2-Hexanone	7910	---	2020	ug/kg dry	50	8090	ND	98	53-145%	---	---	
Isopropylbenzene	4420	---	202	ug/kg dry	50	4040	ND	109	68-134%	---	---	
4-Isopropyltoluene	4360	---	202	ug/kg dry	50	4040	ND	108	73-127%	---	---	
Methylene chloride	4000	---	2020	ug/kg dry	50	4040	ND	99	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	8820	---	2020	ug/kg dry	50	8090	ND	109	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	4180	---	202	ug/kg dry	50	4040	ND	103	73-125%	---	---	
Naphthalene	4190	---	405	ug/kg dry	50	4040	ND	104	62-129%	---	---	
n-Propylbenzene	4160	---	101	ug/kg dry	50	4040	ND	103	73-125%	---	---	
Styrene	4440	---	202	ug/kg dry	50	4040	ND	110	76-124%	---	---	
1,1,1,2-Tetrachloroethane	4080	---	101	ug/kg dry	50	4040	ND	101	78-125%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0392 - EPA 5035A						Soil						
Matrix Spike (24L0392-MS1)			Prepared: 12/04/24 14:00		Analyzed: 12/11/24 15:47							
QC Source Sample: Non-SDG (A4L0916-02)												
1,1,2,2-Tetrachloroethane	4510	---	202	ug/kg dry	50	4040	ND	112	70-124%	---	---	Q-01
Tetrachloroethene (PCE)	4460	---	101	ug/kg dry	50	4040	ND	110	73-128%	---	---	
Toluene	3930	---	202	ug/kg dry	50	4040	ND	97	77-121%	---	---	
1,2,3-Trichlorobenzene	4010	---	1010	ug/kg dry	50	4040	ND	99	66-130%	---	---	
1,2,4-Trichlorobenzene	4150	---	1010	ug/kg dry	50	4040	ND	103	67-129%	---	---	
1,1,1-Trichloroethane	4650	---	101	ug/kg dry	50	4040	ND	115	73-130%	---	---	
1,1,2-Trichloroethane	4300	---	101	ug/kg dry	50	4040	ND	106	78-121%	---	---	
Trichloroethene (TCE)	4360	---	101	ug/kg dry	50	4040	ND	108	77-123%	---	---	
Trichlorofluoromethane	15700	---	1010	ug/kg dry	50	4040	ND	389	62-140%	---	---	
1,2,3-Trichloropropane	4430	---	202	ug/kg dry	50	4040	ND	109	73-125%	---	---	
1,2,4-Trimethylbenzene	4560	---	202	ug/kg dry	50	4040	ND	113	75-123%	---	---	
1,3,5-Trimethylbenzene	4290	---	202	ug/kg dry	50	4040	ND	106	73-124%	---	---	
Vinyl chloride	4760	---	101	ug/kg dry	50	4040	ND	118	56-135%	---	---	
m,p-Xylene	8670	---	202	ug/kg dry	50	8090	ND	107	77-124%	---	---	
o-Xylene	4310	---	101	ug/kg dry	50	4040	ND	106	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		98 %		79-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0546 - EPA 3546 Soil												
Blank (24L0546-BLK1) Prepared: 12/16/24 07:40 Analyzed: 12/16/24 18:11 C-07												
EPA 8082A												
Aroclor 1016	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	10.0	ug/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr) Recovery: 115 % Limits: 60-125 % Dilution: 1x												
LCS (24L0546-BS1) Prepared: 12/16/24 07:40 Analyzed: 12/16/24 18:29 C-07												
EPA 8082A												
Aroclor 1016	216	---	10.0	ug/kg wet	1	250	---	86	47-134%	---	---	
Aroclor 1260	242	---	10.0	ug/kg wet	1	250	---	97	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr) Recovery: 118 % Limits: 60-125 % Dilution: 1x												
Duplicate (24L0546-DUP1) Prepared: 12/16/24 07:40 Analyzed: 12/16/24 19:22 C-07												
QC Source Sample: Non-SDG (A4L0921-01)												
Aroclor 1016	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1232	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1242	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1248	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1254	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1260	ND	---	9.37	ug/kg dry	1	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr) Recovery: 111 % Limits: 60-125 % Dilution: 1x												
Matrix Spike (24L0546-MS1) Prepared: 12/16/24 07:40 Analyzed: 12/16/24 23:32 C-07												
QC Source Sample: Non-SDG (A4L1011-02)												
EPA 8082A												
Aroclor 1016	166	---	9.39	ug/kg dry	1	235	ND	71	47-134%	---	---	
Aroclor 1260	153	---	9.39	ug/kg dry	1	235	ND	65	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr) Recovery: 88 % Limits: 60-125 % Dilution: 1x												

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0546 - EPA 3546							Soil					

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0926 - 12 30 24 1725**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0557 - EPA 3051A												
Soil												
Blank (24L0557-BLK1)												
Prepared: 12/16/24 08:47 Analyzed: 12/16/24 22:06												
EPA 6020B												
Arsenic	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	---	0.0800	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	---	1.00	mg/kg wet	10	---	---	---	---	---	---	
Silver	ND	---	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (24L0557-BS1)												
Prepared: 12/16/24 08:47 Analyzed: 12/16/24 22:11												
EPA 6020B												
Arsenic	49.8	---	1.00	mg/kg wet	10	50.0	---	100	80-120%	---	---	
Barium	52.8	---	1.00	mg/kg wet	10	50.0	---	106	80-120%	---	---	
Cadmium	50.8	---	0.200	mg/kg wet	10	50.0	---	102	80-120%	---	---	
Chromium	48.8	---	1.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Lead	52.9	---	0.200	mg/kg wet	10	50.0	---	106	80-120%	---	---	
Mercury	0.980	---	0.0800	mg/kg wet	10	1.00	---	98	80-120%	---	---	
Selenium	25.3	---	1.00	mg/kg wet	10	25.0	---	101	80-120%	---	---	
Silver	27.0	---	0.200	mg/kg wet	10	25.0	---	108	80-120%	---	---	
Duplicate (24L0557-DUP1)												
Prepared: 12/16/24 08:47 Analyzed: 12/16/24 22:27												
QC Source Sample: BH-DPSed#1 20241203 (A4L0926-01)												
EPA 6020B												
Arsenic	4.40	---	1.21	mg/kg dry	10	---	7.22	---	---	48	20%	Q-04
Barium	120	---	1.21	mg/kg dry	10	---	117	---	---	3	20%	
Cadmium	1.14	---	0.241	mg/kg dry	10	---	1.14	---	---	0.3	20%	
Chromium	26.7	---	1.21	mg/kg dry	10	---	81.6	---	---	101	20%	Q-04
Selenium	ND	---	1.21	mg/kg dry	10	---	ND	---	---	---	20%	
Silver	1.30	---	0.241	mg/kg dry	10	---	10.1	---	---	154	20%	Q-04

Duplicate (24L0557-DUP2)

Prepared: 12/16/24 08:47 Analyzed: 12/17/24 22:07

QC Source Sample: BH-DPSed#1 20241203 (A4L0926-01RE1)

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0557 - EPA 3051A							Soil					
Duplicate (24L0557-DUP2)			Prepared: 12/16/24 08:47 Analyzed: 12/17/24 22:07									
QC Source Sample: BH-DPSed#1 20241203 (A4L0926-01RE1)												
EPA 6020B												
Lead	1240	---	2.41	mg/kg dry	100	---	875	---	---	35	20%	Q-04, Q-16
Mercury	1.40	---	0.965	mg/kg dry	100	---	21.7	---	---	176	20%	Q-04, Q-16

Matrix Spike (24L0557-MS1)

Prepared: 12/16/24 08:47 Analyzed: 12/16/24 22:32

QC Source Sample: BH-DPSed#1 20241203 (A4L0926-01)												
EPA 6020B												
Arsenic	71.5	---	1.35	mg/kg dry	10	67.7	7.22	95	75-125%	---	---	
Barium	227	---	1.35	mg/kg dry	10	67.7	117	162	75-125%	---	---	Q-04
Cadmium	68.0	---	0.271	mg/kg dry	10	67.7	1.14	99	75-125%	---	---	
Chromium	109	---	1.35	mg/kg dry	10	67.7	81.6	40	75-125%	---	---	Q-04
Lead	1170	---	0.271	mg/kg dry	10	67.7	897	410	75-125%	---	---	E
Mercury	2.40	---	0.108	mg/kg dry	10	1.35	21.0	-1370	75-125%	---	---	Q-04
Selenium	31.8	---	1.35	mg/kg dry	10	33.9	ND	94	75-125%	---	---	
Silver	35.5	---	0.271	mg/kg dry	10	33.9	10.1	75	75-125%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0926 - 12 30 24 1725

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0997 - EPA 1311/3015A						Soil						
Blank (24L0997-BLK1)			Prepared: 12/27/24 14:19		Analyzed: 12/27/24 23:44							
1311/6020B												
Lead	ND	---	0.0500	mg/L	10	---	---	---	---	---	---	TCLP
Mercury	ND	---	0.00700	mg/L	10	---	---	---	---	---	---	TCLP
LCS (24L0997-BS2)			Prepared: 12/27/24 14:19		Analyzed: 12/28/24 12:46							
1311/6020B												
Lead	5.17	---	0.0500	mg/L	10	5.00	---	103	80-120%	---	---	Q-16
Mercury	0.101	---	0.00700	mg/L	10	0.100	---	101	80-120%	---	---	Q-16
Duplicate (24L0997-DUP1)			Prepared: 12/27/24 14:19		Analyzed: 12/28/24 00:10							
QC Source Sample: BH-DPSed#1_20241203 (A4L0926-01)												
1311/6020B												
Lead	0.761	---	0.0500	mg/L	10	---	0.799	---	---	5	20%	
Mercury	ND	---	0.00700	mg/L	10	---	ND	---	---	---	20%	
Matrix Spike (24L0997-MS1)			Prepared: 12/27/24 14:19		Analyzed: 12/28/24 00:15							
QC Source Sample: BH-DPSed#1_20241203 (A4L0926-01)												
1311/6020B												
Lead	5.96	---	0.0500	mg/L	10	5.00	0.799	103	50-150%	---	---	
Mercury	0.105	---	0.00700	mg/L	10	0.100	ND	105	50-150%	---	---	
Matrix Spike (24L0997-MS2)			Prepared: 12/27/24 14:19		Analyzed: 12/28/24 00:26							
QC Source Sample: Non-SDG (A4L1013-04)												
1311/6020B												
Lead	5.41	---	0.0500	mg/L	10	5.00	ND	108	50-150%	---	---	PRO
Mercury	0.103	---	0.00700	mg/L	10	0.100	ND	103	50-150%	---	---	PRO

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0926 - 12 30 24 1725**

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0168 - Dry Weight Prep (EPA 8000D)							Soil					
Duplicate (24L0168-DUP1)			Prepared: 12/05/24 11:38 Analyzed: 12/06/24 05:52									
QC Source Sample: Non-SDG (A4L0865-01)												
% Solids	93.7	---	1.00	%	1	---	93.1	---	---	0.7	10%	
Duplicate (24L0168-DUP2)			Prepared: 12/05/24 11:38 Analyzed: 12/06/24 05:52									
QC Source Sample: Non-SDG (A4L0865-02)												
% Solids	96.6	---	1.00	%	1	---	97.6	---	---	1	10%	
Duplicate (24L0168-DUP3)			Prepared: 12/05/24 11:38 Analyzed: 12/06/24 05:52									
QC Source Sample: Non-SDG (A4L0865-03)												
% Solids	91.3	---	1.00	%	1	---	91.2	---	---	0.09	10%	
Duplicate (24L0168-DUP4)			Prepared: 12/05/24 19:19 Analyzed: 12/06/24 05:52									
QC Source Sample: Non-SDG (A4L0947-01)												
% Solids	70.6	---	1.00	%	1	---	69.9	---	---	1	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0926 - 12 30 24 1725****SAMPLE PREPARATION INFORMATION****Volatile Organic Compounds by EPA 8260D****Prep: EPA 5035A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0206							
A4L0926-01	Soil	5035A/8260D	12/03/24 14:55	12/03/24 14:55	7.18g/5mL	5g/5mL	0.70
A4L0926-02	Soil	5035A/8260D	12/03/24 15:10	12/03/24 15:10	6.68g/5mL	5g/5mL	0.75

Polychlorinated Biphenyls by EPA 8082A**Prep: EPA 3546**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0546							
A4L0926-01	Soil	EPA 8082A	12/03/24 14:55	12/16/24 07:40	11.04g/5mL	10g/5mL	0.91
A4L0926-02	Soil	EPA 8082A	12/03/24 15:10	12/16/24 07:40	11.25g/5mL	10g/5mL	0.89

Total Metals by EPA 6020B (ICPMS)**Prep: EPA 3051A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0557							
A4L0926-01	Soil	EPA 6020B	12/03/24 14:55	12/16/24 08:47	0.456g/50mL	0.5g/50mL	1.10
A4L0926-01RE1	Soil	EPA 6020B	12/03/24 14:55	12/16/24 08:47	0.456g/50mL	0.5g/50mL	1.10
A4L0926-02	Soil	EPA 6020B	12/03/24 15:10	12/16/24 08:47	0.454g/50mL	0.5g/50mL	1.10

TCLP Metals by EPA 6020B (ICPMS)**Prep: EPA 1311/3015A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0997							
A4L0926-01	Soil	1311/6020B	12/03/24 14:55	12/27/24 14:19	10mL/50mL	10mL/50mL	1.00

Percent Dry Weight**Prep: Dry Weight Prep (EPA 8000D)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0168							
A4L0926-01	Soil	EPA 8000D	12/03/24 14:55	12/05/24 11:38	1g	1g	1.00
A4L0926-02	Soil	EPA 8000D	12/03/24 15:10	12/05/24 11:38	1g	1g	1.00

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

SAMPLE PREPARATION INFORMATION

TCLP Extraction by EPA 1311

Prep: EPA 1311 (TCLP)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 24L0826</u>							
A4L0926-01	Soil	EPA 1311	12/03/24 14:55	12/23/24 14:40	100g/2000g	100g/2000g	NA

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- E** Estimated Value. The result is above the calibration range of the instrument.
- ICV-01** Estimated Result. Initial Calibration Verification (ICV) failed high. There is no effect on non-detect results.
- M-02** Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
- P-12** Result estimated due to the presence of multiple PCB Aroclors and/or PCB congeners not defined as Aroclors.
- PRO** Sample has undergone sample processing prior to extraction and analysis.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-04** Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-16** Reanalysis of an original Batch QC sample.
- Q-42** Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
- Q-54** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +10%. The results are reported as Estimated Values.
- Q-54a** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +15%. The results are reported as Estimated Values.
- Q-54b** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +2%. The results are reported as Estimated Values.
- Q-54c** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +20%. The results are reported as Estimated Values.
- Q-54d** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +31%. The results are reported as Estimated Values.
- Q-54e** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +4%. The results are reported as Estimated Values.
- Q-54f** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +5%. The results are reported as Estimated Values.
- Q-54g** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +7%. The results are reported as Estimated Values.
- Q-54h** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by -8%. The results are reported as Estimated Values.
- Q-55** Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260, however there is adequate sensitivity to ensure detection at the reporting level.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4L0926 - 12 30 24 1725

- Q-56** Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260. Samples that are ND (Non-Detect) are not impacted.
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- TCLP** This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 24L0826.
- V-14** Results differ between analyzed VOA vials, highest result reported.
- V-15** Sample aliquot was subsampled from the sample container in the laboratory. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:

A4L0926 - 12 30 24 1725

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).
Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.
-For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.
-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.
'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4L0926 - 12 30 24 1725

Decanted Samples:

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses.

In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0926 - 12 30 24 1725

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.

Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue HeronProject Number: G685.0793 Task 400Project Manager: John Kuiper

Report ID:

A4L0926 - 12 30 24 1725

APEX LABS COOLER RECEIPT FORM

Client: WSP Element WO#: A4L0926Project/Project #: Blue Heron / G685.0793 Task 400

Delivery Info:

Date/time received: 12/1/24 @ 11:30 By: ZAMDelivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Radio ☐ Morgan ☐ SDS ☐ Evergreen ☐ Other ☐From USDA Regulated Origin? Yes ☐ No ☒Cooler Inspection Date/time inspected: 12/1/24 @ 11:30 By: ZAMChain of Custody included? Yes ☒ No ☐Signed/dated by client? Yes ☒ No ☐Contains USDA Reg. Soils? Yes ☐ No ☒ Unsure (email RegSoils) ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>5.6</u>						
Custody seals? (Y/N)	<u>N</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition (In/Out):	<u>IN</u>						

Cooler out of temp? (Y/N) N Possible reason why: Green dots applied to out of temperature samples? Yes ☒ No ☐Out of temperature samples form initiated? Yes ☒ No ☐Sample Inspection: Date/time inspected: 12/5/24 @ 11:07 By: ZAMAll samples intact? Yes ☒ No ☐ Comments: Bottle labels/COCs agree? Yes ☒ No ☐ Comments: COC/container discrepancies form initiated? Yes ☐ No ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: Do VOA vials have visible headspace? Yes ☐ No ☐ NA ☒Comments: Water samples: pH checked: Yes ☐ No ☐ NA ☒ pH appropriate? Yes ☐ No ☐ NA ☒ pH ID: Comments: Labeled by: ZAMWitness: Cooler Inspected by:

Form Y-003 R-02

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Friday, December 20, 2024

John Kuiper

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

RE: A4L0933 - Blue Heron - G685.0793 Task 400

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A4L0933, which was received by the laboratory on 12/4/2024 at 11:30:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information

Acceptable Receipt Temperature is less than, or equal to, 6 degC (not frozen), or received on ice the same day as sampling.

(See Cooler Receipt Form for details)

Default Cooler 5.6 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John Kuiper

Report ID:
A4L0933 - 12 20 24 1821

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-DPSW#1-20241203	A4L0933-01	Water	12/03/24 16:00	12/04/24 11:30
BH-DPSW#2-20241203	A4L0933-02	Water	12/03/24 16:20	12/04/24 11:30
BH-DPSW#3-20241203	A4L0933-03	Water	12/03/24 16:30	12/04/24 11:30

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0933 - 12 20 24 1821**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#1-20241203 (A4L0933-01RE2)				Matrix: Water		Batch: 24L0517		
Acetone	ND	---	20.0	ug/L	1	12/14/24 13:20	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	12/14/24 13:20	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	12/14/24 13:20	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	12/14/24 13:20	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	12/14/24 13:20	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	12/14/24 13:20	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 3 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0933 - 12 20 24 1821

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#1-20241203 (A4L0933-01RE2)				Matrix: Water		Batch: 24L0517		
1,2-Dichloropropane	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	12/14/24 13:20	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	12/14/24 13:20	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	12/14/24 13:20	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	12/14/24 13:20	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	12/14/24 13:20	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	12/14/24 13:20	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	12/14/24 13:20	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	12/14/24 13:20	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	12/14/24 13:20	EPA 8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 4 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0933 - 12 20 24 1821**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#1-20241203 (A4L0933-01RE2)		Matrix: Water			Batch: 24L0517			
Surrogate: 1,4-Difluorobenzene (Surr)		Recovery:	101 %	Limits: 80-120 %	1	12/14/24 13:20	EPA 8260D	
Toluene-d8 (Surr)			105 %	80-120 %	1	12/14/24 13:20	EPA 8260D	
4-Bromofluorobenzene (Surr)			102 %	80-120 %	1	12/14/24 13:20	EPA 8260D	
BH-DPSW#2-20241203 (A4L0933-02RE2)		Matrix: Water			Batch: 24L0517			
Acetone	ND	---	20.0	ug/L	1	12/14/24 13:42	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	12/14/24 13:42	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	12/14/24 13:42	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	12/14/24 13:42	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	12/14/24 13:42	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Chloromethane	14.3	---	5.00	ug/L	1	12/14/24 13:42	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#2-20241203 (A4L0933-02RE2)				Matrix: Water		Batch: 24L0517		
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	12/14/24 13:42	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	12/14/24 13:42	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	12/14/24 13:42	EPA 8260D	
4-Methyl-2-pentanone (MIBK)	ND	---	10.0	ug/L	1	12/14/24 13:42	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	12/14/24 13:42	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	12/14/24 13:42	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 6 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0933 - 12 20 24 1821**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#2-20241203 (A4L0933-02RE2)		Matrix: Water			Batch: 24L0517			
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	12/14/24 13:42	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	12/14/24 13:42	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	12/14/24 13:42	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	<i>101 %</i>	<i>Limits: 80-120 %</i>	<i>1</i>	<i>12/14/24 13:42</i>	<i>EPA 8260D</i>	
<i>Toluene-d8 (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/14/24 13:42</i>	<i>EPA 8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>			<i>102 %</i>	<i>80-120 %</i>	<i>1</i>	<i>12/14/24 13:42</i>	<i>EPA 8260D</i>	
BH-DPSW#3-20241203 (A4L0933-03RE2)		Matrix: Water			Batch: 24L0517			
Acetone	22.8	---	20.0	ug/L	1	12/14/24 14:05	EPA 8260D	Q-54c
Acrylonitrile	ND	---	2.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	12/14/24 14:05	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	12/14/24 14:05	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	12/14/24 14:05	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	12/14/24 14:05	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	12/14/24 14:05	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#3-20241203 (A4L0933-03RE2)				Matrix: Water		Batch: 24L0517		
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	12/14/24 14:05	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	12/14/24 14:05	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	12/14/24 14:05	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	12/14/24 14:05	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Naphthalene	ND	---	5.00	ug/L	1	12/14/24 14:05	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 8 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0933 - 12 20 24 1821

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#3-20241203 (A4L0933-03RE2)		Matrix: Water			Batch: 24L0517			
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	12/14/24 14:05	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
Vinyl chloride	ND	---	0.200	ug/L	1	12/14/24 14:05	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	12/14/24 14:05	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	12/14/24 14:05	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery:</i>	<i>101 %</i>	<i>Limits:</i>	<i>80-120 %</i>	<i>1</i>	<i>12/14/24 14:05</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>			<i>103 %</i>		<i>80-120 %</i>	<i>1</i>	<i>12/14/24 14:05</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>			<i>103 %</i>		<i>80-120 %</i>	<i>1</i>	<i>12/14/24 14:05</i>	<i>EPA 8260D</i>

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0933 - 12 20 24 1821

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#1-20241203 (A4L0933-01)		Matrix: Water			Batch: 24L0319		C-07	
Aroclor 1016	ND	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	
Aroclor 1221	ND	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	
Aroclor 1232	ND	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	
Aroclor 1242	ND	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	
Aroclor 1248	ND	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	
Aroclor 1254	0.153	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	P-12
Aroclor 1260	0.120	---	0.0935	ug/L	1	12/10/24 20:28	EPA 8082A	P-12
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 82 %</i>		<i>Limits: 40-135 %</i>	<i>1</i>	<i>12/10/24 20:28</i>	<i>EPA 8082A</i>	
BH-DPSW#2-20241203 (A4L0933-02)		Matrix: Water			Batch: 24L0319		C-07	
Aroclor 1016	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
Aroclor 1221	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
Aroclor 1232	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
Aroclor 1242	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
Aroclor 1248	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
Aroclor 1254	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
Aroclor 1260	ND	---	0.0943	ug/L	1	12/10/24 20:46	EPA 8082A	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 40-135 %</i>	<i>1</i>	<i>12/10/24 20:46</i>	<i>EPA 8082A</i>	
BH-DPSW#3-20241203 (A4L0933-03)		Matrix: Water			Batch: 24L0319		C-07	
Aroclor 1016	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
Aroclor 1221	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
Aroclor 1232	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
Aroclor 1242	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
Aroclor 1248	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
Aroclor 1254	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
Aroclor 1260	ND	---	0.0935	ug/L	1	12/10/24 21:04	EPA 8082A	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 40-135 %</i>	<i>1</i>	<i>12/10/24 21:04</i>	<i>EPA 8082A</i>	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0933 - 12 20 24 1821

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
BH-DPSW#1-20241203 (A4L0933-01) Matrix: Water								
Batch: 24L0560								
Arsenic	5.85	---	1.00	ug/L	1	12/17/24 02:30	EPA 6020B	
Barium	86.2	---	2.00	ug/L	1	12/17/24 02:30	EPA 6020B	
Cadmium	4.29	---	0.200	ug/L	1	12/17/24 02:30	EPA 6020B	
Chromium	7.93	---	2.00	ug/L	1	12/17/24 02:30	EPA 6020B	
Lead	174	---	0.200	ug/L	1	12/17/24 02:30	EPA 6020B	
Mercury	0.136	---	0.0800	ug/L	1	12/17/24 02:30	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	12/17/24 02:30	EPA 6020B	
Silver	0.391	---	0.200	ug/L	1	12/17/24 02:30	EPA 6020B	
BH-DPSW#2-20241203 (A4L0933-02) Matrix: Water								
Batch: 24L0560								
Arsenic	ND	---	1.00	ug/L	1	12/17/24 02:35	EPA 6020B	
Barium	29.3	---	2.00	ug/L	1	12/17/24 02:35	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	12/17/24 02:35	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	12/17/24 02:35	EPA 6020B	
Lead	5.62	---	0.200	ug/L	1	12/17/24 02:35	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	12/17/24 02:35	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	12/17/24 02:35	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	12/17/24 02:35	EPA 6020B	
BH-DPSW#3-20241203 (A4L0933-03) Matrix: Water								
Batch: 24L0560								
Arsenic	ND	---	1.00	ug/L	1	12/17/24 02:40	EPA 6020B	
Barium	28.1	---	2.00	ug/L	1	12/17/24 02:40	EPA 6020B	
Cadmium	ND	---	0.200	ug/L	1	12/17/24 02:40	EPA 6020B	
Chromium	ND	---	2.00	ug/L	1	12/17/24 02:40	EPA 6020B	
Lead	1.86	---	0.200	ug/L	1	12/17/24 02:40	EPA 6020B	
Mercury	ND	---	0.0800	ug/L	1	12/17/24 02:40	EPA 6020B	
Selenium	ND	---	1.00	ug/L	1	12/17/24 02:40	EPA 6020B	
Silver	ND	---	0.200	ug/L	1	12/17/24 02:40	EPA 6020B	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Blank (24L0305-BLK1)			Prepared: 12/09/24 10:00		Analyzed: 12/09/24 14:22							
EPA 8260D												
Acetone	ND	---	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 12 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Blank (24L0305-BLK1)						Prepared: 12/09/24 10:00 Analyzed: 12/09/24 14:22						
1,2-Dichloropropane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 108 % Limits: 80-120 % Dilution: 1x												

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Blank (24L0305-BLK1)			Prepared: 12/09/24 10:00		Analyzed: 12/09/24 14:22							
Surr: Toluene-d8 (Surr)		Recovery: 99 %		Limits: 80-120 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		99 %		80-120 %		"						
LCS (24L0305-BS1)			Prepared: 12/09/24 10:00		Analyzed: 12/09/24 13:37							
EPA 8260D												
Acetone	40.9	---	20.0	ug/L	1	40.0	---	102	80-120%	---	---	
Acrylonitrile	20.5	---	2.00	ug/L	1	20.0	---	103	80-120%	---	---	
Benzene	22.3	---	0.200	ug/L	1	20.0	---	112	80-120%	---	---	
Bromobenzene	18.8	---	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
Bromochloromethane	26.0	---	1.00	ug/L	1	20.0	---	130	80-120%	---	---	Q-56
Bromodichloromethane	23.6	---	1.00	ug/L	1	20.0	---	118	80-120%	---	---	
Bromoform	21.7	---	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
Bromomethane	37.4	---	5.00	ug/L	1	20.0	---	187	80-120%	---	---	Q-56
2-Butanone (MEK)	42.1	---	10.0	ug/L	1	40.0	---	105	80-120%	---	---	
n-Butylbenzene	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
sec-Butylbenzene	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
tert-Butylbenzene	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
Carbon disulfide	25.0	---	10.0	ug/L	1	20.0	---	125	80-120%	---	---	Q-56
Carbon tetrachloride	22.1	---	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
Chlorobenzene	20.9	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Chloroethane	32.9	---	5.00	ug/L	1	20.0	---	164	80-120%	---	---	Q-56
Chloroform	23.3	---	1.00	ug/L	1	20.0	---	116	80-120%	---	---	
Chloromethane	18.8	---	5.00	ug/L	1	20.0	---	94	80-120%	---	---	
2-Chlorotoluene	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
4-Chlorotoluene	19.8	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
Dibromochloromethane	21.5	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
1,2-Dibromo-3-chloropropane	18.0	---	5.00	ug/L	1	20.0	---	90	80-120%	---	---	
1,2-Dibromoethane (EDB)	21.0	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Dibromomethane	23.5	---	1.00	ug/L	1	20.0	---	117	80-120%	---	---	
1,2-Dichlorobenzene	20.0	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
1,3-Dichlorobenzene	21.0	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
1,4-Dichlorobenzene	20.2	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Dichlorodifluoromethane	20.9	---	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
1,1-Dichloroethane	24.3	---	0.400	ug/L	1	20.0	---	121	80-120%	---	---	Q-56

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 14 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
LCS (24L0305-BS1)						Prepared: 12/09/24 10:00 Analyzed: 12/09/24 13:37						
1,2-Dichloroethane (EDC)	24.4	---	0.400	ug/L	1	20.0	---	122	80-120%	---	---	Q-56
1,1-Dichloroethene	24.8	---	0.400	ug/L	1	20.0	---	124	80-120%	---	---	Q-56
cis-1,2-Dichloroethene	22.2	---	0.400	ug/L	1	20.0	---	111	80-120%	---	---	
trans-1,2-Dichloroethene	22.8	---	0.400	ug/L	1	20.0	---	114	80-120%	---	---	
1,2-Dichloropropane	22.5	---	0.500	ug/L	1	20.0	---	112	80-120%	---	---	
1,3-Dichloropropane	19.6	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
2,2-Dichloropropane	24.2	---	1.00	ug/L	1	20.0	---	121	80-120%	---	---	Q-56
1,1-Dichloropropene	22.1	---	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
cis-1,3-Dichloropropene	19.8	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
trans-1,3-Dichloropropene	21.3	---	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
Ethylbenzene	20.6	---	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Hexachlorobutadiene	18.2	---	5.00	ug/L	1	20.0	---	91	80-120%	---	---	
2-Hexanone	31.8	---	10.0	ug/L	1	40.0	---	79	80-120%	---	---	Q-55
Isopropylbenzene	18.5	---	1.00	ug/L	1	20.0	---	92	80-120%	---	---	
4-Isopropyltoluene	19.8	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
Methylene chloride	21.9	---	10.0	ug/L	1	20.0	---	110	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	36.1	---	10.0	ug/L	1	40.0	---	90	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	21.1	---	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
Naphthalene	16.2	---	5.00	ug/L	1	20.0	---	81	80-120%	---	---	
n-Propylbenzene	21.1	---	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Styrene	18.7	---	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,1,1,2-Tetrachloroethane	19.9	---	0.400	ug/L	1	20.0	---	100	80-120%	---	---	
1,1,2,2-Tetrachloroethane	22.1	---	0.500	ug/L	1	20.0	---	111	80-120%	---	---	
Tetrachloroethene (PCE)	20.6	---	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
Toluene	19.9	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
1,2,3-Trichlorobenzene	16.9	---	2.00	ug/L	1	20.0	---	85	80-120%	---	---	
1,2,4-Trichlorobenzene	15.9	---	2.00	ug/L	1	20.0	---	80	80-120%	---	---	
1,1,1-Trichloroethane	23.6	---	0.400	ug/L	1	20.0	---	118	80-120%	---	---	
1,1,2-Trichloroethane	20.6	---	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Trichloroethene (TCE)	22.4	---	0.400	ug/L	1	20.0	---	112	80-120%	---	---	
Trichlorofluoromethane	39.4	---	2.00	ug/L	1	20.0	---	197	80-120%	---	---	Q-56
1,2,3-Trichloropropane	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,2,4-Trimethylbenzene	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,3,5-Trimethylbenzene	20.6	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 15 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0933 - 12 20 24 1821**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
LCS (24L0305-BS1)						Prepared: 12/09/24 10:00 Analyzed: 12/09/24 13:37						
Vinyl chloride	25.0	---	0.200	ug/L	1	20.0	---	125	80-120%	---	---	Q-56
m,p-Xylene	42.8	---	1.00	ug/L	1	40.0	---	107	80-120%	---	---	
o-Xylene	17.9	---	0.500	ug/L	1	20.0	---	90	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 107 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		96 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		92 %		80-120 %		"						

Duplicate (24L0305-DUP1)

Prepared: 12/09/24 10:00 Analyzed: 12/09/24 20:56

QC Source Sample: Non-SDG (A4L0850-13RE1)

Acetone	ND	---	2000	ug/L	100	---	ND	---	---	---	30%
Acrylonitrile	ND	---	200	ug/L	100	---	ND	---	---	---	30%
Benzene	ND	---	20.0	ug/L	100	---	ND	---	---	---	30%
Bromobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%
Bromochloromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Bromodichloromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Bromoform	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Bromomethane	ND	---	500	ug/L	100	---	ND	---	---	---	30%
2-Butanone (MEK)	ND	---	1000	ug/L	100	---	ND	---	---	---	30%
n-Butylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%
sec-Butylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%
tert-Butylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Carbon disulfide	ND	---	1000	ug/L	100	---	ND	---	---	---	30%
Carbon tetrachloride	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Chlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%
Chloroethane	ND	---	500	ug/L	100	---	ND	---	---	---	30%
Chloroform	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Chloromethane	ND	---	500	ug/L	100	---	ND	---	---	---	30%
2-Chlorotoluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%
4-Chlorotoluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%
Dibromochloromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%
1,2-Dibromo-3-chloropropane	ND	---	500	ug/L	100	---	ND	---	---	---	30%
1,2-Dibromoethane (EDB)	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%
Dibromomethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%
1,2-Dichlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Duplicate (24L0305-DUP1)			Prepared: 12/09/24 10:00		Analyzed: 12/09/24 20:56							
QC Source Sample: Non-SDG (A4L0850-13RE1)												
1,3-Dichlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	Q-54
1,4-Dichlorobenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,1-Dichloroethane	53.0	---	40.0	ug/L	100	---	55.0	---	---	4	30%	
1,2-Dichloroethane (EDC)	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	581	---	40.0	ug/L	100	---	587	---	---	1	30%	
trans-1,2-Dichloroethene	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
2-Hexanone	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Methylene chloride	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	1000	ug/L	100	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Naphthalene	ND	---	500	ug/L	100	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Styrene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	2500	---	40.0	ug/L	100	---	2510	---	---	0.5	30%	
Toluene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	40.0	ug/L	100	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0933 - 12 20 24 1821**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Duplicate (24L0305-DUP1)			Prepared: 12/09/24 10:00 Analyzed: 12/09/24 20:56									
QC Source Sample: Non-SDG (A4L0850-13RE1)												
Trichloroethene (TCE)	661	---	40.0	ug/L	100	---	674	---	---	2	30%	Q-54l
Trichlorofluoromethane	ND	---	200	ug/L	100	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	20.0	ug/L	100	---	15.0	---	---	***	30%	
m,p-Xylene	ND	---	100	ug/L	100	---	ND	---	---	---	30%	
o-Xylene	ND	---	50.0	ug/L	100	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 111 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		100 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		97 %		80-120 %		"						

Matrix Spike (24L0305-MS1)

Prepared: 12/09/24 10:00 Analyzed: 12/09/24 17:56

QC Source Sample: Non-SDG (A4L0976-18)

EPA 8260D												
Acetone	54.0	---	20.0	ug/L	1	40.0	ND	110	39-160%	---	---	
Acrylonitrile	20.5	---	2.00	ug/L	1	20.0	ND	103	63-135%	---	---	
Benzene	23.4	---	0.200	ug/L	1	20.0	0.210	116	79-120%	---	---	
Bromobenzene	17.8	---	0.500	ug/L	1	20.0	ND	89	80-120%	---	---	
Bromochloromethane	26.9	---	1.00	ug/L	1	20.0	ND	135	78-123%	---	---	Q-54a
Bromodichloromethane	24.4	---	1.00	ug/L	1	20.0	ND	122	79-125%	---	---	
Bromoform	21.7	---	1.00	ug/L	1	20.0	ND	108	66-130%	---	---	
Bromomethane	42.4	---	5.00	ug/L	1	20.0	ND	212	53-141%	---	---	Q-54m
2-Butanone (MEK)	42.4	---	10.0	ug/L	1	40.0	ND	106	56-143%	---	---	
n-Butylbenzene	17.8	---	1.00	ug/L	1	20.0	ND	89	75-128%	---	---	
sec-Butylbenzene	19.3	---	1.00	ug/L	1	20.0	ND	96	77-126%	---	---	
tert-Butylbenzene	17.8	---	1.00	ug/L	1	20.0	ND	89	78-124%	---	---	
Carbon disulfide	27.0	---	10.0	ug/L	1	20.0	ND	135	64-133%	---	---	Q-54l
Carbon tetrachloride	24.5	---	1.00	ug/L	1	20.0	ND	123	72-136%	---	---	
Chlorobenzene	21.0	---	0.500	ug/L	1	20.0	ND	105	80-120%	---	---	
Chloroethane	37.6	---	5.00	ug/L	1	20.0	ND	188	60-138%	---	---	Q-54k
Chloroform	24.5	---	1.00	ug/L	1	20.0	ND	122	79-124%	---	---	
Chloromethane	20.6	---	5.00	ug/L	1	20.0	ND	103	50-139%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 18 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Matrix Spike (24L0305-MS1)			Prepared: 12/09/24 10:00		Analyzed: 12/09/24 17:56							
QC Source Sample: Non-SDG (A4L0976-18)												
2-Chlorotoluene	18.5	---	1.00	ug/L	1	20.0	ND	93	79-122%	---	---	
4-Chlorotoluene	18.7	---	1.00	ug/L	1	20.0	ND	94	78-122%	---	---	
Dibromochloromethane	21.3	---	1.00	ug/L	1	20.0	ND	107	74-126%	---	---	
1,2-Dibromo-3-chloropropane	15.9	---	5.00	ug/L	1	20.0	ND	80	62-128%	---	---	
1,2-Dibromoethane (EDB)	20.6	---	0.500	ug/L	1	20.0	ND	103	77-121%	---	---	
Dibromomethane	24.2	---	1.00	ug/L	1	20.0	ND	121	79-123%	---	---	
1,2-Dichlorobenzene	18.8	---	0.500	ug/L	1	20.0	ND	94	80-120%	---	---	
1,3-Dichlorobenzene	20.2	---	0.500	ug/L	1	20.0	ND	101	80-120%	---	---	
1,4-Dichlorobenzene	19.6	---	0.500	ug/L	1	20.0	ND	98	79-120%	---	---	
Dichlorodifluoromethane	24.6	---	1.00	ug/L	1	20.0	ND	123	32-152%	---	---	
1,1-Dichloroethane	25.2	---	0.400	ug/L	1	20.0	ND	126	77-125%	---	---	Q-54
1,2-Dichloroethane (EDC)	24.8	---	0.400	ug/L	1	20.0	ND	124	73-128%	---	---	Q-54e
1,1-Dichloroethene	27.0	---	0.400	ug/L	1	20.0	ND	135	71-131%	---	---	Q-54j
cis-1,2-Dichloroethene	22.2	---	0.400	ug/L	1	20.0	ND	111	78-123%	---	---	
trans-1,2-Dichloroethene	23.9	---	0.400	ug/L	1	20.0	ND	120	75-124%	---	---	
1,2-Dichloropropane	23.0	---	0.500	ug/L	1	20.0	ND	115	78-122%	---	---	
1,3-Dichloropropane	19.3	---	1.00	ug/L	1	20.0	ND	97	80-120%	---	---	
2,2-Dichloropropane	24.2	---	1.00	ug/L	1	20.0	ND	121	60-139%	---	---	Q-54
1,1-Dichloropropene	23.6	---	1.00	ug/L	1	20.0	ND	118	79-125%	---	---	
cis-1,3-Dichloropropene	16.8	---	1.00	ug/L	1	20.0	ND	84	75-124%	---	---	
trans-1,3-Dichloropropene	20.7	---	1.00	ug/L	1	20.0	ND	104	73-127%	---	---	
Ethylbenzene	20.6	---	0.500	ug/L	1	20.0	ND	103	79-121%	---	---	
Hexachlorobutadiene	14.8	---	5.00	ug/L	1	20.0	ND	74	66-134%	---	---	
2-Hexanone	29.0	---	10.0	ug/L	1	40.0	ND	72	57-139%	---	---	Q-54o
Isopropylbenzene	17.9	---	1.00	ug/L	1	20.0	ND	89	72-131%	---	---	
4-Isopropyltoluene	18.6	---	1.00	ug/L	1	20.0	ND	93	77-127%	---	---	
Methylene chloride	22.8	---	10.0	ug/L	1	20.0	ND	114	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	33.7	---	10.0	ug/L	1	40.0	ND	84	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	21.1	---	1.00	ug/L	1	20.0	ND	106	71-124%	---	---	
Naphthalene	14.1	---	5.00	ug/L	1	20.0	ND	71	61-128%	---	---	
n-Propylbenzene	20.1	---	0.500	ug/L	1	20.0	ND	100	76-126%	---	---	
Styrene	18.5	---	1.00	ug/L	1	20.0	ND	92	78-123%	---	---	
1,1,1,2-Tetrachloroethane	20.2	---	0.400	ug/L	1	20.0	ND	101	78-124%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 19 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0305 - EPA 5030C						Water						
Matrix Spike (24L0305-MS1)			Prepared: 12/09/24 10:00		Analyzed: 12/09/24 17:56							
QC Source Sample: Non-SDG (A4L0976-18)												
1,1,2,2-Tetrachloroethane	22.0	---	0.500	ug/L	1	20.0	ND	110	71-121%	---	---	Q-01
Tetrachloroethene (PCE)	21.1	---	0.400	ug/L	1	20.0	ND	106	74-129%	---	---	
Toluene	20.3	---	1.00	ug/L	1	20.0	ND	101	80-121%	---	---	
1,2,3-Trichlorobenzene	15.1	---	2.00	ug/L	1	20.0	ND	76	69-129%	---	---	
1,2,4-Trichlorobenzene	13.7	---	2.00	ug/L	1	20.0	ND	68	69-130%	---	---	
1,1,1-Trichloroethane	25.8	---	0.400	ug/L	1	20.0	ND	129	74-131%	---	---	Q-54n
1,1,2-Trichloroethane	20.4	---	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
Trichloroethene (TCE)	22.6	---	0.400	ug/L	1	20.0	ND	113	79-123%	---	---	
Trichlorofluoromethane	47.1	---	2.00	ug/L	1	20.0	ND	235	65-141%	---	---	
1,2,3-Trichloropropane	19.2	---	1.00	ug/L	1	20.0	ND	96	73-122%	---	---	
1,2,4-Trimethylbenzene	19.6	---	1.00	ug/L	1	20.0	ND	98	76-124%	---	---	Q-54l
1,3,5-Trimethylbenzene	19.5	---	1.00	ug/L	1	20.0	ND	98	75-124%	---	---	
Vinyl chloride	27.8	---	0.200	ug/L	1	20.0	ND	139	58-137%	---	---	
m,p-Xylene	43.1	---	1.00	ug/L	1	40.0	ND	108	80-121%	---	---	
o-Xylene	17.3	---	0.500	ug/L	1	20.0	ND	86	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 110 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		94 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		90 %		80-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
Blank (24L0517-BLK1)			Prepared: 12/14/24 09:00		Analyzed: 12/14/24 12:12							
EPA 8260D												
Acetone	ND	---	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 21 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: Blue Heron
Project Number: G685.0793 Task 400
Project Manager: John KuiperReport ID:
A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
Blank (24L0517-BLK1)						Prepared: 12/14/24 09:00 Analyzed: 12/14/24 12:12						
1,2-Dichloropropane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 101 % Limits: 80-120 % Dilution: 1x												

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
Blank (24L0517-BLK1)			Prepared: 12/14/24 09:00		Analyzed: 12/14/24 12:12							
Surr: Toluene-d8 (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
4-Bromo fluorobenzene (Surr)		102 %		80-120 %		"						
LCS (24L0517-BS1)			Prepared: 12/14/24 09:00		Analyzed: 12/14/24 11:04							
EPA 8260D												
Acetone	55.0	---	20.0	ug/L	1	40.0	---	138	80-120%	---	---	Q-56
Acrylonitrile	20.8	---	2.00	ug/L	1	20.0	---	104	80-120%	---	---	
Benzene	20.9	---	0.200	ug/L	1	20.0	---	104	80-120%	---	---	
Bromobenzene	20.1	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Bromochloromethane	24.0	---	1.00	ug/L	1	20.0	---	120	80-120%	---	---	
Bromodichloromethane	23.3	---	1.00	ug/L	1	20.0	---	117	80-120%	---	---	
Bromoform	21.5	---	1.00	ug/L	1	20.0	---	108	80-120%	---	---	
Bromomethane	29.9	---	5.00	ug/L	1	20.0	---	149	80-120%	---	---	Q-56
2-Butanone (MEK)	42.9	---	10.0	ug/L	1	40.0	---	107	80-120%	---	---	
n-Butylbenzene	20.4	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
sec-Butylbenzene	20.0	---	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
tert-Butylbenzene	19.7	---	1.00	ug/L	1	20.0	---	98	80-120%	---	---	
Carbon disulfide	31.6	---	10.0	ug/L	1	20.0	---	158	80-120%	---	---	Q-56
Carbon tetrachloride	23.3	---	1.00	ug/L	1	20.0	---	116	80-120%	---	---	
Chlorobenzene	21.7	---	0.500	ug/L	1	20.0	---	108	80-120%	---	---	
Chloroethane	27.9	---	5.00	ug/L	1	20.0	---	139	80-120%	---	---	Q-56
Chloroform	22.9	---	1.00	ug/L	1	20.0	---	115	80-120%	---	---	
Chloromethane	22.9	---	5.00	ug/L	1	20.0	---	115	80-120%	---	---	
2-Chlorotoluene	20.3	---	1.00	ug/L	1	20.0	---	102	80-120%	---	---	
4-Chlorotoluene	20.6	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Dibromochloromethane	22.1	---	1.00	ug/L	1	20.0	---	110	80-120%	---	---	
1,2-Dibromo-3-chloropropane	18.8	---	5.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,2-Dibromoethane (EDB)	21.2	---	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Dibromomethane	22.7	---	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,2-Dichlorobenzene	20.2	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
1,3-Dichlorobenzene	21.2	---	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
1,4-Dichlorobenzene	20.8	---	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
Dichlorodifluoromethane	22.5	---	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
1,1-Dichloroethane	22.2	---	0.400	ug/L	1	20.0	---	111	80-120%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 23 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
LCS (24L0517-BS1)						Prepared: 12/14/24 09:00 Analyzed: 12/14/24 11:04						
1,2-Dichloroethane (EDC)	22.5	---	0.400	ug/L	1	20.0	---	112	80-120%	---	---	
1,1-Dichloroethene	29.5	---	0.400	ug/L	1	20.0	---	148	80-120%	---	---	Q-56
cis-1,2-Dichloroethene	20.2	---	0.400	ug/L	1	20.0	---	101	80-120%	---	---	
trans-1,2-Dichloroethene	29.1	---	0.400	ug/L	1	20.0	---	145	80-120%	---	---	Q-56
1,2-Dichloropropane	22.0	---	0.500	ug/L	1	20.0	---	110	80-120%	---	---	
1,3-Dichloropropane	21.0	---	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
2,2-Dichloropropane	23.6	---	1.00	ug/L	1	20.0	---	118	80-120%	---	---	
1,1-Dichloropropene	20.7	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
cis-1,3-Dichloropropene	21.6	---	1.00	ug/L	1	20.0	---	108	80-120%	---	---	
trans-1,3-Dichloropropene	22.7	---	1.00	ug/L	1	20.0	---	113	80-120%	---	---	
Ethylbenzene	21.0	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
Hexachlorobutadiene	18.6	---	5.00	ug/L	1	20.0	---	93	80-120%	---	---	
2-Hexanone	41.8	---	10.0	ug/L	1	40.0	---	105	80-120%	---	---	
Isopropylbenzene	18.9	---	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
4-Isopropyltoluene	19.0	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
Methylene chloride	26.3	---	10.0	ug/L	1	20.0	---	132	80-120%	---	---	Q-56
4-Methyl-2-pentanone (MiBK)	41.9	---	10.0	ug/L	1	40.0	---	105	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
Naphthalene	16.6	---	5.00	ug/L	1	20.0	---	83	80-120%	---	---	
n-Propylbenzene	20.7	---	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
Styrene	18.8	---	1.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,1,1,2-Tetrachloroethane	22.1	---	0.400	ug/L	1	20.0	---	111	80-120%	---	---	
1,1,2,2-Tetrachloroethane	22.2	---	0.500	ug/L	1	20.0	---	111	80-120%	---	---	
Tetrachloroethene (PCE)	20.5	---	0.400	ug/L	1	20.0	---	102	80-120%	---	---	
Toluene	20.8	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
1,2,3-Trichlorobenzene	18.8	---	2.00	ug/L	1	20.0	---	94	80-120%	---	---	
1,2,4-Trichlorobenzene	17.3	---	2.00	ug/L	1	20.0	---	86	80-120%	---	---	
1,1,1-Trichloroethane	22.6	---	0.400	ug/L	1	20.0	---	113	80-120%	---	---	
1,1,2-Trichloroethane	21.5	---	0.500	ug/L	1	20.0	---	107	80-120%	---	---	
Trichloroethene (TCE)	20.8	---	0.400	ug/L	1	20.0	---	104	80-120%	---	---	
Trichlorofluoromethane	30.0	---	2.00	ug/L	1	20.0	---	150	80-120%	---	---	Q-56
1,2,3-Trichloropropane	21.5	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
1,2,4-Trimethylbenzene	20.5	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,3,5-Trimethylbenzene	20.7	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 24 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
LCS (24L0517-BS1)						Prepared: 12/14/24 09:00 Analyzed: 12/14/24 11:04						
Vinyl chloride	21.1	---	0.200	ug/L	1	20.0	---	105	80-120%	---	---	
m,p-Xylene	42.8	---	1.00	ug/L	1	40.0	---	107	80-120%	---	---	
o-Xylene	19.2	---	0.500	ug/L	1	20.0	---	96	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 101 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		98 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		92 %		80-120 %		"						

Duplicate (24L0517-DUP1)

Prepared: 12/14/24 09:00 Analyzed: 12/14/24 17:51

QC Source Sample: Non-SDG (A4L1122-01)

Acetone	ND	---	200	ug/L	10	---	ND	---	---	---	30%
Acrylonitrile	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%
Benzene	ND	---	2.00	ug/L	10	---	ND	---	---	---	30%
Bromobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%
Bromochloromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Bromodichloromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Bromoform	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Bromomethane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%
2-Butanone (MEK)	ND	---	100	ug/L	10	---	ND	---	---	---	30%
n-Butylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
sec-Butylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
tert-Butylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Carbon disulfide	ND	---	100	ug/L	10	---	ND	---	---	---	30%
Carbon tetrachloride	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Chlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%
Chloroethane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%
Chloroform	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Chloromethane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%
2-Chlorotoluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
4-Chlorotoluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
Dibromochloromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
1,2-Dibromo-3-chloropropane	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%
1,2-Dibromoethane (EDB)	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%
Dibromomethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%
1,2-Dichlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
Duplicate (24L0517-DUP1)			Prepared: 12/14/24 09:00		Analyzed: 12/14/24 17:51							
QC Source Sample: Non-SDG (A4L1122-01)												
1,3-Dichlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
2-Hexanone	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Methylene chloride	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	100	ug/L	10	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Naphthalene	ND	---	50.0	ug/L	10	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Styrene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
Toluene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 26 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C Water												
Duplicate (24L0517-DUP1) Prepared: 12/14/24 09:00 Analyzed: 12/14/24 17:51												
QC Source Sample: Non-SDG (A4L1122-01)												
Trichloroethene (TCE)	ND	---	4.00	ug/L	10	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	20.0	ug/L	10	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	2.00	ug/L	10	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	10.0	ug/L	10	---	ND	---	---	---	30%	
o-Xylene	ND	---	5.00	ug/L	10	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr) Recovery: 102 % Limits: 80-120 % Dilution: 1x												
Toluene-d8 (Surr) 103 % 80-120 % "												
4-Bromofluorobenzene (Surr) 102 % 80-120 % "												

Matrix Spike (24L0517-MS1)

Prepared: 12/14/24 09:00 Analyzed: 12/14/24 18:36

QC Source Sample: Non-SDG (A4L1186-01)

EPA 8260D												
Acetone	79.7	---	20.0	ug/L	1	40.0	ND	171	39-160%	---	---	Q-54c
Acrylonitrile	20.6	---	2.00	ug/L	1	20.0	ND	103	63-135%	---	---	
Benzene	21.3	---	0.200	ug/L	1	20.0	ND	106	79-120%	---	---	
Bromobenzene	19.9	---	0.500	ug/L	1	20.0	ND	99	80-120%	---	---	
Bromochloromethane	24.2	---	1.00	ug/L	1	20.0	ND	121	78-123%	---	---	
Bromodichloromethane	23.9	---	1.00	ug/L	1	20.0	ND	120	79-125%	---	---	
Bromoform	21.4	---	1.00	ug/L	1	20.0	ND	107	66-130%	---	---	
Bromomethane	32.7	---	5.00	ug/L	1	20.0	ND	163	53-141%	---	---	Q-54g
2-Butanone (MEK)	43.1	---	10.0	ug/L	1	40.0	ND	108	56-143%	---	---	
n-Butylbenzene	20.8	---	1.00	ug/L	1	20.0	ND	104	75-128%	---	---	
sec-Butylbenzene	20.5	---	1.00	ug/L	1	20.0	ND	102	77-126%	---	---	
tert-Butylbenzene	20.1	---	1.00	ug/L	1	20.0	ND	101	78-124%	---	---	
Carbon disulfide	36.0	---	10.0	ug/L	1	20.0	ND	180	64-133%	---	---	Q-54i
Carbon tetrachloride	24.1	---	1.00	ug/L	1	20.0	ND	121	72-136%	---	---	
Chlorobenzene	21.9	---	0.500	ug/L	1	20.0	ND	109	80-120%	---	---	
Chloroethane	30.3	---	5.00	ug/L	1	20.0	ND	152	60-138%	---	---	Q-54d
Chloroform	23.8	---	1.00	ug/L	1	20.0	ND	119	79-124%	---	---	
Chloromethane	24.3	---	5.00	ug/L	1	20.0	ND	121	50-139%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 27 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C						Water						
Matrix Spike (24L0517-MS1)			Prepared: 12/14/24 09:00		Analyzed: 12/14/24 18:36							
QC Source Sample: Non-SDG (A4L1186-01)												
2-Chlorotoluene	20.5	---	1.00	ug/L	1	20.0	ND	102	79-122%	---	---	
4-Chlorotoluene	21.4	---	1.00	ug/L	1	20.0	ND	107	78-122%	---	---	
Dibromochloromethane	22.0	---	1.00	ug/L	1	20.0	ND	110	74-126%	---	---	
1,2-Dibromo-3-chloropropane	18.1	---	5.00	ug/L	1	20.0	ND	91	62-128%	---	---	
1,2-Dibromoethane (EDB)	21.2	---	0.500	ug/L	1	20.0	ND	106	77-121%	---	---	
Dibromomethane	23.3	---	1.00	ug/L	1	20.0	ND	117	79-123%	---	---	
1,2-Dichlorobenzene	20.5	---	0.500	ug/L	1	20.0	ND	102	80-120%	---	---	
1,3-Dichlorobenzene	21.5	---	0.500	ug/L	1	20.0	ND	108	80-120%	---	---	
1,4-Dichlorobenzene	21.2	---	0.500	ug/L	1	20.0	ND	106	79-120%	---	---	
Dichlorodifluoromethane	23.6	---	1.00	ug/L	1	20.0	ND	118	32-152%	---	---	
1,1-Dichloroethane	22.7	---	0.400	ug/L	1	20.0	ND	114	77-125%	---	---	
1,2-Dichloroethane (EDC)	22.6	---	0.400	ug/L	1	20.0	ND	113	73-128%	---	---	
1,1-Dichloroethene	33.3	---	0.400	ug/L	1	20.0	ND	167	71-131%	---	---	Q-54c
cis-1,2-Dichloroethene	20.6	---	0.400	ug/L	1	20.0	ND	103	78-123%	---	---	
trans-1,2-Dichloroethene	32.5	---	0.400	ug/L	1	20.0	ND	162	75-124%	---	---	Q-54f
1,2-Dichloropropane	22.4	---	0.500	ug/L	1	20.0	ND	112	78-122%	---	---	
1,3-Dichloropropane	21.3	---	1.00	ug/L	1	20.0	ND	106	80-120%	---	---	
2,2-Dichloropropane	21.4	---	1.00	ug/L	1	20.0	ND	107	60-139%	---	---	
1,1-Dichloropropene	21.5	---	1.00	ug/L	1	20.0	ND	107	79-125%	---	---	
cis-1,3-Dichloropropene	20.3	---	1.00	ug/L	1	20.0	ND	102	75-124%	---	---	
trans-1,3-Dichloropropene	22.5	---	1.00	ug/L	1	20.0	ND	112	73-127%	---	---	
Ethylbenzene	21.4	---	0.500	ug/L	1	20.0	ND	107	79-121%	---	---	
Hexachlorobutadiene	17.4	---	5.00	ug/L	1	20.0	ND	87	66-134%	---	---	
2-Hexanone	42.6	---	10.0	ug/L	1	40.0	ND	106	57-139%	---	---	
Isopropylbenzene	19.1	---	1.00	ug/L	1	20.0	ND	95	72-131%	---	---	
4-Isopropyltoluene	19.2	---	1.00	ug/L	1	20.0	ND	96	77-127%	---	---	
Methylene chloride	28.8	---	10.0	ug/L	1	20.0	ND	144	74-124%	---	---	Q-54b
4-Methyl-2-pentanone (MiBK)	42.4	---	10.0	ug/L	1	40.0	ND	106	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	19.4	---	1.00	ug/L	1	20.0	ND	97	71-124%	---	---	
Naphthalene	15.9	---	5.00	ug/L	1	20.0	ND	80	61-128%	---	---	
n-Propylbenzene	21.4	---	0.500	ug/L	1	20.0	ND	107	76-126%	---	---	
Styrene	18.8	---	1.00	ug/L	1	20.0	ND	94	78-123%	---	---	
1,1,1,2-Tetrachloroethane	22.6	---	0.400	ug/L	1	20.0	ND	113	78-124%	---	---	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 28 of 41



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0517 - EPA 5030C							Water					
Matrix Spike (24L0517-MS1)			Prepared: 12/14/24 09:00		Analyzed: 12/14/24 18:36							
QC Source Sample: Non-SDG (A4L1186-01)												
1,1,2,2-Tetrachloroethane	22.8	---	0.500	ug/L	1	20.0	ND	114	71-121%	---	---	Q-54h
Tetrachloroethene (PCE)	21.0	---	0.400	ug/L	1	20.0	ND	105	74-129%	---	---	
Toluene	21.5	---	1.00	ug/L	1	20.0	ND	108	80-121%	---	---	
1,2,3-Trichlorobenzene	18.3	---	2.00	ug/L	1	20.0	ND	92	69-129%	---	---	
1,2,4-Trichlorobenzene	16.2	---	2.00	ug/L	1	20.0	ND	81	69-130%	---	---	
1,1,1-Trichloroethane	23.3	---	0.400	ug/L	1	20.0	ND	116	74-131%	---	---	
1,1,2-Trichloroethane	21.8	---	0.500	ug/L	1	20.0	ND	109	80-120%	---	---	
Trichloroethene (TCE)	21.1	---	0.400	ug/L	1	20.0	ND	106	79-123%	---	---	
Trichlorofluoromethane	33.3	---	2.00	ug/L	1	20.0	ND	167	65-141%	---	---	
1,2,3-Trichloropropane	22.3	---	1.00	ug/L	1	20.0	ND	112	73-122%	---	---	
1,2,4-Trimethylbenzene	20.9	---	1.00	ug/L	1	20.0	ND	105	76-124%	---	---	
1,3,5-Trimethylbenzene	21.1	---	1.00	ug/L	1	20.0	ND	106	75-124%	---	---	
Vinyl chloride	22.3	---	0.200	ug/L	1	20.0	ND	112	58-137%	---	---	
m,p-Xylene	43.9	---	1.00	ug/L	1	40.0	ND	110	80-121%	---	---	
o-Xylene	19.1	---	0.500	ug/L	1	20.0	ND	95	78-122%	---	---	
Surr: 1,4-Difluorobenzene (Surr)		Recovery: 102 %		Limits: 80-120 %		Dilution: 1x						
Toluene-d8 (Surr)		99 %		80-120 %		"						
4-Bromofluorobenzene (Surr)		90 %		80-120 %		"						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave. Suite 150
Portland, OR 97224Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper****Report ID:**
A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0319 - EPA 3510C (Neutral pH)						Water						
Blank (24L0319-BLK1)			Prepared: 12/10/24 07:19		Analyzed: 12/10/24 19:35		C-07					
EPA 8082A												
Aroclor 1016	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.100	ug/L	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 85 %		Limits: 40-135 %		Dilution: 1x						
LCS (24L0319-BS1)			Prepared: 12/10/24 07:19		Analyzed: 12/10/24 19:52		C-07					
EPA 8082A												
Aroclor 1016	2.17	---	0.100	ug/L	1	2.50	---	87	46-129%	---	---	
Aroclor 1260	2.29	---	0.100	ug/L	1	2.50	---	92	45-134%	---	---	
Surr: Decachlorobiphenyl (Surr)		Recovery: 81 %		Limits: 40-135 %		Dilution: 1x						
LCS Dup (24L0319-BSD1)			Prepared: 12/10/24 07:19		Analyzed: 12/10/24 20:10		C-07, Q-19					
EPA 8082A												
Aroclor 1016	2.22	---	0.100	ug/L	1	2.50	---	89	46-129%	2	30%	
Aroclor 1260	2.45	---	0.100	ug/L	1	2.50	---	98	45-134%	7	30%	
Surr: Decachlorobiphenyl (Surr)		Recovery: 93 %		Limits: 40-135 %		Dilution: 1x						

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0560 - EPA 3015A Water												
Blank (24L0560-BLK1) Prepared: 12/16/24 09:26 Analyzed: 12/17/24 00:23												
EPA 6020B												
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Barium	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
LCS (24L0560-BS1) Prepared: 12/16/24 09:26 Analyzed: 12/17/24 00:28												
EPA 6020B												
Arsenic	54.2	---	1.00	ug/L	1	55.6	---	98	80-120%	---	---	
Barium	58.6	---	2.00	ug/L	1	55.6	---	105	80-120%	---	---	
Cadmium	54.5	---	0.200	ug/L	1	55.6	---	98	80-120%	---	---	
Chromium	53.1	---	2.00	ug/L	1	55.6	---	96	80-120%	---	---	
Lead	54.7	---	0.200	ug/L	1	55.6	---	98	80-120%	---	---	
Mercury	1.06	---	0.0800	ug/L	1	1.11	---	96	80-120%	---	---	
Selenium	26.2	---	1.00	ug/L	1	27.8	---	94	80-120%	---	---	
Silver	28.0	---	0.200	ug/L	1	27.8	---	101	80-120%	---	---	
Duplicate (24L0560-DUP1) Prepared: 12/16/24 09:26 Analyzed: 12/17/24 01:16												
QC Source Sample: Non-SDG (A4L0893-01)												
Arsenic	9.11	---	1.00	ug/L	1	---	9.20	---	---	1	20%	
Cadmium	0.553	---	0.200	ug/L	1	---	0.497	---	---	11	20%	
Chromium	49.8	---	2.00	ug/L	1	---	46.5	---	---	7	20%	
Lead	17.2	---	0.200	ug/L	1	---	14.7	---	---	15	20%	
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	
Selenium	3.16	---	1.00	ug/L	1	---	3.10	---	---	2	20%	
Silver	ND	---	0.200	ug/L	1	---	0.115	---	---	***	20%	

Duplicate (24L0560-DUP2)

Prepared: 12/16/24 09:26 Analyzed: 12/17/24 22:18

QC Source Sample: Non-SDG (A4L0893-01RE1)

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue Heron

Project Number: G685.0793 Task 400

Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 24L0560 - EPA 3015A												
Water												
Duplicate (24L0560-DUP2)												
Prepared: 12/16/24 09:26 Analyzed: 12/17/24 22:18												
QC Source Sample: Non-SDG (A4L0893-01RE1)												
Barium	895	---	20.0	ug/L	10	---	875	---	---	2	20%	Q-16
Matrix Spike (24L0560-MS1)												
Prepared: 12/16/24 09:26 Analyzed: 12/17/24 01:26												
QC Source Sample: Non-SDG (A4L0893-02)												
EPA 6020B												
Arsenic	58.0	---	1.00	ug/L	1	55.6	4.25	97	75-125%	---	---	
Barium	362	---	2.00	ug/L	1	55.6	316	83	75-125%	---	---	
Cadmium	56.8	---	0.200	ug/L	1	55.6	0.143	102	75-125%	---	---	
Chromium	59.2	---	2.00	ug/L	1	55.6	8.69	91	75-125%	---	---	
Lead	53.7	---	0.200	ug/L	1	55.6	3.86	90	75-125%	---	---	
Mercury	1.01	---	0.0800	ug/L	1	1.11	ND	91	75-125%	---	---	
Selenium	28.2	---	1.00	ug/L	1	27.8	ND	102	75-125%	---	---	
Silver	27.9	---	0.200	ug/L	1	27.8	ND	101	75-125%	---	---	
Matrix Spike Dup (24L0560-MSD1)												
Prepared: 12/16/24 09:26 Analyzed: 12/17/24 01:32												
QC Source Sample: Non-SDG (A4L0893-02)												
Arsenic	59.6	---	1.00	ug/L	1	55.6	4.25	100	75-125%	3	20%	
Barium	369	---	2.00	ug/L	1	55.6	316	96	75-125%	2	20%	
Cadmium	56.6	---	0.200	ug/L	1	55.6	0.143	102	75-125%	0.4	20%	
Chromium	61.1	---	2.00	ug/L	1	55.6	8.69	94	75-125%	3	20%	
Lead	54.6	---	0.200	ug/L	1	55.6	3.86	91	75-125%	2	20%	
Mercury	1.03	---	0.0800	ug/L	1	1.11	ND	93	75-125%	2	20%	
Selenium	28.1	---	1.00	ug/L	1	27.8	ND	101	75-125%	0.5	20%	
Silver	28.2	---	0.200	ug/L	1	27.8	ND	102	75-125%	1	20%	

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

**ANALYTICAL REPORT****Apex Laboratories, LLC**

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**Project Number: **G685.0793 Task 400**Project Manager: **John Kuiper****Report ID:****A4L0933 - 12 20 24 1821****SAMPLE PREPARATION INFORMATION****Volatile Organic Compounds by EPA 8260D****Prep: EPA 5030C**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0517							
A4L0933-01RE2	Water	EPA 8260D	12/03/24 16:00	12/14/24 09:00	5mL/5mL	5mL/5mL	1.00
A4L0933-02RE2	Water	EPA 8260D	12/03/24 16:20	12/14/24 09:00	5mL/5mL	5mL/5mL	1.00
A4L0933-03RE2	Water	EPA 8260D	12/03/24 16:30	12/14/24 09:00	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A**Prep: EPA 3510C (Neutral pH)**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0319							
A4L0933-01	Water	EPA 8082A	12/03/24 16:00	12/10/24 07:19	1070mL/5mL	1000mL/5mL	0.94
A4L0933-02	Water	EPA 8082A	12/03/24 16:20	12/10/24 07:19	1060mL/5mL	1000mL/5mL	0.94
A4L0933-03	Water	EPA 8082A	12/03/24 16:30	12/10/24 07:19	1070mL/5mL	1000mL/5mL	0.94

Total Metals by EPA 6020B (ICPMS)**Prep: EPA 3015A**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 24L0560							
A4L0933-01	Water	EPA 6020B	12/03/24 16:00	12/16/24 09:26	45mL/50mL	45mL/50mL	1.00
A4L0933-02	Water	EPA 6020B	12/03/24 16:20	12/16/24 09:26	45mL/50mL	45mL/50mL	1.00
A4L0933-03	Water	EPA 6020B	12/03/24 16:30	12/16/24 09:26	45mL/50mL	45mL/50mL	1.00

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0933 - 12 20 24 1821

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- P-12** Result estimated due to the presence of multiple PCB Aroclors and/or PCB congeners not defined as Aroclors.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-16** Reanalysis of an original Batch QC sample.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-54** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +1%. The results are reported as Estimated Values.
- Q-54a** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +10%. The results are reported as Estimated Values.
- Q-54b** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +12%. The results are reported as Estimated Values.
- Q-54c** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +18%. The results are reported as Estimated Values.
- Q-54d** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +19%. The results are reported as Estimated Values.
- Q-54e** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +2%. The results are reported as Estimated Values.
- Q-54f** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +25%. The results are reported as Estimated Values.
- Q-54g** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +29%. The results are reported as Estimated Values.
- Q-54h** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +30%. The results are reported as Estimated Values.
- Q-54i** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +38%. The results are reported as Estimated Values.
- Q-54j** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +4%. The results are reported as Estimated Values.
- Q-54k** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +44%. The results are reported as Estimated Values.
- Q-54l** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +5%. The results are reported as Estimated Values.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: Blue Heron

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4L0933 - 12 20 24 1821

- Q-54m** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +67%. The results are reported as Estimated Values.
- Q-54n** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +77%. The results are reported as Estimated Values.
- Q-54o** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by -1%. The results are reported as Estimated Values.
- Q-55** Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260, however there is adequate sensitivity to ensure detection at the reporting level.
- Q-56** Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260. Samples that are ND (Non-Detect) are not impacted.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0933 - 12 20 24 1821

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Validated Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as "dry", "wet", or " " (blank) designation.

"dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

"wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

Results for Volatiles analyses on soils and sediments that are reported on a "dry weight" basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an "As Received" basis do not have the WMS correction applied, as dry weight was not performed.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4L0933 - 12 20 24 1821

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to one half of the Reporting Limit (RL).

Blank results for gravimetric analyses are evaluated to the Reporting Level, not to half of the Reporting Level.

-For Blank hits falling between $\frac{1}{2}$ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.

-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.

For further details, please request a copy of this document.

-Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level, if results are not reported to the MDL.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150
Portland, OR 97224

Project: **Blue Heron**

Project Number: **G685.0793 Task 400**

Project Manager: **John Kuiper**

Report ID:

A4L0933 - 12 20 24 1821

Decanted Samples:

Soils/Sediments:

Unless TCLP analysis is required or there is notification otherwise for a specific project, all Soil and Sediments containing excess water are decanted prior to analysis in order to provide the most representative sample for analysis.

Water Samples:

Water samples containing solids and sediment may need to be decanted in order to eliminate these particulates from the water extractions. In the case of organics extractions, a solvent rinse of the container will not be performed.

Volatiles Soils (5035s)

Samples that are field preserved by 5035 for volatiles are dry weight corrected using the same dry weight correction as for normal analyses.

In the case of decanted samples, the dry weight may be performed on a decanted sample, while the aliquot for 5035 may not have been treated the same way. If this is a concern, please submit separate containers for dry weight analysis for volatiles can be provided.

All samples decanted in the laboratory are noted in this report with the DCNT qualifier indicating the sample was decanted.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.
15862 SW 72nd Ave, Suite 150
Portland, OR 97224

Project: **Blue Heron**
Project Number: **G685.0793 Task 400**
Project Manager: **John Kuiper**

Report ID:
A4L0933 - 12 20 24 1821

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -

EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
--------	----------	--------	---------	--------	---------------

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.



ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street

Tigard, OR 97223

503-718-2323

ORELAP ID: OR100062

WSP USA Environment & Infrastructure Inc.

15862 SW 72nd Ave. Suite 150

Portland, OR 97224

Project: Blue HeronProject Number: G685.0793 Task 400Project Manager: John Kuiper

Report ID:

A4L0933 - 12 20 24 1821

APEX LABS COOLER RECEIPT FORM

Client: WSP Element WO#: A4L0933Project/Project #: Blue Heron / G685.0793 Task 400

Delivery Info:

Date/time received: 12/1/24 @ 11:30 By: JKMDelivered by: Apex ☐ Client ☒ ESS ☐ FedEx ☐ UPS ☐ Radio ☐ Morgan ☐ SDS ☐ Evergreen ☐ Other ☐From USDA Regulated Origin? Yes ☐ No ☒Cooler Inspection Date/time inspected: 12/1/24 @ 11:30 By: JKMChain of Custody included? Yes ☒ No ☐Signed/dated by client? Yes ☒ No ☐Contains USDA Reg. Soils? Yes ☐ No ☒ Unsure (email RegSoils) ☐

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>5.6</u>						
Custody seals? (Y/N)	<u>N</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition (In/Out):	<u>IN</u>						

Cooler out of temp? (Y/N) N Possible reason why: Green dots applied to out of temperature samples? Yes ☒ No ☐Out of temperature samples form initiated? Yes ☒ No ☐Sample Inspection: Date/time inspected: 12/1/24 @ 1202 By: JAAll samples intact? Yes ☒ No ☐ Comments: Bottle labels/COCs agree? Yes ☒ No ☐ Comments: COC/container discrepancies form initiated? Yes ☐ No ☒Containers/volumes received appropriate for analysis? Yes ☒ No ☐ Comments: Do VOA vials have visible headspace? Yes ☐ No ☒ NA ☐Comments 3/3 VOAs have sed for BH-DPSN #1-20241203Water samples: pH checked: Yes ☒ No ☐ NA ☐ pH appropriate? Yes ☒ No ☐ NA ☐ pH ID: A231122Comments: Labeled by: JAWitness: 99Cooler Inspected by: JKM

Form Y-003 R-02

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document(s) and updated by any subsequent written communications. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Page 41 of 41



October 28, 2024

Enthalpy Analytical - El Dorado Hills
Work Order No. 2410029

Mr. John Kuiper
WSP
7376 SW Durham Road
Portland, OR 97224

Dear Mr. Kuiper,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on October 04, 2024 under your Project Name 'Blue Heron'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at byron.clack@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

A handwritten signature in black ink that reads 'Byron Clack'.

Byron Clack
Project Manager

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

Enthalpy Analytical - EDH Work Order No. 2410029

Case Narrative

Sample Condition on Receipt:

One water sample and sixteen soil samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements. No collection time was noted on the Chain-of-Custody (CoC) for sample "BH_DUP1"; the collection time has been reported as 00:00.

Analytical Notes:

EPA Method 1613B (Aqueous)

The sample was extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

The sample was extracted and analyzed within the method hold times.

Quality Control

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

A Method Blank, Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) and Low-Level Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch B24J085. No analytes were detected in the Method Blank above 1/2 the Reporting Limit concentration. The OPR recoveries were within the method acceptance criteria.

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

EPA Method 1613B (Solid)

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

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

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batches B24J121 and B24J163. No analytes were detected above the sample quantitation limit in the

Method Blank. The OPR recoveries were within the method acceptance criteria.

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

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	4
Sample Inventory.....	5
Analytical Results.....	6
Qualifiers.....	31
Certifications.....	32
Sample Receipt.....	33

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2410029-01	BH_TRH-1_0-0.5_20241002	02-Oct-24 09:15	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-02	BH_TRH-2_0-0.5_20241002	02-Oct-24 10:10	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-03	BH_TRH-2_1-1.5_20241002	02-Oct-24 09:50	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-04	BH_TRH-3_0-0.5_20241002	02-Oct-24 11:25	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-05	BH_TRH-3_1-1.5_20241002	02-Oct-24 12:00	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-06	BH_TRI-1_0-0.5_20241002	02-Oct-24 08:23	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-07	BH_TRI-2_0-0.5_20241002	02-Oct-24 14:00	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-08	BH_TRI-3_0-0.5_20241002	02-Oct-24 12:30	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-09	BH_TRI-3_1-1.5_20241002	02-Oct-24 12:50	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-10	BH_TRI-4_0-0.5_20241002	02-Oct-24 15:50	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-11	BH_TR2-1_0-0.5_20241002	02-Oct-24 16:30	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-12	BH_TR2-2_0-0.5_20241002	02-Oct-24 17:30	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-13	BH_TR2-3_0-0.5_20241002	02-Oct-24 17:50	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-14	BH_TR2-4_0-0.5_20241002	02-Oct-24 17:00	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-15	BH_TR2-6_0-0.5_20241002	02-Oct-24 15:10	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-16	BH_DUP1	02-Oct-24 00:00	04-Oct-24 08:55	Amber Glass, 120 mL
2410029-17	BH_Rinsate_20241002	02-Oct-24 18:40	04-Oct-24 08:55	Amber Glass WM Bottle, 1L Amber Glass WM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	B24J085-BLK1	Date Extracted:	10-Oct-24
Project:	Blue Heron	QC Batch:	B24J085	Column:	ZB-DIOXIN
Matrix:	Aqueous	Sample Size:	1.00 L		

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.817			18-Oct-24 13:39	1
1,2,3,7,8-PeCDD	ND	1.85			18-Oct-24 13:39	1
1,2,3,4,7,8-HxCDD	ND	1.30			18-Oct-24 13:39	1
1,2,3,6,7,8-HxCDD	ND	1.40			18-Oct-24 13:39	1
1,2,3,7,8,9-HxCDD	ND	1.39			18-Oct-24 13:39	1
1,2,3,4,6,7,8-HpCDD	ND	2.29			18-Oct-24 13:39	1
OCDD	4.47			J	18-Oct-24 13:39	1
2,3,7,8-TCDF	ND	0.722			18-Oct-24 13:39	1
1,2,3,7,8-PeCDF	ND	1.04			18-Oct-24 13:39	1
2,3,4,7,8-PeCDF	ND	1.18			18-Oct-24 13:39	1
1,2,3,4,7,8-HxCDF	ND	0.759			18-Oct-24 13:39	1
1,2,3,6,7,8-HxCDF	ND	0.806			18-Oct-24 13:39	1
2,3,4,6,7,8-HxCDF	ND	0.837			18-Oct-24 13:39	1
1,2,3,7,8,9-HxCDF	ND	1.12			18-Oct-24 13:39	1
1,2,3,4,6,7,8-HpCDF	ND	1.29			18-Oct-24 13:39	1
1,2,3,4,7,8,9-HpCDF	ND	2.09			18-Oct-24 13:39	1
OCDF	ND	2.60			18-Oct-24 13:39	1

Toxic Equivalent

TEQMinWHO2005Dioxin 0.00134

Totals

Total TCDD	ND	0.817	
Total PeCDD	ND	1.85	
Total HxCDD	ND	1.40	
Total HpCDD	ND	2.29	
Total TCDF	ND		0.698
Total PeCDF	ND	1.18	
Total HxCDF	ND	1.12	
Total HpCDF	ND	2.09	

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	80.2	25 - 164		18-Oct-24 13:39	1
13C-1,2,3,7,8-PeCDD	IS	65.9	25 - 181		18-Oct-24 13:39	1
13C-1,2,3,4,7,8-HxCDD	IS	89.8	32 - 141		18-Oct-24 13:39	1
13C-1,2,3,6,7,8-HxCDD	IS	84.4	28 - 130		18-Oct-24 13:39	1
13C-1,2,3,7,8,9-HxCDD	IS	89.6	32 - 141		18-Oct-24 13:39	1
13C-1,2,3,4,6,7,8-HpCDD	IS	70.9	23 - 140		18-Oct-24 13:39	1
13C-OCDD	IS	73.6	17 - 157		18-Oct-24 13:39	1
13C-2,3,7,8-TCDF	IS	89.6	24 - 169		18-Oct-24 13:39	1
13C-1,2,3,7,8-PeCDF	IS	84.9	24 - 185		18-Oct-24 13:39	1
13C-2,3,4,7,8-PeCDF	IS	63.9	21 - 178		18-Oct-24 13:39	1
13C-1,2,3,4,7,8-HxCDF	IS	83.7	26 - 152		18-Oct-24 13:39	1
13C-1,2,3,6,7,8-HxCDF	IS	85.3	26 - 123		18-Oct-24 13:39	1
13C-2,3,4,6,7,8-HxCDF	IS	84.9	28 - 136		18-Oct-24 13:39	1
13C-1,2,3,7,8,9-HxCDF	IS	87.4	29 - 147		18-Oct-24 13:39	1
13C-1,2,3,4,6,7,8-HpCDF	IS	79.3	28 - 143		18-Oct-24 13:39	1
13C-1,2,3,4,7,8,9-HpCDF	IS	80.4	26 - 138		18-Oct-24 13:39	1
13C-OCDF	IS	66.1	17 - 157		18-Oct-24 13:39	1
37Cl-2,3,7,8-TCDD	CRS	88.2	35 - 197		18-Oct-24 13:39	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

Sample ID: OPR
EPA Method 1613B

Client Data				Laboratory Data			
Name:	WSP			Lab Sample:	B24J085-BS1		
Project:	Blue Heron			QC Batch:	B24J085	Date Extracted:	10-Oct-24 11:28
Matrix:	Aqueous			Sample Size:	1.00 L	Column:	ZB-DIOXIN

Analyte	Amt Found (pg/L)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	205	200	103	67 - 158		16-Oct-24 09:34	1
1,2,3,7,8-PeCDD	1130	1000	113	70 - 142		16-Oct-24 09:34	1
1,2,3,4,7,8-HxCDD	1070	1000	107	70 - 164		16-Oct-24 09:34	1
1,2,3,6,7,8-HxCDD	1100	1000	110	76 - 134		16-Oct-24 09:34	1
1,2,3,7,8,9-HxCDD	1080	1000	108	64 - 162		16-Oct-24 09:34	1
1,2,3,4,6,7,8-HpCDD	1130	1000	113	70 - 140		16-Oct-24 09:34	1
OCDD	2200	2000	110	78 - 144	B	16-Oct-24 09:34	1
2,3,7,8-TCDF	213	200	107	75 - 158		16-Oct-24 09:34	1
1,2,3,7,8-PeCDF	1040	1000	104	80 - 134		16-Oct-24 09:34	1
2,3,4,7,8-PeCDF	1070	1000	107	68 - 160		16-Oct-24 09:34	1
1,2,3,4,7,8-HxCDF	1120	1000	112	72 - 134		16-Oct-24 09:34	1
1,2,3,6,7,8-HxCDF	1140	1000	114	84 - 130		16-Oct-24 09:34	1
2,3,4,6,7,8-HxCDF	1130	1000	113	70 - 156		16-Oct-24 09:34	1
1,2,3,7,8,9-HxCDF	1140	1000	114	78 - 130		16-Oct-24 09:34	1
1,2,3,4,6,7,8-HpCDF	1140	1000	114	82 - 122		16-Oct-24 09:34	1
1,2,3,4,7,8,9-HpCDF	1120	1000	112	78 - 138		16-Oct-24 09:34	1
OCDF	2290	2000	114	63 - 170		16-Oct-24 09:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	87.1	20 - 175		16-Oct-24 09:34	1
13C-1,2,3,7,8-PeCDD	IS	80.8	21 - 227		16-Oct-24 09:34	1
13C-1,2,3,4,7,8-HxCDD	IS	93.6	21 - 193		16-Oct-24 09:34	1
13C-1,2,3,6,7,8-HxCDD	IS	90.3	25 - 163		16-Oct-24 09:34	1
13C-1,2,3,7,8,9-HxCDD	IS	94.5	21 - 193		16-Oct-24 09:34	1
13C-1,2,3,4,6,7,8-HpCDD	IS	89.8	26 - 166		16-Oct-24 09:34	1
13C-OCDD	IS	87.2	13 - 199		16-Oct-24 09:34	1
13C-2,3,7,8-TCDF	IS	94.0	22 - 152		16-Oct-24 09:34	1
13C-1,2,3,7,8-PeCDF	IS	96.7	21 - 192		16-Oct-24 09:34	1
13C-2,3,4,7,8-PeCDF	IS	95.2	13 - 328		16-Oct-24 09:34	1
13C-1,2,3,4,7,8-HxCDF	IS	92.8	19 - 202		16-Oct-24 09:34	1
13C-1,2,3,6,7,8-HxCDF	IS	90.2	21 - 159		16-Oct-24 09:34	1
13C-2,3,4,6,7,8-HxCDF	IS	91.9	22 - 176		16-Oct-24 09:34	1
13C-1,2,3,7,8,9-HxCDF	IS	93.9	17 - 205		16-Oct-24 09:34	1
13C-1,2,3,4,6,7,8-HpCDF	IS	96.5	21 - 158		16-Oct-24 09:34	1
13C-1,2,3,4,7,8,9-HpCDF	IS	105	20 - 186		16-Oct-24 09:34	1
13C-OCDF	IS	95.6	13 - 199		16-Oct-24 09:34	1
37Cl-2,3,7,8-TCDD	CRS	88.4	31 - 191		16-Oct-24 09:34	1

Sample ID: LCSD
EPA Method 1613B

Name:	WSP	Lab Sample:	B24J085-BSD1	Date Extracted:	10-Oct-24
Project:	Blue Heron	QC Batch:	B24J085	Column:	ZB-DIOXIN
Matrix:	Aqueous	Samp Size:	1.00/1.00 L		
Date Analyzed:	16-Oct-24 10:20				
	16-Oct-24 09:34				

Analyte	LCS (pg/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (pg/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits
2,3,7,8-TCDD	205	200	103		212	200	106	3.39		67- 158	200
1,2,3,7,8-PeCDD	1130	1000	113		1130	1000	113	0.751		70- 142	200
1,2,3,4,7,8-HxCDD	1070	1000	107		1110	1000	111	3.12		70- 164	200
1,2,3,6,7,8-HxCDD	1100	1000	110		1080	1000	108	2.23		76- 134	200
1,2,3,7,8,9-HxCDD	1080	1000	108		1100	1000	110	2.52		64- 162	200
1,2,3,4,6,7,8-HpCDD	1130	1000	113		1150	1000	115	2.03		70- 140	200
OCDD	2200	2000	110	B	2070	2000	104	5.92	B	78- 144	200
2,3,7,8-TCDF	213	200	107		215	200	108	1.09		75- 158	200
1,2,3,7,8-PeCDF	1040	1000	104		1070	1000	107	3.24		80- 134	200
2,3,4,7,8-PeCDF	1070	1000	107		1090	1000	109	1.02		68- 160	200
1,2,3,4,7,8-HxCDF	1120	1000	112		1140	1000	114	1.52		72- 134	200
1,2,3,6,7,8-HxCDF	1140	1000	114		1150	1000	115	1.13		84- 130	200
2,3,4,6,7,8-HxCDF	1130	1000	113		1150	1000	115	2.01		70- 156	200
1,2,3,7,8,9-HxCDF	1140	1000	114		1100	1000	110	3.48		78- 130	200
1,2,3,4,6,7,8-HpCDF	1140	1000	114		1150	1000	115	0.762		82- 122	200
1,2,3,4,7,8,9-HpCDF	1120	1000	112		1180	1000	118	5.21		78- 138	200
OCDF	2290	2000	114		2370	2000	118	3.44		63- 170	200

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits
13C-2,3,7,8-TCDD	IS	87.1		90.9		20 - 175
13C-1,2,3,7,8-PeCDD	IS	80.8		83.2		21 - 227
13C-1,2,3,4,7,8-HxCDD	IS	93.6		93.7		21 - 193
13C-1,2,3,6,7,8-HxCDD	IS	90.3		88.7		25 - 163
13C-1,2,3,7,8,9-HxCDD	IS	94.5		93.0		21 - 193
13C-1,2,3,4,6,7,8-HpCDD	IS	89.8		87.3		26 - 166
13C-OCDD	IS	87.2		91.7		13 - 199
13C-2,3,7,8-TCDF	IS	94.0		96.6		22 - 152
13C-1,2,3,7,8-PeCDF	IS	96.7		101		21 - 192
13C-2,3,4,7,8-PeCDF	IS	95.2		89.7		13 - 328
13C-1,2,3,4,7,8-HxCDF	IS	92.8		94.0		19 - 202
13C-1,2,3,6,7,8-HxCDF	IS	90.2		91.0		21 - 159
13C-2,3,4,6,7,8-HxCDF	IS	91.9		93.1		22 - 176
13C-1,2,3,7,8,9-HxCDF	IS	93.9		96.6		17 - 205
13C-1,2,3,4,6,7,8-HpCDF	IS	96.5		95.3		21 - 158
13C-1,2,3,4,7,8,9-HpCDF	IS	105		104		20 - 186
13C-OCDF	IS	95.6		91.4		13 - 199
37Cl-2,3,7,8-TCDD	CRS	88.4		99.1		31 - 191

Sample ID: BH_Rinsate_20241002
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410029-17	Date Received:	04-Oct-24 08:55
Project:	Blue Heron	QC Batch:	B24J085	Date Extracted:	10-Oct-24
Matrix:	Water	Sample Size:	1.03 L	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 18:40				

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	1.72			16-Oct-24 18:58	1
1,2,3,7,8-PeCDD	ND	3.04			16-Oct-24 18:58	1
1,2,3,4,7,8-HxCDD	ND	2.28			16-Oct-24 18:58	1
1,2,3,6,7,8-HxCDD	ND	2.35			16-Oct-24 18:58	1
1,2,3,7,8,9-HxCDD	ND	2.32			16-Oct-24 18:58	1
1,2,3,4,6,7,8-HpCDD	ND	2.27			16-Oct-24 18:58	1
OCDD	ND	3.63			16-Oct-24 18:58	1
2,3,7,8-TCDF	ND	1.13			16-Oct-24 18:58	1
1,2,3,7,8-PeCDF	ND	1.23			16-Oct-24 18:58	1
2,3,4,7,8-PeCDF	ND	1.20			16-Oct-24 18:58	1
1,2,3,4,7,8-HxCDF	ND	0.994			16-Oct-24 18:58	1
1,2,3,6,7,8-HxCDF	ND	1.04			16-Oct-24 18:58	1
2,3,4,6,7,8-HxCDF	ND	1.13			16-Oct-24 18:58	1
1,2,3,7,8,9-HxCDF	ND	1.43			16-Oct-24 18:58	1
1,2,3,4,6,7,8-HpCDF	ND	1.08			16-Oct-24 18:58	1
1,2,3,4,7,8,9-HpCDF	ND	1.69			16-Oct-24 18:58	1
OCDF	ND	3.41			16-Oct-24 18:58	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.00
---------------------	------

Totals

Total TCDD	ND	1.72
Total PeCDD	ND	3.04
Total HxCDD	ND	2.35
Total HpCDD	ND	2.27
Total TCDF	ND	1.13
Total PeCDF	ND	1.23
Total HxCDF	ND	1.43
Total HpCDF	ND	1.69

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	87.4	25 - 164		16-Oct-24 18:58	1
13C-1,2,3,7,8-PeCDD	IS	82.9	25 - 181		16-Oct-24 18:58	1
13C-1,2,3,4,7,8-HxCDD	IS	84.3	32 - 141		16-Oct-24 18:58	1
13C-1,2,3,6,7,8-HxCDD	IS	83.3	28 - 130		16-Oct-24 18:58	1
13C-1,2,3,7,8,9-HxCDD	IS	84.4	32 - 141		16-Oct-24 18:58	1
13C-1,2,3,4,6,7,8-HpCDD	IS	82.5	23 - 140		16-Oct-24 18:58	1
13C-OCDD	IS	76.8	17 - 157		16-Oct-24 18:58	1
13C-2,3,7,8-TCDF	IS	94.1	24 - 169		16-Oct-24 18:58	1
13C-1,2,3,7,8-PeCDF	IS	100	24 - 185		16-Oct-24 18:58	1
13C-2,3,4,7,8-PeCDF	IS	94.3	21 - 178		16-Oct-24 18:58	1
13C-1,2,3,4,7,8-HxCDF	IS	87.4	26 - 152		16-Oct-24 18:58	1
13C-1,2,3,6,7,8-HxCDF	IS	85.9	26 - 123		16-Oct-24 18:58	1
13C-2,3,4,6,7,8-HxCDF	IS	86.8	28 - 136		16-Oct-24 18:58	1
13C-1,2,3,7,8,9-HxCDF	IS	89.8	29 - 147		16-Oct-24 18:58	1
13C-1,2,3,4,6,7,8-HpCDF	IS	92.0	28 - 143		16-Oct-24 18:58	1
13C-1,2,3,4,7,8,9-HpCDF	IS	94.8	26 - 138		16-Oct-24 18:58	1
13C-OCDF	IS	74.4	17 - 157		16-Oct-24 18:58	1
37Cl-2,3,7,8-TCDD	CRS	92.3	35 - 197		16-Oct-24 18:58	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

Sample ID: Method Blank
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	B24J121-BLK1	Date Extracted:	15-Oct-24
Project:	Blue Heron	QC Batch:	B24J121	Column:	ZB-DIOXIN
Matrix:	Solid	Sample Size:	10.0 g		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.0436			16-Oct-24 18:40	1
1,2,3,7,8-PeCDD	ND	0.0796			16-Oct-24 18:40	1
1,2,3,4,7,8-HxCDD	ND	0.0622			16-Oct-24 18:40	1
1,2,3,6,7,8-HxCDD	ND	0.0649			16-Oct-24 18:40	1
1,2,3,7,8,9-HxCDD	ND	0.0668			16-Oct-24 18:40	1
1,2,3,4,6,7,8-HpCDD	ND	0.0743			16-Oct-24 18:40	1
OCDD	ND		0.127		16-Oct-24 18:40	1
2,3,7,8-TCDF	ND	0.0508			16-Oct-24 18:40	1
1,2,3,7,8-PeCDF	ND	0.0416			16-Oct-24 18:40	1
2,3,4,7,8-PeCDF	ND	0.0383			16-Oct-24 18:40	1
1,2,3,4,7,8-HxCDF	ND	0.0393			16-Oct-24 18:40	1
1,2,3,6,7,8-HxCDF	ND	0.0391			16-Oct-24 18:40	1
2,3,4,6,7,8-HxCDF	ND	0.0441			16-Oct-24 18:40	1
1,2,3,7,8,9-HxCDF	ND	0.0580			16-Oct-24 18:40	1
1,2,3,4,6,7,8-HpCDF	ND	0.0562			16-Oct-24 18:40	1
1,2,3,4,7,8,9-HpCDF	ND	0.0529			16-Oct-24 18:40	1
OCDF	ND	0.0881			16-Oct-24 18:40	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.00
---------------------	------

Totals

Total TCDD	ND	0.0436
Total PeCDD	ND	0.0796
Total HxCDD	ND	0.0668
Total HpCDD	ND	0.0743
Total TCDF	ND	0.0508
Total PeCDF	ND	0.0416
Total HxCDF	ND	0.0580
Total HpCDF	ND	0.0562

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	97.5	25 - 164		16-Oct-24 18:40	1
13C-1,2,3,7,8-PeCDD	IS	83.1	25 - 181		16-Oct-24 18:40	1
13C-1,2,3,4,7,8-HxCDD	IS	96.8	32 - 141		16-Oct-24 18:40	1
13C-1,2,3,6,7,8-HxCDD	IS	89.6	28 - 130		16-Oct-24 18:40	1
13C-1,2,3,7,8,9-HxCDD	IS	98.4	32 - 141		16-Oct-24 18:40	1
13C-1,2,3,4,6,7,8-HpCDD	IS	79.7	23 - 140		16-Oct-24 18:40	1
13C-OCDD	IS	75.3	17 - 157		16-Oct-24 18:40	1
13C-2,3,7,8-TCDF	IS	96.0	24 - 169		16-Oct-24 18:40	1
13C-1,2,3,7,8-PeCDF	IS	88.9	24 - 185		16-Oct-24 18:40	1
13C-2,3,4,7,8-PeCDF	IS	84.6	21 - 178		16-Oct-24 18:40	1
13C-1,2,3,4,7,8-HxCDF	IS	96.4	26 - 152		16-Oct-24 18:40	1
13C-1,2,3,6,7,8-HxCDF	IS	90.7	26 - 123		16-Oct-24 18:40	1
13C-2,3,4,6,7,8-HxCDF	IS	94.6	28 - 136		16-Oct-24 18:40	1
13C-1,2,3,7,8,9-HxCDF	IS	96.2	29 - 147		16-Oct-24 18:40	1
13C-1,2,3,4,6,7,8-HpCDF	IS	81.6	28 - 143		16-Oct-24 18:40	1
13C-1,2,3,4,7,8,9-HpCDF	IS	87.1	26 - 138		16-Oct-24 18:40	1
13C-OCDF	IS	76.8	17 - 157		16-Oct-24 18:40	1
37Cl-2,3,7,8-TCDD	CRS	116	35 - 197		16-Oct-24 18:40	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: OPR
EPA Method 1613B

Client Data				Laboratory Data			
Name:	WSP			Lab Sample:	B24J121-BS1		
Project:	Blue Heron			QC Batch:	B24J121	Date Extracted:	15-Oct-24 09:25
Matrix:	Solid			Sample Size:	10.0 g	Column:	ZB-DIOXIN

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	19.9	20.0	99.5	67 - 158		16-Oct-24 16:22	1
1,2,3,7,8-PeCDD	109	100	109	70 - 142		16-Oct-24 16:22	1
1,2,3,4,7,8-HxCDD	102	100	102	70 - 164		16-Oct-24 16:22	1
1,2,3,6,7,8-HxCDD	105	100	105	76 - 134		16-Oct-24 16:22	1
1,2,3,7,8,9-HxCDD	105	100	105	64 - 162		16-Oct-24 16:22	1
1,2,3,4,6,7,8-HpCDD	111	100	111	70 - 140		16-Oct-24 16:22	1
OCDD	211	200	105	78 - 144		16-Oct-24 16:22	1
2,3,7,8-TCDF	18.5	20.0	92.3	75 - 158		16-Oct-24 16:22	1
1,2,3,7,8-PeCDF	101	100	101	80 - 134		16-Oct-24 16:22	1
2,3,4,7,8-PeCDF	104	100	104	68 - 160		16-Oct-24 16:22	1
1,2,3,4,7,8-HxCDF	97.8	100	97.8	72 - 134		16-Oct-24 16:22	1
1,2,3,6,7,8-HxCDF	101	100	101	84 - 130		16-Oct-24 16:22	1
2,3,4,6,7,8-HxCDF	99.5	100	99.5	70 - 156		16-Oct-24 16:22	1
1,2,3,7,8,9-HxCDF	97.7	100	97.7	78 - 130		16-Oct-24 16:22	1
1,2,3,4,6,7,8-HpCDF	98.2	100	98.2	82 - 122		16-Oct-24 16:22	1
1,2,3,4,7,8,9-HpCDF	92.1	100	92.1	78 - 138		16-Oct-24 16:22	1
OCDF	196	200	97.8	63 - 170		16-Oct-24 16:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	101	20 - 175		16-Oct-24 16:22	1
13C-1,2,3,7,8-PeCDD	IS	80.4	21 - 227		16-Oct-24 16:22	1
13C-1,2,3,4,7,8-HxCDD	IS	104	21 - 193		16-Oct-24 16:22	1
13C-1,2,3,6,7,8-HxCDD	IS	95.6	25 - 163		16-Oct-24 16:22	1
13C-1,2,3,7,8,9-HxCDD	IS	105	21 - 193		16-Oct-24 16:22	1
13C-1,2,3,4,6,7,8-HpCDD	IS	84.1	26 - 166		16-Oct-24 16:22	1
13C-OCDD	IS	84.0	13 - 199		16-Oct-24 16:22	1
13C-2,3,7,8-TCDF	IS	101	22 - 152		16-Oct-24 16:22	1
13C-1,2,3,7,8-PeCDF	IS	90.4	21 - 192		16-Oct-24 16:22	1
13C-2,3,4,7,8-PeCDF	IS	82.5	13 - 328		16-Oct-24 16:22	1
13C-1,2,3,4,7,8-HxCDF	IS	104	19 - 202		16-Oct-24 16:22	1
13C-1,2,3,6,7,8-HxCDF	IS	95.2	21 - 159		16-Oct-24 16:22	1
13C-2,3,4,6,7,8-HxCDF	IS	99.1	22 - 176		16-Oct-24 16:22	1
13C-1,2,3,7,8,9-HxCDF	IS	102	17 - 205		16-Oct-24 16:22	1
13C-1,2,3,4,6,7,8-HpCDF	IS	85.3	21 - 158		16-Oct-24 16:22	1
13C-1,2,3,4,7,8,9-HpCDF	IS	93.6	20 - 186		16-Oct-24 16:22	1
13C-OCDF	IS	86.8	13 - 199		16-Oct-24 16:22	1
37Cl-2,3,7,8-TCDD	CRS	129	31 - 191		16-Oct-24 16:22	1

Sample ID: Method Blank
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	B24J163-BLK1	Date Extracted:	21-Oct-24
Project:	Blue Heron	QC Batch:	B24J163	Column:	ZB-DIOXIN
Matrix:	Solid	Sample Size:	10.0 g		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.302			23-Oct-24 21:31	1
1,2,3,7,8-PeCDD	ND	0.424			23-Oct-24 21:31	1
1,2,3,4,7,8-HxCDD	ND	0.384			23-Oct-24 21:31	1
1,2,3,6,7,8-HxCDD	ND	0.405			23-Oct-24 21:31	1
1,2,3,7,8,9-HxCDD	ND	0.438			23-Oct-24 21:31	1
1,2,3,4,6,7,8-HpCDD	ND	0.506			23-Oct-24 21:31	1
OCDD	1.25			J	23-Oct-24 21:31	1
2,3,7,8-TCDF	ND	0.222			23-Oct-24 21:31	1
1,2,3,7,8-PeCDF	ND	0.187			23-Oct-24 21:31	1
2,3,4,7,8-PeCDF	ND	0.197			23-Oct-24 21:31	1
1,2,3,4,7,8-HxCDF	ND	0.220			23-Oct-24 21:31	1
1,2,3,6,7,8-HxCDF	ND	0.258			23-Oct-24 21:31	1
2,3,4,6,7,8-HxCDF	ND	0.255			23-Oct-24 21:31	1
1,2,3,7,8,9-HxCDF	ND	0.398			23-Oct-24 21:31	1
1,2,3,4,6,7,8-HpCDF	ND	0.231			23-Oct-24 21:31	1
1,2,3,4,7,8,9-HpCDF	ND	0.352			23-Oct-24 21:31	1
OCDF	ND	0.666			23-Oct-24 21:31	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.000375
---------------------	----------

Totals

Total TCDD	ND	0.302
Total PeCDD	ND	0.424
Total HxCDD	ND	0.438
Total HpCDD	ND	0.506
Total TCDF	ND	0.222
Total PeCDF	ND	0.197
Total HxCDF	ND	0.398
Total HpCDF	ND	0.352

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	68.7	25 - 164		23-Oct-24 21:31	1
13C-1,2,3,7,8-PeCDD	IS	57.8	25 - 181		23-Oct-24 21:31	1
13C-1,2,3,4,7,8-HxCDD	IS	67.8	32 - 141		23-Oct-24 21:31	1
13C-1,2,3,6,7,8-HxCDD	IS	72.0	28 - 130		23-Oct-24 21:31	1
13C-1,2,3,7,8,9-HxCDD	IS	68.7	32 - 141		23-Oct-24 21:31	1
13C-1,2,3,4,6,7,8-HpCDD	IS	62.5	23 - 140		23-Oct-24 21:31	1
13C-OCDD	IS	59.7	17 - 157		23-Oct-24 21:31	1
13C-2,3,7,8-TCDF	IS	72.8	24 - 169		23-Oct-24 21:31	1
13C-1,2,3,7,8-PeCDF	IS	81.7	24 - 185		23-Oct-24 21:31	1
13C-2,3,4,7,8-PeCDF	IS	70.4	21 - 178		23-Oct-24 21:31	1
13C-1,2,3,4,7,8-HxCDF	IS	67.7	26 - 152		23-Oct-24 21:31	1
13C-1,2,3,6,7,8-HxCDF	IS	69.5	26 - 123		23-Oct-24 21:31	1
13C-2,3,4,6,7,8-HxCDF	IS	68.4	28 - 136		23-Oct-24 21:31	1
13C-1,2,3,7,8,9-HxCDF	IS	67.3	29 - 147		23-Oct-24 21:31	1
13C-1,2,3,4,6,7,8-HpCDF	IS	67.9	28 - 143		23-Oct-24 21:31	1
13C-1,2,3,4,7,8,9-HpCDF	IS	68.5	26 - 138		23-Oct-24 21:31	1
13C-OCDF	IS	59.3	17 - 157		23-Oct-24 21:31	1
37Cl-2,3,7,8-TCDD	CRS	75.3	35 - 197		23-Oct-24 21:31	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: OPR
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	B24J163-BS1	Date Extracted:	21-Oct-24 13:23
Project:	Blue Heron	QC Batch:	B24J163	Column:	ZB-DIOXIN
Matrix:	Solid	Sample Size:	10.0 g		

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	19.8	20.0	99.1	67 - 158		23-Oct-24 19:11	1
1,2,3,7,8-PeCDD	117	100	117	70 - 142		23-Oct-24 19:11	1
1,2,3,4,7,8-HxCDD	106	100	106	70 - 164		23-Oct-24 19:11	1
1,2,3,6,7,8-HxCDD	102	100	102	76 - 134		23-Oct-24 19:11	1
1,2,3,7,8,9-HxCDD	99.3	100	99.3	64 - 162		23-Oct-24 19:11	1
1,2,3,4,6,7,8-HpCDD	110	100	110	70 - 140		23-Oct-24 19:11	1
OCDD	211	200	106	78 - 144	B	23-Oct-24 19:11	1
2,3,7,8-TCDF	20.5	20.0	102	75 - 158		23-Oct-24 19:11	1
1,2,3,7,8-PeCDF	108	100	108	80 - 134		23-Oct-24 19:11	1
2,3,4,7,8-PeCDF	111	100	111	68 - 160		23-Oct-24 19:11	1
1,2,3,4,7,8-HxCDF	110	100	110	72 - 134		23-Oct-24 19:11	1
1,2,3,6,7,8-HxCDF	108	100	108	84 - 130		23-Oct-24 19:11	1
2,3,4,6,7,8-HxCDF	109	100	109	70 - 156		23-Oct-24 19:11	1
1,2,3,7,8,9-HxCDF	108	100	108	78 - 130		23-Oct-24 19:11	1
1,2,3,4,6,7,8-HpCDF	111	100	111	82 - 122		23-Oct-24 19:11	1
1,2,3,4,7,8,9-HpCDF	110	100	110	78 - 138		23-Oct-24 19:11	1
OCDF	228	200	114	63 - 170		23-Oct-24 19:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	65.1	20 - 175		23-Oct-24 19:11	1
13C-1,2,3,7,8-PeCDD	IS	50.1	21 - 227		23-Oct-24 19:11	1
13C-1,2,3,4,7,8-HxCDD	IS	60.0	21 - 193		23-Oct-24 19:11	1
13C-1,2,3,6,7,8-HxCDD	IS	64.1	25 - 163		23-Oct-24 19:11	1
13C-1,2,3,7,8,9-HxCDD	IS	62.8	21 - 193		23-Oct-24 19:11	1
13C-1,2,3,4,6,7,8-HpCDD	IS	53.6	26 - 166		23-Oct-24 19:11	1
13C-OCDD	IS	53.1	13 - 199		23-Oct-24 19:11	1
13C-2,3,7,8-TCDF	IS	66.9	22 - 152		23-Oct-24 19:11	1
13C-1,2,3,7,8-PeCDF	IS	70.9	21 - 192		23-Oct-24 19:11	1
13C-2,3,4,7,8-PeCDF	IS	62.9	13 - 328		23-Oct-24 19:11	1
13C-1,2,3,4,7,8-HxCDF	IS	62.8	19 - 202		23-Oct-24 19:11	1
13C-1,2,3,6,7,8-HxCDF	IS	65.6	21 - 159		23-Oct-24 19:11	1
13C-2,3,4,6,7,8-HxCDF	IS	62.6	22 - 176		23-Oct-24 19:11	1
13C-1,2,3,7,8,9-HxCDF	IS	60.9	17 - 205		23-Oct-24 19:11	1
13C-1,2,3,4,6,7,8-HpCDF	IS	59.9	21 - 158		23-Oct-24 19:11	1
13C-1,2,3,4,7,8,9-HpCDF	IS	63.2	20 - 186		23-Oct-24 19:11	1
13C-OCDF	IS	54.5	13 - 199		23-Oct-24 19:11	1
37Cl-2,3,7,8-TCDD	CRS	63.4	31 - 191		23-Oct-24 19:11	1

Sample ID: BH_TRH-1_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-01	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	20.1 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 09:15		% Solids:	50.2		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.321		16-Oct-24 20:59	1
1,2,3,7,8-PeCDD	0.799			J	16-Oct-24 20:59	1
1,2,3,4,7,8-HxCDD	0.979			J	16-Oct-24 20:59	1
1,2,3,6,7,8-HxCDD	22.5				16-Oct-24 20:59	1
1,2,3,7,8,9-HxCDD	2.95				16-Oct-24 20:59	1
1,2,3,4,6,7,8-HpCDD	494				16-Oct-24 20:59	1
OCDD	8290			D	18-Oct-24 10:19	5
2,3,7,8-TCDF	3.28				16-Oct-24 20:59	1
1,2,3,7,8-PeCDF	9.07				16-Oct-24 20:59	1
2,3,4,7,8-PeCDF	15.9				16-Oct-24 20:59	1
1,2,3,4,7,8-HxCDF	41.8				16-Oct-24 20:59	1
1,2,3,6,7,8-HxCDF	14.3				16-Oct-24 20:59	1
2,3,4,6,7,8-HxCDF	14.7				16-Oct-24 20:59	1
1,2,3,7,8,9-HxCDF	17.9				16-Oct-24 20:59	1
1,2,3,4,6,7,8-HpCDF	277				16-Oct-24 20:59	1
1,2,3,4,7,8,9-HpCDF	20.1				16-Oct-24 20:59	1
OCDF	259				16-Oct-24 20:59	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	28.2					
Totals						
Total TCDD	3.69		4.18			
Total PeCDD	11.7		12.4			
Total HxCDD	94.3		95.0			
Total HpCDD	926					
Total TCDF	18.3		19.5			
Total PeCDF	114		115			
Total HxCDF	732					
Total HpCDF	998					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	97.1	25 - 164		16-Oct-24 20:59	1
13C-1,2,3,7,8-PeCDD	IS	78.7	25 - 181		16-Oct-24 20:59	1
13C-1,2,3,4,7,8-HxCDD	IS	99.1	32 - 141		16-Oct-24 20:59	1
13C-1,2,3,6,7,8-HxCDD	IS	94.0	28 - 130		16-Oct-24 20:59	1
13C-1,2,3,7,8,9-HxCDD	IS	96.4	32 - 141		16-Oct-24 20:59	1
13C-1,2,3,4,6,7,8-HpCDD	IS	83.9	23 - 140		16-Oct-24 20:59	1
13C-OCDD	IS	87.4	17 - 157	D	18-Oct-24 10:19	5
13C-2,3,7,8-TCDF	IS	96.7	24 - 169		16-Oct-24 20:59	1
13C-1,2,3,7,8-PeCDF	IS	85.3	24 - 185		16-Oct-24 20:59	1
13C-2,3,4,7,8-PeCDF	IS	82.3	21 - 178		16-Oct-24 20:59	1
13C-1,2,3,4,7,8-HxCDF	IS	97.3	26 - 152		16-Oct-24 20:59	1
13C-1,2,3,6,7,8-HxCDF	IS	90.6	26 - 123		16-Oct-24 20:59	1
13C-2,3,4,6,7,8-HxCDF	IS	95.7	28 - 136		16-Oct-24 20:59	1
13C-1,2,3,7,8,9-HxCDF	IS	93.4	29 - 147		16-Oct-24 20:59	1
13C-1,2,3,4,6,7,8-HpCDF	IS	83.7	28 - 143		16-Oct-24 20:59	1
13C-1,2,3,4,7,8,9-HpCDF	IS	86.0	26 - 138		16-Oct-24 20:59	1
13C-OCDF	IS	79.4	17 - 157		16-Oct-24 20:59	1
37Cl-2,3,7,8-TCDD	CRS	109	35 - 197		16-Oct-24 20:59	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TRH-2_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-02	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	16.5 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 10:10		% Solids:	62.2		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.125		16-Oct-24 21:45	1
1,2,3,7,8-PeCDD	0.448			J	16-Oct-24 21:45	1
1,2,3,4,7,8-HxCDD	0.478			J	16-Oct-24 21:45	1
1,2,3,6,7,8-HxCDD	19.6				16-Oct-24 21:45	1
1,2,3,7,8,9-HxCDD	1.61			J	16-Oct-24 21:45	1
1,2,3,4,6,7,8-HpCDD	343				16-Oct-24 21:45	1
OCDD	4220				16-Oct-24 21:45	1
2,3,7,8-TCDF	1.47				16-Oct-24 21:45	1
1,2,3,7,8-PeCDF	8.65				16-Oct-24 21:45	1
2,3,4,7,8-PeCDF	15.2				16-Oct-24 21:45	1
1,2,3,4,7,8-HxCDF	40.1				16-Oct-24 21:45	1
1,2,3,6,7,8-HxCDF	11.3				16-Oct-24 21:45	1
2,3,4,6,7,8-HxCDF	4.67				16-Oct-24 21:45	1
1,2,3,7,8,9-HxCDF	6.10				16-Oct-24 21:45	1
1,2,3,4,6,7,8-HpCDF	235				16-Oct-24 21:45	1
1,2,3,4,7,8,9-HpCDF	18.0				16-Oct-24 21:45	1
OCDF	182				16-Oct-24 21:45	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	21.1					
Totals						
Total TCDD	1.25		1.70			
Total PeCDD	3.77		4.06			
Total HxCDD	52.2					
Total HpCDD	593					
Total TCDF	6.39		7.03			
Total PeCDF	84.9		85.8			
Total HxCDF	648		668			
Total HpCDF	853					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	99.7	25 - 164		16-Oct-24 21:45	1
13C-1,2,3,7,8-PeCDD	IS	79.6	25 - 181		16-Oct-24 21:45	1
13C-1,2,3,4,7,8-HxCDD	IS	96.0	32 - 141		16-Oct-24 21:45	1
13C-1,2,3,6,7,8-HxCDD	IS	89.0	28 - 130		16-Oct-24 21:45	1
13C-1,2,3,7,8,9-HxCDD	IS	95.5	32 - 141		16-Oct-24 21:45	1
13C-1,2,3,4,6,7,8-HpCDD	IS	78.7	23 - 140		16-Oct-24 21:45	1
13C-OCDD	IS	78.8	17 - 157		16-Oct-24 21:45	1
13C-2,3,7,8-TCDF	IS	96.4	24 - 169		16-Oct-24 21:45	1
13C-1,2,3,7,8-PeCDF	IS	86.6	24 - 185		16-Oct-24 21:45	1
13C-2,3,4,7,8-PeCDF	IS	82.5	21 - 178		16-Oct-24 21:45	1
13C-1,2,3,4,7,8-HxCDF	IS	96.3	26 - 152		16-Oct-24 21:45	1
13C-1,2,3,6,7,8-HxCDF	IS	88.7	26 - 123		16-Oct-24 21:45	1
13C-2,3,4,6,7,8-HxCDF	IS	92.2	28 - 136		16-Oct-24 21:45	1
13C-1,2,3,7,8,9-HxCDF	IS	92.6	29 - 147		16-Oct-24 21:45	1
13C-1,2,3,4,6,7,8-HpCDF	IS	80.3	28 - 143		16-Oct-24 21:45	1
13C-1,2,3,4,7,8,9-HpCDF	IS	84.2	26 - 138		16-Oct-24 21:45	1
13C-OCDF	IS	74.9	17 - 157		16-Oct-24 21:45	1
37Cl-2,3,7,8-TCDD	CRS	126	35 - 197		16-Oct-24 21:45	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TRH-2_1-1.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-03	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	16.4 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 09:50		% Solids:	61.4		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.127		16-Oct-24 22:31	1
1,2,3,7,8-PeCDD	0.312			J	16-Oct-24 22:31	1
1,2,3,4,7,8-HxCDD	0.476			J	16-Oct-24 22:31	1
1,2,3,6,7,8-HxCDD	16.6				16-Oct-24 22:31	1
1,2,3,7,8,9-HxCDD	1.71			J	16-Oct-24 22:31	1
1,2,3,4,6,7,8-HpCDD	270				16-Oct-24 22:31	1
OCDD	2740				16-Oct-24 22:31	1
2,3,7,8-TCDF	1.40				16-Oct-24 22:31	1
1,2,3,7,8-PeCDF	6.47				16-Oct-24 22:31	1
2,3,4,7,8-PeCDF	9.56				16-Oct-24 22:31	1
1,2,3,4,7,8-HxCDF	34.1				16-Oct-24 22:31	1
1,2,3,6,7,8-HxCDF	9.36				16-Oct-24 22:31	1
2,3,4,6,7,8-HxCDF	4.37				16-Oct-24 22:31	1
1,2,3,7,8,9-HxCDF	5.96				16-Oct-24 22:31	1
1,2,3,4,6,7,8-HpCDF	210				16-Oct-24 22:31	1
1,2,3,4,7,8,9-HpCDF	15.8				16-Oct-24 22:31	1
OCDF	159				16-Oct-24 22:31	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	16.6					
Totals						
Total TCDD	2.35		2.81			
Total PeCDD	7.44		7.75			
Total HxCDD	52.3					
Total HpCDD	454					
Total TCDF	13.3		13.8			
Total PeCDF	100					
Total HxCDF	580		592			
Total HpCDF	775					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	102	25 - 164		16-Oct-24 22:31	1
13C-1,2,3,7,8-PeCDD	IS	83.9	25 - 181		16-Oct-24 22:31	1
13C-1,2,3,4,7,8-HxCDD	IS	101	32 - 141		16-Oct-24 22:31	1
13C-1,2,3,6,7,8-HxCDD	IS	92.1	28 - 130		16-Oct-24 22:31	1
13C-1,2,3,7,8,9-HxCDD	IS	97.2	32 - 141		16-Oct-24 22:31	1
13C-1,2,3,4,6,7,8-HpCDD	IS	83.1	23 - 140		16-Oct-24 22:31	1
13C-OCDD	IS	83.2	17 - 157		16-Oct-24 22:31	1
13C-2,3,7,8-TCDF	IS	102	24 - 169		16-Oct-24 22:31	1
13C-1,2,3,7,8-PeCDF	IS	90.0	24 - 185		16-Oct-24 22:31	1
13C-2,3,4,7,8-PeCDF	IS	85.6	21 - 178		16-Oct-24 22:31	1
13C-1,2,3,4,7,8-HxCDF	IS	100	26 - 152		16-Oct-24 22:31	1
13C-1,2,3,6,7,8-HxCDF	IS	92.7	26 - 123		16-Oct-24 22:31	1
13C-2,3,4,6,7,8-HxCDF	IS	96.2	28 - 136		16-Oct-24 22:31	1
13C-1,2,3,7,8,9-HxCDF	IS	95.2	29 - 147		16-Oct-24 22:31	1
13C-1,2,3,4,6,7,8-HpCDF	IS	83.5	28 - 143		16-Oct-24 22:31	1
13C-1,2,3,4,7,8,9-HpCDF	IS	85.4	26 - 138		16-Oct-24 22:31	1
13C-OCDF	IS	79.0	17 - 157		16-Oct-24 22:31	1
37Cl-2,3,7,8-TCDD	CRS	105	35 - 197		16-Oct-24 22:31	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TRH-3_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-04	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	51.1 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 11:25		% Solids:	19.6		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.0827			16-Oct-24 23:17	1
1,2,3,7,8-PeCDD	ND		0.460		16-Oct-24 23:17	1
1,2,3,4,7,8-HxCDD	0.531			J	16-Oct-24 23:17	1
1,2,3,6,7,8-HxCDD	2.47			J	16-Oct-24 23:17	1
1,2,3,7,8,9-HxCDD	ND		0.929		16-Oct-24 23:17	1
1,2,3,4,6,7,8-HpCDD	51.0				16-Oct-24 23:17	1
OCDD	572				16-Oct-24 23:17	1
2,3,7,8-TCDF	0.686				16-Oct-24 23:17	1
1,2,3,7,8-PeCDF	0.281			J	16-Oct-24 23:17	1
2,3,4,7,8-PeCDF	0.472			J	16-Oct-24 23:17	1
1,2,3,4,7,8-HxCDF	0.668			J	16-Oct-24 23:17	1
1,2,3,6,7,8-HxCDF	ND		0.728		16-Oct-24 23:17	1
2,3,4,6,7,8-HxCDF	0.542			J	16-Oct-24 23:17	1
1,2,3,7,8,9-HxCDF	0.0984			J	16-Oct-24 23:17	1
1,2,3,4,6,7,8-HpCDF	13.4				16-Oct-24 23:17	1
1,2,3,4,7,8,9-HpCDF	ND		0.523		16-Oct-24 23:17	1
OCDF	21.0				16-Oct-24 23:17	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	1.47					
Totals						
Total TCDD	1.78		2.20			
Total PeCDD	5.13		6.51			
Total HxCDD	24.7		25.6			
Total HpCDD	107					
Total TCDF	1.96					
Total PeCDF	8.67		9.61			
Total HxCDF	15.1		16.4			
Total HpCDF	30.2		30.8			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	100	25 - 164		16-Oct-24 23:17	1
13C-1,2,3,7,8-PeCDD	IS	83.8	25 - 181		16-Oct-24 23:17	1
13C-1,2,3,4,7,8-HxCDD	IS	107	32 - 141		16-Oct-24 23:17	1
13C-1,2,3,6,7,8-HxCDD	IS	97.1	28 - 130		16-Oct-24 23:17	1
13C-1,2,3,7,8,9-HxCDD	IS	98.3	32 - 141		16-Oct-24 23:17	1
13C-1,2,3,4,6,7,8-HpCDD	IS	82.4	23 - 140		16-Oct-24 23:17	1
13C-OCDD	IS	78.9	17 - 157		16-Oct-24 23:17	1
13C-2,3,7,8-TCDF	IS	101	24 - 169		16-Oct-24 23:17	1
13C-1,2,3,7,8-PeCDF	IS	88.3	24 - 185		16-Oct-24 23:17	1
13C-2,3,4,7,8-PeCDF	IS	87.3	21 - 178		16-Oct-24 23:17	1
13C-1,2,3,4,7,8-HxCDF	IS	101	26 - 152		16-Oct-24 23:17	1
13C-1,2,3,6,7,8-HxCDF	IS	95.1	26 - 123		16-Oct-24 23:17	1
13C-2,3,4,6,7,8-HxCDF	IS	95.1	28 - 136		16-Oct-24 23:17	1
13C-1,2,3,7,8,9-HxCDF	IS	95.5	29 - 147		16-Oct-24 23:17	1
13C-1,2,3,4,6,7,8-HpCDF	IS	84.8	28 - 143		16-Oct-24 23:17	1
13C-1,2,3,4,7,8,9-HpCDF	IS	89.2	26 - 138		16-Oct-24 23:17	1
13C-OCDF	IS	78.1	17 - 157		16-Oct-24 23:17	1
37Cl-2,3,7,8-TCDD	CRS	121	35 - 197		16-Oct-24 23:17	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TRH-3_1-1.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-05	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	39.0 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 12:00		% Solids:	25.8		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.389			17-Oct-24 10:10	1
1,2,3,7,8-PeCDD	1.95			J	17-Oct-24 10:10	1
1,2,3,4,7,8-HxCDD	ND	1.68			17-Oct-24 10:10	1
1,2,3,6,7,8-HxCDD	ND	1.78			17-Oct-24 10:10	1
1,2,3,7,8,9-HxCDD	ND	2.06			17-Oct-24 10:10	1
1,2,3,4,6,7,8-HpCDD	45.7				17-Oct-24 10:10	1
OCDD	422				17-Oct-24 10:10	1
2,3,7,8-TCDF	ND	0.458			17-Oct-24 10:10	1
1,2,3,7,8-PeCDF	ND	0.866			17-Oct-24 10:10	1
2,3,4,7,8-PeCDF	ND	0.946			17-Oct-24 10:10	1
1,2,3,4,7,8-HxCDF	ND	1.30			17-Oct-24 10:10	1
1,2,3,6,7,8-HxCDF	ND	1.35			17-Oct-24 10:10	1
2,3,4,6,7,8-HxCDF	ND	1.71			17-Oct-24 10:10	1
1,2,3,7,8,9-HxCDF	ND	2.33			17-Oct-24 10:10	1
1,2,3,4,6,7,8-HpCDF	11.2				17-Oct-24 10:10	1
1,2,3,4,7,8,9-HpCDF	ND	2.40			17-Oct-24 10:10	1
OCDF	27.8				17-Oct-24 10:10	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	2.65					
Totals						
Total TCDD	2.49					
Total PeCDD	18.3	21.2				
Total HxCDD	44.1	55.9				
Total HpCDD	137					
Total TCDF	ND	0.458				
Total PeCDF	3.74					
Total HxCDF	10.9					
Total HpCDF	32.4					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	81.6	25 - 164		17-Oct-24 10:10	1
13C-1,2,3,7,8-PeCDD	IS	44.1	25 - 181		17-Oct-24 10:10	1
13C-1,2,3,4,7,8-HxCDD	IS	101	32 - 141		17-Oct-24 10:10	1
13C-1,2,3,6,7,8-HxCDD	IS	85.4	28 - 130		17-Oct-24 10:10	1
13C-1,2,3,7,8,9-HxCDD	IS	88.9	32 - 141		17-Oct-24 10:10	1
13C-1,2,3,4,6,7,8-HpCDD	IS	37.9	23 - 140		17-Oct-24 10:10	1
13C-OCDD	IS	26.6	17 - 157		17-Oct-24 10:10	1
13C-2,3,7,8-TCDF	IS	79.1	24 - 169		17-Oct-24 10:10	1
13C-1,2,3,7,8-PeCDF	IS	54.0	24 - 185		17-Oct-24 10:10	1
13C-2,3,4,7,8-PeCDF	IS	43.0	21 - 178		17-Oct-24 10:10	1
13C-1,2,3,4,7,8-HxCDF	IS	105	26 - 152		17-Oct-24 10:10	1
13C-1,2,3,6,7,8-HxCDF	IS	92.2	26 - 123		17-Oct-24 10:10	1
13C-2,3,4,6,7,8-HxCDF	IS	87.9	28 - 136		17-Oct-24 10:10	1
13C-1,2,3,7,8,9-HxCDF	IS	79.6	29 - 147		17-Oct-24 10:10	1
13C-1,2,3,4,6,7,8-HpCDF	IS	50.4	28 - 143		17-Oct-24 10:10	1
13C-1,2,3,4,7,8,9-HpCDF	IS	38.1	26 - 138		17-Oct-24 10:10	1
13C-OCDF	IS	25.6	17 - 157		17-Oct-24 10:10	1
37Cl-2,3,7,8-TCDD	CRS	98.9	35 - 197		17-Oct-24 10:10	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR1-1_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-06	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	11.4 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 08:23		% Solids:	89.5		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.369		17-Oct-24 02:29	1
1,2,3,7,8-PeCDD	0.932			J	17-Oct-24 02:29	1
1,2,3,4,7,8-HxCDD	ND		0.569		17-Oct-24 02:29	1
1,2,3,6,7,8-HxCDD	3.18				17-Oct-24 02:29	1
1,2,3,7,8,9-HxCDD	ND		1.41		17-Oct-24 02:29	1
1,2,3,4,6,7,8-HpCDD	65.6				17-Oct-24 02:29	1
OCDD	651				17-Oct-24 02:29	1
2,3,7,8-TCDF	2.61				17-Oct-24 02:29	1
1,2,3,7,8-PeCDF	0.997			J	17-Oct-24 02:29	1
2,3,4,7,8-PeCDF	1.24			J	17-Oct-24 02:29	1
1,2,3,4,7,8-HxCDF	1.32			J	17-Oct-24 02:29	1
1,2,3,6,7,8-HxCDF	0.934			J	17-Oct-24 02:29	1
2,3,4,6,7,8-HxCDF	0.604			J	17-Oct-24 02:29	1
1,2,3,7,8,9-HxCDF	ND		0.341		17-Oct-24 02:29	1
1,2,3,4,6,7,8-HpCDF	21.6				17-Oct-24 02:29	1
1,2,3,4,7,8,9-HpCDF	0.892			J	17-Oct-24 02:29	1
OCDF	32.4				17-Oct-24 02:29	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	3.29					
Totals						
Total TCDD	6.00		6.58			
Total PeCDD	8.40					
Total HxCDD	22.4		24.4			
Total HpCDD	140					
Total TCDF	21.0		25.6			
Total PeCDF	12.4		14.5			
Total HxCDF	22.5		23.2			
Total HpCDF	49.7					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	90.3	25 - 164		17-Oct-24 02:29	1
13C-1,2,3,7,8-PeCDD	IS	77.2	25 - 181		17-Oct-24 02:29	1
13C-1,2,3,4,7,8-HxCDD	IS	94.4	32 - 141		17-Oct-24 02:29	1
13C-1,2,3,6,7,8-HxCDD	IS	89.0	28 - 130		17-Oct-24 02:29	1
13C-1,2,3,7,8,9-HxCDD	IS	91.8	32 - 141		17-Oct-24 02:29	1
13C-1,2,3,4,6,7,8-HpCDD	IS	77.5	23 - 140		17-Oct-24 02:29	1
13C-OCDD	IS	72.6	17 - 157		17-Oct-24 02:29	1
13C-2,3,7,8-TCDF	IS	90.8	24 - 169		17-Oct-24 02:29	1
13C-1,2,3,7,8-PeCDF	IS	80.6	24 - 185		17-Oct-24 02:29	1
13C-2,3,4,7,8-PeCDF	IS	77.5	21 - 178		17-Oct-24 02:29	1
13C-1,2,3,4,7,8-HxCDF	IS	91.7	26 - 152		17-Oct-24 02:29	1
13C-1,2,3,6,7,8-HxCDF	IS	85.3	26 - 123		17-Oct-24 02:29	1
13C-2,3,4,6,7,8-HxCDF	IS	89.0	28 - 136		17-Oct-24 02:29	1
13C-1,2,3,7,8,9-HxCDF	IS	88.2	29 - 147		17-Oct-24 02:29	1
13C-1,2,3,4,6,7,8-HpCDF	IS	75.0	28 - 143		17-Oct-24 02:29	1
13C-1,2,3,4,7,8,9-HpCDF	IS	79.8	26 - 138		17-Oct-24 02:29	1
13C-OCDF	IS	70.1	17 - 157		17-Oct-24 02:29	1
37Cl-2,3,7,8-TCDD	CRS	121	35 - 197		17-Oct-24 02:29	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR1-2_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-07	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	26.1 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 14:00		% Solids:	38.6		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	3.73				17-Oct-24 03:15	1
1,2,3,7,8-PeCDD	7.18				17-Oct-24 03:15	1
1,2,3,4,7,8-HxCDD	5.19				17-Oct-24 03:15	1
1,2,3,6,7,8-HxCDD	114				17-Oct-24 03:15	1
1,2,3,7,8,9-HxCDD	41.7				17-Oct-24 03:15	1
1,2,3,4,6,7,8-HpCDD	1950				17-Oct-24 03:15	1
OCDD	25300			D	18-Oct-24 11:05	10
2,3,7,8-TCDF	157				17-Oct-24 03:15	1
1,2,3,7,8-PeCDF	4.05				17-Oct-24 03:15	1
2,3,4,7,8-PeCDF	7.72				17-Oct-24 03:15	1
1,2,3,4,7,8-HxCDF	10.3				17-Oct-24 03:15	1
1,2,3,6,7,8-HxCDF	5.46				17-Oct-24 03:15	1
2,3,4,6,7,8-HxCDF	6.97				17-Oct-24 03:15	1
1,2,3,7,8,9-HxCDF	1.40			J	17-Oct-24 03:15	1
1,2,3,4,6,7,8-HpCDF	510				17-Oct-24 03:15	1
1,2,3,4,7,8,9-HpCDF	14.4				17-Oct-24 03:15	1
OCDF	2270				17-Oct-24 03:15	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	80.6					
Totals						
Total TCDD	22.9		24.6			
Total PeCDD	50.9					
Total HxCDD	687					
Total HpCDD	3560					
Total TCDF	234					
Total PeCDF	89.1		91.9			
Total HxCDF	451		456			
Total HpCDF	2150					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.5	25 - 164		17-Oct-24 03:15	1
13C-1,2,3,7,8-PeCDD	IS	75.2	25 - 181		17-Oct-24 03:15	1
13C-1,2,3,4,7,8-HxCDD	IS	91.7	32 - 141		17-Oct-24 03:15	1
13C-1,2,3,6,7,8-HxCDD	IS	89.7	28 - 130		17-Oct-24 03:15	1
13C-1,2,3,7,8,9-HxCDD	IS	91.6	32 - 141		17-Oct-24 03:15	1
13C-1,2,3,4,6,7,8-HpCDD	IS	76.4	23 - 140		17-Oct-24 03:15	1
13C-OCDD	IS	76.5	17 - 157	D	18-Oct-24 11:05	10
13C-2,3,7,8-TCDF	IS	93.0	24 - 169		17-Oct-24 03:15	1
13C-1,2,3,7,8-PeCDF	IS	80.1	24 - 185		17-Oct-24 03:15	1
13C-2,3,4,7,8-PeCDF	IS	76.7	21 - 178		17-Oct-24 03:15	1
13C-1,2,3,4,7,8-HxCDF	IS	88.7	26 - 152		17-Oct-24 03:15	1
13C-1,2,3,6,7,8-HxCDF	IS	83.8	26 - 123		17-Oct-24 03:15	1
13C-2,3,4,6,7,8-HxCDF	IS	86.3	28 - 136		17-Oct-24 03:15	1
13C-1,2,3,7,8,9-HxCDF	IS	86.6	29 - 147		17-Oct-24 03:15	1
13C-1,2,3,4,6,7,8-HpCDF	IS	75.3	28 - 143		17-Oct-24 03:15	1
13C-1,2,3,4,7,8,9-HpCDF	IS	74.4	26 - 138		17-Oct-24 03:15	1
13C-OCDF	IS	73.9	17 - 157		17-Oct-24 03:15	1
37Cl-2,3,7,8-TCDD	CRS	105	35 - 197		17-Oct-24 03:15	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR1-3_0-0.5_20241002
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410029-08	Date Received:	04-Oct-24 08:55
Project:	Blue Heron	QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil	Sample Size:	16.1 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 12:30	% Solids:	62.2		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		1.30		17-Oct-24 04:01	1
1,2,3,7,8-PeCDD	4.13				17-Oct-24 04:01	1
1,2,3,4,7,8-HxCDD	7.64				17-Oct-24 04:01	1
1,2,3,6,7,8-HxCDD	114				17-Oct-24 04:01	1
1,2,3,7,8,9-HxCDD	23.4				17-Oct-24 04:01	1
1,2,3,4,6,7,8-HpCDD	4460			D	18-Oct-24 11:51	10
OCDD	42600			D	18-Oct-24 11:51	10
2,3,7,8-TCDF	8.53				17-Oct-24 04:01	1
1,2,3,7,8-PeCDF	7.24				17-Oct-24 04:01	1
2,3,4,7,8-PeCDF	14.0				17-Oct-24 04:01	1
1,2,3,4,7,8-HxCDF	19.3				17-Oct-24 04:01	1
1,2,3,6,7,8-HxCDF	9.55				17-Oct-24 04:01	1
2,3,4,6,7,8-HxCDF	8.56				17-Oct-24 04:01	1
1,2,3,7,8,9-HxCDF	5.02				17-Oct-24 04:01	1
1,2,3,4,6,7,8-HpCDF	558				17-Oct-24 04:01	1
1,2,3,4,7,8,9-HpCDF	10.8				17-Oct-24 04:01	1
OCDF	731				17-Oct-24 04:01	1

Toxic Equivalent

TEQMinWHO2005Dioxin	91.4
---------------------	------

Totals

Total TCDD	6.16	8.27
Total PeCDD	32.3	34.5
Total HxCDD	911	
Total HpCDD	9890	
Total TCDF	25.3	30.0
Total PeCDF	179	
Total HxCDF	686	
Total HpCDF	1460	

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	87.7	25 - 164		17-Oct-24 04:01	1
13C-1,2,3,7,8-PeCDD	IS	73.4	25 - 181		17-Oct-24 04:01	1
13C-1,2,3,4,7,8-HxCDD	IS	90.5	32 - 141		17-Oct-24 04:01	1
13C-1,2,3,6,7,8-HxCDD	IS	83.3	28 - 130		17-Oct-24 04:01	1
13C-1,2,3,7,8,9-HxCDD	IS	85.3	32 - 141		17-Oct-24 04:01	1
13C-1,2,3,4,6,7,8-HpCDD	IS	73.4	23 - 140	D	18-Oct-24 11:51	10
13C-OCDD	IS	72.6	17 - 157	D	18-Oct-24 11:51	10
13C-2,3,7,8-TCDF	IS	89.9	24 - 169		17-Oct-24 04:01	1
13C-1,2,3,7,8-PeCDF	IS	78.7	24 - 185		17-Oct-24 04:01	1
13C-2,3,4,7,8-PeCDF	IS	74.3	21 - 178		17-Oct-24 04:01	1
13C-1,2,3,4,7,8-HxCDF	IS	88.2	26 - 152		17-Oct-24 04:01	1
13C-1,2,3,6,7,8-HxCDF	IS	82.1	26 - 123		17-Oct-24 04:01	1
13C-2,3,4,6,7,8-HxCDF	IS	82.4	28 - 136		17-Oct-24 04:01	1
13C-1,2,3,7,8,9-HxCDF	IS	81.5	29 - 147		17-Oct-24 04:01	1
13C-1,2,3,4,6,7,8-HpCDF	IS	72.5	28 - 143		17-Oct-24 04:01	1
13C-1,2,3,4,7,8,9-HpCDF	IS	74.0	26 - 138		17-Oct-24 04:01	1
13C-OCDF	IS	64.5	17 - 157		17-Oct-24 04:01	1
37Cl-2,3,7,8-TCDD	CRS	109	35 - 197		17-Oct-24 04:01	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR1-3_1-1.5_20241002
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410029-09	Date Received:	04-Oct-24 08:55
Project:	Blue Heron	QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil	Sample Size:	24.9 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 12:50	% Solids:	40.5		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	2.18				17-Oct-24 04:47	1
1,2,3,7,8-PeCDD	4.35				17-Oct-24 04:47	1
1,2,3,4,7,8-HxCDD	7.62				17-Oct-24 04:47	1
1,2,3,6,7,8-HxCDD	155				17-Oct-24 04:47	1
1,2,3,7,8,9-HxCDD	37.9				17-Oct-24 04:47	1
1,2,3,4,6,7,8-HpCDD	3350			D	18-Oct-24 12:37	10
OCDD	35100			D	18-Oct-24 12:37	10
2,3,7,8-TCDF	69.4				17-Oct-24 04:47	1
1,2,3,7,8-PeCDF	8.38				17-Oct-24 04:47	1
2,3,4,7,8-PeCDF	18.1				17-Oct-24 04:47	1
1,2,3,4,7,8-HxCDF	23.9				17-Oct-24 04:47	1
1,2,3,6,7,8-HxCDF	12.0				17-Oct-24 04:47	1
2,3,4,6,7,8-HxCDF	13.5				17-Oct-24 04:47	1
1,2,3,7,8,9-HxCDF	5.30				17-Oct-24 04:47	1
1,2,3,4,6,7,8-HpCDF	645				17-Oct-24 04:47	1
1,2,3,4,7,8,9-HpCDF	11.7				17-Oct-24 04:47	1
OCDF	686				17-Oct-24 04:47	1

Toxic Equivalent

TEQMinWHO2005Dioxin	95.5					
---------------------	------	--	--	--	--	--

Totals

Total TCDD	6.88		8.74			
Total PeCDD	35.0		35.9			
Total HxCDD	904					
Total HpCDD	6700					
Total TCDF	112		114			
Total PeCDF	196					
Total HxCDF	782					
Total HpCDF	1600					

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.4	25 - 164		17-Oct-24 04:47	1
13C-1,2,3,7,8-PeCDD	IS	74.9	25 - 181		17-Oct-24 04:47	1
13C-1,2,3,4,7,8-HxCDD	IS	93.0	32 - 141		17-Oct-24 04:47	1
13C-1,2,3,6,7,8-HxCDD	IS	83.8	28 - 130		17-Oct-24 04:47	1
13C-1,2,3,7,8,9-HxCDD	IS	89.4	32 - 141		17-Oct-24 04:47	1
13C-1,2,3,4,6,7,8-HpCDD	IS	77.7	23 - 140	D	18-Oct-24 12:37	10
13C-OCDD	IS	84.7	17 - 157	D	18-Oct-24 12:37	10
13C-2,3,7,8-TCDF	IS	91.6	24 - 169		17-Oct-24 04:47	1
13C-1,2,3,7,8-PeCDF	IS	80.9	24 - 185		17-Oct-24 04:47	1
13C-2,3,4,7,8-PeCDF	IS	76.5	21 - 178		17-Oct-24 04:47	1
13C-1,2,3,4,7,8-HxCDF	IS	90.1	26 - 152		17-Oct-24 04:47	1
13C-1,2,3,6,7,8-HxCDF	IS	85.2	26 - 123		17-Oct-24 04:47	1
13C-2,3,4,6,7,8-HxCDF	IS	85.9	28 - 136		17-Oct-24 04:47	1
13C-1,2,3,7,8,9-HxCDF	IS	83.4	29 - 147		17-Oct-24 04:47	1
13C-1,2,3,4,6,7,8-HpCDF	IS	76.3	28 - 143		17-Oct-24 04:47	1
13C-1,2,3,4,7,8,9-HpCDF	IS	77.2	26 - 138		17-Oct-24 04:47	1
13C-OCDF	IS	71.2	17 - 157		17-Oct-24 04:47	1
37Cl-2,3,7,8-TCDD	CRS	107	35 - 197		17-Oct-24 04:47	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR1-4_0-0.5_20241002
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410029-10	Date Received:	04-Oct-24 08:55
Project:	Blue Heron	QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil	Sample Size:	24.4 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 15:50	% Solids:	41.2		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.613		17-Oct-24 05:34	1
1,2,3,7,8-PeCDD	3.06				17-Oct-24 05:34	1
1,2,3,4,7,8-HxCDD	3.89				17-Oct-24 05:34	1
1,2,3,6,7,8-HxCDD	12.7				17-Oct-24 05:34	1
1,2,3,7,8,9-HxCDD	7.38				17-Oct-24 05:34	1
1,2,3,4,6,7,8-HpCDD	262				17-Oct-24 05:34	1
OCDD	1990				17-Oct-24 05:34	1
2,3,7,8-TCDF	2.77				17-Oct-24 05:34	1
1,2,3,7,8-PeCDF	1.75			J	17-Oct-24 05:34	1
2,3,4,7,8-PeCDF	1.29			J	17-Oct-24 05:34	1
1,2,3,4,7,8-HxCDF	4.46				17-Oct-24 05:34	1
1,2,3,6,7,8-HxCDF	2.83				17-Oct-24 05:34	1
2,3,4,6,7,8-HxCDF	ND		1.75		17-Oct-24 05:34	1
1,2,3,7,8,9-HxCDF	ND		0.640		17-Oct-24 05:34	1
1,2,3,4,6,7,8-HpCDF	70.5				17-Oct-24 05:34	1
1,2,3,4,7,8,9-HpCDF	3.56				17-Oct-24 05:34	1
OCDF	82.1				17-Oct-24 05:34	1

Toxic Equivalent

TEQMinWHO2005Dioxin	10.9
---------------------	------

Totals

Total TCDD	8.18	9.18
Total PeCDD	30.3	
Total HxCDD	118	
Total HpCDD	534	
Total TCDF	40.0	43.9
Total PeCDF	51.8	53.4
Total HxCDF	91.0	96.5
Total HpCDF	174	

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	96.1	25 - 164		17-Oct-24 05:34	1
13C-1,2,3,7,8-PeCDD	IS	81.3	25 - 181		17-Oct-24 05:34	1
13C-1,2,3,4,7,8-HxCDD	IS	102	32 - 141		17-Oct-24 05:34	1
13C-1,2,3,6,7,8-HxCDD	IS	92.0	28 - 130		17-Oct-24 05:34	1
13C-1,2,3,7,8,9-HxCDD	IS	97.8	32 - 141		17-Oct-24 05:34	1
13C-1,2,3,4,6,7,8-HpCDD	IS	81.9	23 - 140		17-Oct-24 05:34	1
13C-OCDD	IS	75.5	17 - 157		17-Oct-24 05:34	1
13C-2,3,7,8-TCDF	IS	97.0	24 - 169		17-Oct-24 05:34	1
13C-1,2,3,7,8-PeCDF	IS	86.4	24 - 185		17-Oct-24 05:34	1
13C-2,3,4,7,8-PeCDF	IS	82.6	21 - 178		17-Oct-24 05:34	1
13C-1,2,3,4,7,8-HxCDF	IS	96.9	26 - 152		17-Oct-24 05:34	1
13C-1,2,3,6,7,8-HxCDF	IS	89.8	26 - 123		17-Oct-24 05:34	1
13C-2,3,4,6,7,8-HxCDF	IS	93.8	28 - 136		17-Oct-24 05:34	1
13C-1,2,3,7,8,9-HxCDF	IS	90.7	29 - 147		17-Oct-24 05:34	1
13C-1,2,3,4,6,7,8-HpCDF	IS	79.4	28 - 143		17-Oct-24 05:34	1
13C-1,2,3,4,7,8,9-HpCDF	IS	83.7	26 - 138		17-Oct-24 05:34	1
13C-OCDF	IS	71.8	17 - 157		17-Oct-24 05:34	1
37Cl-2,3,7,8-TCDD	CRS	115	35 - 197		17-Oct-24 05:34	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR2-1_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-11	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J163	Date Extracted:	21-Oct-24
Matrix:	Soil		Sample Size:	21.4 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 16:30		% Solids:	46.8		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	1.38				23-Oct-24 23:04	1
1,2,3,7,8-PeCDD	3.44				23-Oct-24 23:04	1
1,2,3,4,7,8-HxCDD	4.31				23-Oct-24 23:04	1
1,2,3,6,7,8-HxCDD	33.4				23-Oct-24 23:04	1
1,2,3,7,8,9-HxCDD	11.2				23-Oct-24 23:04	1
1,2,3,4,6,7,8-HpCDD	1600				23-Oct-24 23:04	1
OCDD	15400			D, B	24-Oct-24 15:07	10
2,3,7,8-TCDF	7.48				23-Oct-24 23:04	1
1,2,3,7,8-PeCDF	3.24				23-Oct-24 23:04	1
2,3,4,7,8-PeCDF	4.79				23-Oct-24 23:04	1
1,2,3,4,7,8-HxCDF	9.49				23-Oct-24 23:04	1
1,2,3,6,7,8-HxCDF	6.13				23-Oct-24 23:04	1
2,3,4,6,7,8-HxCDF	4.54				23-Oct-24 23:04	1
1,2,3,7,8,9-HxCDF	ND		1.45		23-Oct-24 23:04	1
1,2,3,4,6,7,8-HpCDF	103				23-Oct-24 23:04	1
1,2,3,4,7,8,9-HpCDF	6.54				23-Oct-24 23:04	1
OCDF	266				23-Oct-24 23:04	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	35.8					
Totals						
Total TCDD	30.4		33.0			
Total PeCDD	41.0		50.9			
Total HxCDD	381					
Total HpCDD	4210					
Total TCDF	30.3		33.6			
Total PeCDF	54.6		55.2			
Total HxCDF	233		236			
Total HpCDF	401					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	70.2	25 - 164		23-Oct-24 23:04	1
13C-1,2,3,7,8-PeCDD	IS	54.1	25 - 181		23-Oct-24 23:04	1
13C-1,2,3,4,7,8-HxCDD	IS	68.1	32 - 141		23-Oct-24 23:04	1
13C-1,2,3,6,7,8-HxCDD	IS	71.4	28 - 130		23-Oct-24 23:04	1
13C-1,2,3,7,8,9-HxCDD	IS	66.3	32 - 141		23-Oct-24 23:04	1
13C-1,2,3,4,6,7,8-HpCDD	IS	69.8	23 - 140		23-Oct-24 23:04	1
13C-OCDD	IS	65.5	17 - 157	D	24-Oct-24 15:07	10
13C-2,3,7,8-TCDF	IS	70.4	24 - 169		23-Oct-24 23:04	1
13C-1,2,3,7,8-PeCDF	IS	75.8	24 - 185		23-Oct-24 23:04	1
13C-2,3,4,7,8-PeCDF	IS	69.7	21 - 178		23-Oct-24 23:04	1
13C-1,2,3,4,7,8-HxCDF	IS	69.1	26 - 152		23-Oct-24 23:04	1
13C-1,2,3,6,7,8-HxCDF	IS	69.8	26 - 123		23-Oct-24 23:04	1
13C-2,3,4,6,7,8-HxCDF	IS	66.5	28 - 136		23-Oct-24 23:04	1
13C-1,2,3,7,8,9-HxCDF	IS	68.0	29 - 147		23-Oct-24 23:04	1
13C-1,2,3,4,6,7,8-HpCDF	IS	68.3	28 - 143		23-Oct-24 23:04	1
13C-1,2,3,4,7,8,9-HpCDF	IS	73.7	26 - 138		23-Oct-24 23:04	1
13C-OCDF	IS	69.6	17 - 157		23-Oct-24 23:04	1
37Cl-2,3,7,8-TCDD	CRS	63.3	35 - 197		23-Oct-24 23:04	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR2-2_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-12	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	14.4 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 17:30		% Solids:	70.1		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.667		17-Oct-24 06:20	1
1,2,3,7,8-PeCDD	1.96			J	17-Oct-24 06:20	1
1,2,3,4,7,8-HxCDD	4.58				17-Oct-24 06:20	1
1,2,3,6,7,8-HxCDD	21.3				17-Oct-24 06:20	1
1,2,3,7,8,9-HxCDD	7.26				17-Oct-24 06:20	1
1,2,3,4,6,7,8-HpCDD	730				17-Oct-24 06:20	1
OCDD	8890			D	18-Oct-24 13:23	5
2,3,7,8-TCDF	8.04				17-Oct-24 06:20	1
1,2,3,7,8-PeCDF	0.753			J	17-Oct-24 06:20	1
2,3,4,7,8-PeCDF	2.35			J	17-Oct-24 06:20	1
1,2,3,4,7,8-HxCDF	4.42				17-Oct-24 06:20	1
1,2,3,6,7,8-HxCDF	ND		1.72		17-Oct-24 06:20	1
2,3,4,6,7,8-HxCDF	2.66				17-Oct-24 06:20	1
1,2,3,7,8,9-HxCDF	1.53			J	17-Oct-24 06:20	1
1,2,3,4,6,7,8-HpCDF	85.7				17-Oct-24 06:20	1
1,2,3,4,7,8,9-HpCDF	5.17				17-Oct-24 06:20	1
OCDF	690				17-Oct-24 06:20	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	18.8					
Totals						
Total TCDD	3.48		4.15			
Total PeCDD	17.2					
Total HxCDD	199		202			
Total HpCDD	1700					
Total TCDF	19.6		21.7			
Total PeCDF	27.0		29.5			
Total HxCDF	105		108			
Total HpCDF	460					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	88.6	25 - 164		17-Oct-24 06:20	1
13C-1,2,3,7,8-PeCDD	IS	74.0	25 - 181		17-Oct-24 06:20	1
13C-1,2,3,4,7,8-HxCDD	IS	91.8	32 - 141		17-Oct-24 06:20	1
13C-1,2,3,6,7,8-HxCDD	IS	83.3	28 - 130		17-Oct-24 06:20	1
13C-1,2,3,7,8,9-HxCDD	IS	87.2	32 - 141		17-Oct-24 06:20	1
13C-1,2,3,4,6,7,8-HpCDD	IS	73.4	23 - 140		17-Oct-24 06:20	1
13C-OCDD	IS	77.2	17 - 157	D	18-Oct-24 13:23	5
13C-2,3,7,8-TCDF	IS	92.8	24 - 169		17-Oct-24 06:20	1
13C-1,2,3,7,8-PeCDF	IS	80.5	24 - 185		17-Oct-24 06:20	1
13C-2,3,4,7,8-PeCDF	IS	77.4	21 - 178		17-Oct-24 06:20	1
13C-1,2,3,4,7,8-HxCDF	IS	90.4	26 - 152		17-Oct-24 06:20	1
13C-1,2,3,6,7,8-HxCDF	IS	85.3	26 - 123		17-Oct-24 06:20	1
13C-2,3,4,6,7,8-HxCDF	IS	87.2	28 - 136		17-Oct-24 06:20	1
13C-1,2,3,7,8,9-HxCDF	IS	85.3	29 - 147		17-Oct-24 06:20	1
13C-1,2,3,4,6,7,8-HpCDF	IS	70.0	28 - 143		17-Oct-24 06:20	1
13C-1,2,3,4,7,8,9-HpCDF	IS	74.2	26 - 138		17-Oct-24 06:20	1
13C-OCDF	IS	67.4	17 - 157		17-Oct-24 06:20	1
37Cl-2,3,7,8-TCDD	CRS	113	35 - 197		17-Oct-24 06:20	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR2-3_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-13	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	14.8 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 17:50		% Solids:	71.3		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.340		17-Oct-24 07:06	1
1,2,3,7,8-PeCDD	1.21			J	17-Oct-24 07:06	1
1,2,3,4,7,8-HxCDD	2.41				17-Oct-24 07:06	1
1,2,3,6,7,8-HxCDD	19.1				17-Oct-24 07:06	1
1,2,3,7,8,9-HxCDD	6.13				17-Oct-24 07:06	1
1,2,3,4,6,7,8-HpCDD	1440				17-Oct-24 07:06	1
OCDD	13100			D	18-Oct-24 14:09	5
2,3,7,8-TCDF	2.25				17-Oct-24 07:06	1
1,2,3,7,8-PeCDF	2.04			J	17-Oct-24 07:06	1
2,3,4,7,8-PeCDF	3.65				17-Oct-24 07:06	1
1,2,3,4,7,8-HxCDF	6.80				17-Oct-24 07:06	1
1,2,3,6,7,8-HxCDF	3.07				17-Oct-24 07:06	1
2,3,4,6,7,8-HxCDF	ND		2.26		17-Oct-24 07:06	1
1,2,3,7,8,9-HxCDF	3.61				17-Oct-24 07:06	1
1,2,3,4,6,7,8-HpCDF	88.4				17-Oct-24 07:06	1
1,2,3,4,7,8,9-HpCDF	8.19				17-Oct-24 07:06	1
OCDF	217				17-Oct-24 07:06	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	26.1					
Totals						
Total TCDD	4.48		5.02			
Total PeCDD	11.9		12.2			
Total HxCDD	334					
Total HpCDD	4250					
Total TCDF	9.03		14.0			
Total PeCDF	39.4		40.5			
Total HxCDF	164		169			
Total HpCDF	322					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	95.3	25 - 164		17-Oct-24 07:06	1
13C-1,2,3,7,8-PeCDD	IS	79.3	25 - 181		17-Oct-24 07:06	1
13C-1,2,3,4,7,8-HxCDD	IS	97.8	32 - 141		17-Oct-24 07:06	1
13C-1,2,3,6,7,8-HxCDD	IS	89.7	28 - 130		17-Oct-24 07:06	1
13C-1,2,3,7,8,9-HxCDD	IS	94.9	32 - 141		17-Oct-24 07:06	1
13C-1,2,3,4,6,7,8-HpCDD	IS	85.5	23 - 140		17-Oct-24 07:06	1
13C-OCDD	IS	86.8	17 - 157	D	18-Oct-24 14:09	5
13C-2,3,7,8-TCDF	IS	96.9	24 - 169		17-Oct-24 07:06	1
13C-1,2,3,7,8-PeCDF	IS	84.7	24 - 185		17-Oct-24 07:06	1
13C-2,3,4,7,8-PeCDF	IS	81.7	21 - 178		17-Oct-24 07:06	1
13C-1,2,3,4,7,8-HxCDF	IS	94.7	26 - 152		17-Oct-24 07:06	1
13C-1,2,3,6,7,8-HxCDF	IS	88.4	26 - 123		17-Oct-24 07:06	1
13C-2,3,4,6,7,8-HxCDF	IS	92.6	28 - 136		17-Oct-24 07:06	1
13C-1,2,3,7,8,9-HxCDF	IS	90.6	29 - 147		17-Oct-24 07:06	1
13C-1,2,3,4,6,7,8-HpCDF	IS	79.0	28 - 143		17-Oct-24 07:06	1
13C-1,2,3,4,7,8,9-HpCDF	IS	83.4	26 - 138		17-Oct-24 07:06	1
13C-OCDF	IS	71.0	17 - 157		17-Oct-24 07:06	1
37Cl-2,3,7,8-TCDD	CRS	114	35 - 197		17-Oct-24 07:06	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR2-4_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-14	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	20.7 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 17:00		% Solids:	49.2		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.603		17-Oct-24 07:52	1
1,2,3,7,8-PeCDD	1.79			J	17-Oct-24 07:52	1
1,2,3,4,7,8-HxCDD	1.95			J	17-Oct-24 07:52	1
1,2,3,6,7,8-HxCDD	22.6				17-Oct-24 07:52	1
1,2,3,7,8,9-HxCDD	5.03				17-Oct-24 07:52	1
1,2,3,4,6,7,8-HpCDD	680				17-Oct-24 07:52	1
OCDD	8490			D	18-Oct-24 14:55	5
2,3,7,8-TCDF	4.27				17-Oct-24 07:52	1
1,2,3,7,8-PeCDF	1.23			J	17-Oct-24 07:52	1
2,3,4,7,8-PeCDF	2.50				17-Oct-24 07:52	1
1,2,3,4,7,8-HxCDF	4.49				17-Oct-24 07:52	1
1,2,3,6,7,8-HxCDF	3.95				17-Oct-24 07:52	1
2,3,4,6,7,8-HxCDF	2.31			J	17-Oct-24 07:52	1
1,2,3,7,8,9-HxCDF	0.673			J	17-Oct-24 07:52	1
1,2,3,4,6,7,8-HpCDF	93.0				17-Oct-24 07:52	1
1,2,3,4,7,8,9-HpCDF	3.66				17-Oct-24 07:52	1
OCDF	195				17-Oct-24 07:52	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	17.5					
Totals						
Total TCDD	22.7		24.7			
Total PeCDD	18.1		25.2			
Total HxCDD	132					
Total HpCDD	1400					
Total TCDF	17.4		38.1			
Total PeCDF	35.8		37.3			
Total HxCDF	144					
Total HpCDF	314					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	92.1	25 - 164		17-Oct-24 07:52	1
13C-1,2,3,7,8-PeCDD	IS	79.1	25 - 181		17-Oct-24 07:52	1
13C-1,2,3,4,7,8-HxCDD	IS	100	32 - 141		17-Oct-24 07:52	1
13C-1,2,3,6,7,8-HxCDD	IS	91.7	28 - 130		17-Oct-24 07:52	1
13C-1,2,3,7,8,9-HxCDD	IS	98.9	32 - 141		17-Oct-24 07:52	1
13C-1,2,3,4,6,7,8-HpCDD	IS	80.2	23 - 140		17-Oct-24 07:52	1
13C-OCDD	IS	87.3	17 - 157	D	18-Oct-24 14:55	5
13C-2,3,7,8-TCDF	IS	99.5	24 - 169		17-Oct-24 07:52	1
13C-1,2,3,7,8-PeCDF	IS	86.0	24 - 185		17-Oct-24 07:52	1
13C-2,3,4,7,8-PeCDF	IS	79.9	21 - 178		17-Oct-24 07:52	1
13C-1,2,3,4,7,8-HxCDF	IS	98.6	26 - 152		17-Oct-24 07:52	1
13C-1,2,3,6,7,8-HxCDF	IS	90.5	26 - 123		17-Oct-24 07:52	1
13C-2,3,4,6,7,8-HxCDF	IS	94.2	28 - 136		17-Oct-24 07:52	1
13C-1,2,3,7,8,9-HxCDF	IS	90.8	29 - 147		17-Oct-24 07:52	1
13C-1,2,3,4,6,7,8-HpCDF	IS	79.3	28 - 143		17-Oct-24 07:52	1
13C-1,2,3,4,7,8,9-HpCDF	IS	82.4	26 - 138		17-Oct-24 07:52	1
13C-OCDF	IS	70.5	17 - 157		17-Oct-24 07:52	1
37Cl-2,3,7,8-TCDD	CRS	114	35 - 197		17-Oct-24 07:52	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_TR2-6_0-0.5_20241002
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-15	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	13.7 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 15:10		% Solids:	73.4		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		1.07		17-Oct-24 08:38	1
1,2,3,7,8-PeCDD	3.71				17-Oct-24 08:38	1
1,2,3,4,7,8-HxCDD	3.38				17-Oct-24 08:38	1
1,2,3,6,7,8-HxCDD	18.9				17-Oct-24 08:38	1
1,2,3,7,8,9-HxCDD	10.0				17-Oct-24 08:38	1
1,2,3,4,6,7,8-HpCDD	451				17-Oct-24 08:38	1
OCDD	4320				17-Oct-24 08:38	1
2,3,7,8-TCDF	10.5				17-Oct-24 08:38	1
1,2,3,7,8-PeCDF	5.33				17-Oct-24 08:38	1
2,3,4,7,8-PeCDF	7.43				17-Oct-24 08:38	1
1,2,3,4,7,8-HxCDF	11.7				17-Oct-24 08:38	1
1,2,3,6,7,8-HxCDF	6.32				17-Oct-24 08:38	1
2,3,4,6,7,8-HxCDF	2.64				17-Oct-24 08:38	1
1,2,3,7,8,9-HxCDF	3.01				17-Oct-24 08:38	1
1,2,3,4,6,7,8-HpCDF	84.3				17-Oct-24 08:38	1
1,2,3,4,7,8,9-HpCDF	22.6				17-Oct-24 08:38	1
OCDF	230				17-Oct-24 08:38	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	19.7					
Totals						
Total TCDD	30.3		32.9			
Total PeCDD	39.8					
Total HxCDD	184					
Total HpCDD	1100					
Total TCDF	45.2		49.5			
Total PeCDF	88.9		89.1			
Total HxCDF	137		138			
Total HpCDF	240					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	92.3	25 - 164		17-Oct-24 08:38	1
13C-1,2,3,7,8-PeCDD	IS	78.9	25 - 181		17-Oct-24 08:38	1
13C-1,2,3,4,7,8-HxCDD	IS	95.6	32 - 141		17-Oct-24 08:38	1
13C-1,2,3,6,7,8-HxCDD	IS	88.8	28 - 130		17-Oct-24 08:38	1
13C-1,2,3,7,8,9-HxCDD	IS	86.8	32 - 141		17-Oct-24 08:38	1
13C-1,2,3,4,6,7,8-HpCDD	IS	76.5	23 - 140		17-Oct-24 08:38	1
13C-OCDD	IS	69.0	17 - 157		17-Oct-24 08:38	1
13C-2,3,7,8-TCDF	IS	93.6	24 - 169		17-Oct-24 08:38	1
13C-1,2,3,7,8-PeCDF	IS	83.0	24 - 185		17-Oct-24 08:38	1
13C-2,3,4,7,8-PeCDF	IS	76.9	21 - 178		17-Oct-24 08:38	1
13C-1,2,3,4,7,8-HxCDF	IS	94.3	26 - 152		17-Oct-24 08:38	1
13C-1,2,3,6,7,8-HxCDF	IS	83.5	26 - 123		17-Oct-24 08:38	1
13C-2,3,4,6,7,8-HxCDF	IS	80.3	28 - 136		17-Oct-24 08:38	1
13C-1,2,3,7,8,9-HxCDF	IS	77.9	29 - 147		17-Oct-24 08:38	1
13C-1,2,3,4,6,7,8-HpCDF	IS	76.0	28 - 143		17-Oct-24 08:38	1
13C-1,2,3,4,7,8,9-HpCDF	IS	78.1	26 - 138		17-Oct-24 08:38	1
13C-OCDF	IS	64.1	17 - 157		17-Oct-24 08:38	1
37Cl-2,3,7,8-TCDD	CRS	112	35 - 197		17-Oct-24 08:38	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_DUP1
EPA Method 1613B

Client Data			Laboratory Data			
Name:	WSP		Lab Sample:	2410029-16	Date Received:	04-Oct-24 08:55
Project:	Blue Heron		QC Batch:	B24J121	Date Extracted:	15-Oct-24
Matrix:	Soil		Sample Size:	11.4 g	Column:	ZB-DIOXIN
Date Collected:	02-Oct-24 00:00		% Solids:	89.3		
Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.266		17-Oct-24 09:24	1
1,2,3,7,8-PeCDD	0.574			J	17-Oct-24 09:24	1
1,2,3,4,7,8-HxCDD	0.710			J	17-Oct-24 09:24	1
1,2,3,6,7,8-HxCDD	4.04				17-Oct-24 09:24	1
1,2,3,7,8,9-HxCDD	1.63			J	17-Oct-24 09:24	1
1,2,3,4,6,7,8-HpCDD	81.3				17-Oct-24 09:24	1
OCDD	814				17-Oct-24 09:24	1
2,3,7,8-TCDF	2.33				17-Oct-24 09:24	1
1,2,3,7,8-PeCDF	0.946			J	17-Oct-24 09:24	1
2,3,4,7,8-PeCDF	0.896			J	17-Oct-24 09:24	1
1,2,3,4,7,8-HxCDF	1.79			J	17-Oct-24 09:24	1
1,2,3,6,7,8-HxCDF	1.27			J	17-Oct-24 09:24	1
2,3,4,6,7,8-HxCDF	0.680			J	17-Oct-24 09:24	1
1,2,3,7,8,9-HxCDF	ND		0.238		17-Oct-24 09:24	1
1,2,3,4,6,7,8-HpCDF	29.6				17-Oct-24 09:24	1
1,2,3,4,7,8,9-HpCDF	1.34			J	17-Oct-24 09:24	1
OCDF	40.7				17-Oct-24 09:24	1
Toxic Equivalent						
TEQMinWHO2005Dioxin	3.49					
Totals						
Total TCDD	4.02		5.28			
Total PeCDD	5.37		7.31			
Total HxCDD	26.2					
Total HpCDD	168					
Total TCDF	18.5		21.4			
Total PeCDF	14.9		16.4			
Total HxCDF	29.1		29.7			
Total HpCDF	70.1					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	96.0	25 - 164		17-Oct-24 09:24	1
13C-1,2,3,7,8-PeCDD	IS	84.1	25 - 181		17-Oct-24 09:24	1
13C-1,2,3,4,7,8-HxCDD	IS	105	32 - 141		17-Oct-24 09:24	1
13C-1,2,3,6,7,8-HxCDD	IS	97.1	28 - 130		17-Oct-24 09:24	1
13C-1,2,3,7,8,9-HxCDD	IS	101	32 - 141		17-Oct-24 09:24	1
13C-1,2,3,4,6,7,8-HpCDD	IS	84.5	23 - 140		17-Oct-24 09:24	1
13C-OCDD	IS	78.7	17 - 157		17-Oct-24 09:24	1
13C-2,3,7,8-TCDF	IS	102	24 - 169		17-Oct-24 09:24	1
13C-1,2,3,7,8-PeCDF	IS	89.8	24 - 185		17-Oct-24 09:24	1
13C-2,3,4,7,8-PeCDF	IS	85.9	21 - 178		17-Oct-24 09:24	1
13C-1,2,3,4,7,8-HxCDF	IS	101	26 - 152		17-Oct-24 09:24	1
13C-1,2,3,6,7,8-HxCDF	IS	93.2	26 - 123		17-Oct-24 09:24	1
13C-2,3,4,6,7,8-HxCDF	IS	96.3	28 - 136		17-Oct-24 09:24	1
13C-1,2,3,7,8,9-HxCDF	IS	96.9	29 - 147		17-Oct-24 09:24	1
13C-1,2,3,4,6,7,8-HpCDF	IS	82.8	28 - 143		17-Oct-24 09:24	1
13C-1,2,3,4,7,8,9-HpCDF	IS	85.5	26 - 138		17-Oct-24 09:24	1
13C-OCDF	IS	72.3	17 - 157		17-Oct-24 09:24	1
37Cl-2,3,7,8-TCDD	CRS	122	35 - 197		17-Oct-24 09:24	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

DATA QUALIFIERS & ABBREVIATIONS

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

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

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

CHAIN OF CUSTODY

GC/HRMS Methods

For Laboratory Use Only

Laboratory Project ID: 2410029 Temp: 1.3 °C
Storage ID: WP-2 Storage Secured: ☒ Yes ☐ No

Project ID: Blue Heron P.O.#: G685.0793 Task 400 Sampler: Matthew Brown
(name)

TAT Standard: ☒ 21 days
(check one): Rush (surcharge may apply)
☐ 14 days ☐ 7 days Other: _____

Invoice to: Name John Kuiper Company WSP Address 15862 SW 72nd ave, #150 City Portland State OR Phone # John.kuiper@wsp.com

Relinquished by (printed name and signature) Matthew Brown Date 10/3/24 Time 1300 Received by (printed name and signature) Jennifer Torres Date 10/04/24 Time 0855
Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Enthalpy Analytical - EDH
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520

ATTN: Bryon Clark

Method of Shipment:

Fedex overnight

Tracking No.:

778998795959

Add Analysis(es) Requested

Container(s)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	Full List	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	Full List	Homolog Totals only	Coplanar PCBs	WHO-29 List	209 CONGENERS	PAHs	Pesticides	EPA 1625	EPA 1631	Other	Comments
BH-TRH-1-0-0.5-20241002	10/02/24	9:15		1	G	SO				X														
BH-TRH-2-0-0.5-20241002	10/02/24	10:10								X														
BH-TRH-2-1-1.5-20241002	10/02/24	9:50								X														
BH-TRH-3-0-0.5-20241002	10/02/24	11:25								X														
BH-TRH-3-1-1.5-20241002	10/02/24	12:00								X														
BH-TRI-1-0-0.5-20241002	10/02/24	8:23								X														
BH-TRI-2-0-0.5-20241002	10/02/24	14:00								X														
BH-TRI-3-0-0.5-20241002	10/02/24	12:30								X														
BH-TRI-3-1-1.5-20241002	10/02/24	12:50								X														
BH-TRI-4-0-0.5-20241002	10/02/24	15:50								X														

Special Instructions/Comments: _____

SEND
DOCUMENTATION
AND RESULTS TO:

Name: _____
Company: _____
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____
Email: _____

Container Types: A = 1 Liter Amber, G = Amber Glass Jar
O = Other: _____

Bottle Preservation: ☐ 12 = 12mzma,
☐ Other: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

ENTHALPY ANALYTICAL		Chain of Custody Record				Turn Around Time (rush by advanced notice only)													
		Lab No: <u>240029</u> Page: <u>2</u> of <u>2</u>				Standard: ☒		5 Day: ☐		3 Day: ☐									
Enthalpy Analytical 1104 Windfield Way, El Dorado Hills, CA Phone (916) 673-1520		Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Water SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other				Preservatives: 1 = Na ₂ S ₂ O ₃ 2 = HCl 3 = HNO ₃ 4 = H ₂ SO ₄ 5 = NaOH 6 = Other				Sample Receipt Temp: (lab use only)									
CUSTOMER INFORMATION				PROJECT INFORMATION				Analysis Request								Test Instructions / Comments			
Company: <u>WSP</u>		Name: <u>Blue Heron</u>		EPA 1613: Dioxins & Furans															
Report To: <u>John Kuiper</u>		Number:																	
Email: <u>John.Kuiper@wsp.com</u>		P.O. #: <u>G685.0793 Task 400</u>																	
Address: <u>15862 SW 72nd Ave, #150</u>		Address: <u>Oregon City, OR</u>																	
Address: <u>Portland, OR 97224</u>																			
Phone: <u> </u>		Global ID: <u> </u>																	
Fax: <u> </u>		Sampled By: <u>Matthew Brown</u>																	
Sample ID		Sampling Date		Sampling Time		Matrix		Container No. / Size		Pres.									
1 BH-TR2-1-0-0.5-20241002		10/2/24		1630		SO		1 / G		Non		X							
2 BH-TR2-2-0-0.5-20241002		10/2/24		1730		↓		↓		↓		X						Hold	
3 BH-TR2-3-0-0.5-20241002		10/2/24		1750		↓		↓		↓		X						Hold	
4 BH-TR2-4-0-0.5-20241002		10/2/24		1700		↓		↓		↓		X							
5 BH-TR2-6-0-0.5-20241002		10/2/24		1510		↓		↓		↓		X							
6 BH-Dup1		10/2/24		—		↓		↓		↓		X						Duplicate for QC	
7 BH-Rinse-20241002		10/2/24		1840		W		2 / liter ambers		↓		X							
8																			
9																			
10																			
		Signature		Print Name		Company / Title		Date / Time											
1 Relinquished By:				Matthew Brown		WSP / Engineer		10/3/24 @ 1300											
1 Received By:				Jennifer Torres		EA-EDH		10/04/24 0855											
2 Relinquished By:																			
2 Received By:																			
3 Relinquished By:																			
3 Received By:																			

CoC/Label Reconciliation Report WO# 2410029

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2410029-01	A BH_TRH-1_0-0.5_20241002	☒	02-Oct-24 09:15 ☒	Amber Glass, 120 mL	Solid	
2410029-02	A BH_TRH-2_0-0.5_20241002	☒	02-Oct-24 10:10 ☒	Amber Glass, 120 mL	Solid	
2410029-03	A BH_TRH-2_1-1.5_20241002	☒	02-Oct-24 09:50 ☒	Amber Glass, 120 mL	Solid	
2410029-04	A BH_TRH-3_0-0.5_20241002	☒	02-Oct-24 11:25 ☒	Amber Glass, 120 mL	Solid	
2410029-05	A BH_TRH-3_1-1.5_20241002	☒	02-Oct-24 12:00 ☒	Amber Glass, 120 mL	Solid	
2410029-06	A BH_TRJ-1_0-0.5_20241002	☒ B	02-Oct-24 08:23 ☒	Amber Glass, 120 mL	Solid	
2410029-07	A BH_TRJ-2_0-0.5_20241002	☒	02-Oct-24 14:00 ☒	Amber Glass, 120 mL	Solid	
2410029-08	A BH_TRJ-3_0-0.5_20241002	☒	02-Oct-24 12:30 ☒	Amber Glass, 120 mL	Solid	
2410029-09	A BH_TRJ-3_1-1.5_20241002	☒	02-Oct-24 12:50 ☒	Amber Glass, 120 mL	Solid	
2410029-10	A BH_TRJ-4_0-0.5_20241002	☒	02-Oct-24 15:50 ☒	Amber Glass, 120 mL	Solid	
2410029-11	A BH_TR2-1_0-0.5_20241002	☒	02-Oct-24 16:30 ☒	Amber Glass, 120 mL	Solid	
2410029-12	A BH_TR2-2_0-0.5_20241002	☒	02-Oct-24 17:30 ☒	Amber Glass, 120 mL	Solid	
2410029-13	A BH_TR2-3_0-0.5_20241002	☒	02-Oct-24 17:50 ☒	Amber Glass, 120 mL	Solid	
2410029-14	A BH_TR2-4_0-0.5_20241002	☒	02-Oct-24 17:00 ☒	Amber Glass, 120 mL	Solid	
2410029-15	A BH_TR2-6_0-0.5_20241002	☒	02-Oct-24 15:10 ☒	Amber Glass, 120 mL	Solid	
2410029-16	A BH_DUP1	☒	02-Oct-24 00:00 ☐ A	Amber Glass, 120 mL	Solid	
2410029-17	A BH_Rinsate_20241002	☒	02-Oct-24 18:40 ☒	Amber Glass WM Bottle, 1L	Aqueous	
2410029-17	B BH_Rinsate_20241002	☒	02-Oct-24 18:40 ☒	Amber Glass WM Bottle, 1L	Aqueous	

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

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

Comments:

(A) NO time on CoC or sample label used 00:00

(B) Underlined part was updated to reflect "1"

Preservation Documented: Na₂S₂O₃ Trizma NH₄CH₃CO₂ None Other

Verified by/Date: XAD 10/04/24
WWS 10/04/24



November 05, 2024

Enthalpy Analytical - El Dorado Hills
Work Order No. 2410125

Mr. John Kuiper
WSP
7376 SW Durham Road
Portland, OR 97224

Dear Mr. Kuiper,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on October 23, 2024 under your Project Name 'Blue Heron'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at byron.clack@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

A handwritten signature in black ink that reads 'C.R. Whitehead'.

Chris Whitehead For Byron Clack
Project Manager

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

Enthalpy Analytical - EDH Work Order No. 2410125

Case Narrative

Sample Condition on Receipt:

Four water samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

EPA Method 1613B

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

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

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limit in the Method Blank. The OPR recoveries were within the method acceptance criteria.

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

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	12
Certifications.....	13
Sample Receipt.....	14

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2410125-01	BH_TRH-Pre Gab_20241021	21-Oct-24 13:45	23-Oct-24 09:51	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L
2410125-02	BH_TRH-Post Gab_20241021	21-Oct-24 14:10	23-Oct-24 09:51	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L
2410125-03	BH_TR1-Pre Gab_20241021	21-Oct-24 15:00	23-Oct-24 09:51	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L
2410125-04	BH_TR1-Post Gab_20241021	21-Oct-24 15:20	23-Oct-24 09:51	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	B24J236-BLK1	Date Extracted:	29-Oct-24
Project:	Blue Heron	QC Batch:	B24J236	Column:	ZB-DIOXIN
Matrix:	Aqueous	Sample Size:	1.00 L		

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.426			01-Nov-24 08:34	1
1,2,3,7,8-PeCDD	ND	0.585			01-Nov-24 08:34	1
1,2,3,4,7,8-HxCDD	ND	0.706			01-Nov-24 08:34	1
1,2,3,6,7,8-HxCDD	ND	0.738			01-Nov-24 08:34	1
1,2,3,7,8,9-HxCDD	ND	0.789			01-Nov-24 08:34	1
1,2,3,4,6,7,8-HpCDD	ND		0.498		01-Nov-24 08:34	1
OCDD	ND	1.83			01-Nov-24 08:34	1
2,3,7,8-TCDF	ND	0.550			01-Nov-24 08:34	1
1,2,3,7,8-PeCDF	ND	0.472			01-Nov-24 08:34	1
2,3,4,7,8-PeCDF	ND	0.346			01-Nov-24 08:34	1
1,2,3,4,7,8-HxCDF	ND	0.342			01-Nov-24 08:34	1
1,2,3,6,7,8-HxCDF	ND	0.333			01-Nov-24 08:34	1
2,3,4,6,7,8-HxCDF	ND	0.367			01-Nov-24 08:34	1
1,2,3,7,8,9-HxCDF	ND	0.453			01-Nov-24 08:34	1
1,2,3,4,6,7,8-HpCDF	ND	0.577			01-Nov-24 08:34	1
1,2,3,4,7,8,9-HpCDF	ND	0.579			01-Nov-24 08:34	1
OCDF	ND	1.03			01-Nov-24 08:34	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.00
---------------------	------

Totals

Total TCDD	ND	0.426	
Total PeCDD	ND	0.585	
Total HxCDD	ND	0.789	
Total HpCDD	ND		0.498
Total TCDF	ND	0.550	
Total PeCDF	ND	0.472	
Total HxCDF	ND	0.453	
Total HpCDF	ND	0.579	

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	81.4	25 - 164		01-Nov-24 08:34	1
13C-1,2,3,7,8-PeCDD	IS	74.0	25 - 181		01-Nov-24 08:34	1
13C-1,2,3,4,7,8-HxCDD	IS	77.5	32 - 141		01-Nov-24 08:34	1
13C-1,2,3,6,7,8-HxCDD	IS	73.3	28 - 130		01-Nov-24 08:34	1
13C-1,2,3,7,8,9-HxCDD	IS	77.5	32 - 141		01-Nov-24 08:34	1
13C-1,2,3,4,6,7,8-HpCDD	IS	59.4	23 - 140		01-Nov-24 08:34	1
13C-OCDD	IS	47.5	17 - 157		01-Nov-24 08:34	1
13C-2,3,7,8-TCDF	IS	79.7	24 - 169		01-Nov-24 08:34	1
13C-1,2,3,7,8-PeCDF	IS	71.8	24 - 185		01-Nov-24 08:34	1
13C-2,3,4,7,8-PeCDF	IS	76.5	21 - 178		01-Nov-24 08:34	1
13C-1,2,3,4,7,8-HxCDF	IS	73.8	26 - 152		01-Nov-24 08:34	1
13C-1,2,3,6,7,8-HxCDF	IS	69.4	26 - 123		01-Nov-24 08:34	1
13C-2,3,4,6,7,8-HxCDF	IS	75.8	28 - 136		01-Nov-24 08:34	1
13C-1,2,3,7,8,9-HxCDF	IS	73.9	29 - 147		01-Nov-24 08:34	1
13C-1,2,3,4,6,7,8-HpCDF	IS	63.5	28 - 143		01-Nov-24 08:34	1
13C-1,2,3,4,7,8,9-HpCDF	IS	61.4	26 - 138		01-Nov-24 08:34	1
13C-OCDF	IS	51.5	17 - 157		01-Nov-24 08:34	1
37Cl-2,3,7,8-TCDD	CRS	108	35 - 197		01-Nov-24 08:34	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

Sample ID: OPR
EPA Method 1613B
Client Data

Name: WSP
Project: Blue Heron
Matrix: Aqueous

Laboratory Data

Lab Sample: B24J236-BS1
QC Batch: B24J236
Sample Size: 1.00 L
Date Extracted: 29-Oct-24 08:10
Column: ZB-DIOXIN

Analyte	Amt Found (pg/L)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	209	200	104	67 - 158		31-Oct-24 12:55	1
1,2,3,7,8-PeCDD	1200	1000	120	70 - 142		31-Oct-24 12:55	1
1,2,3,4,7,8-HxCDD	1120	1000	112	70 - 164		31-Oct-24 12:55	1
1,2,3,6,7,8-HxCDD	1100	1000	110	76 - 134		31-Oct-24 12:55	1
1,2,3,7,8,9-HxCDD	1130	1000	113	64 - 162		31-Oct-24 12:55	1
1,2,3,4,6,7,8-HpCDD	1170	1000	117	70 - 140		31-Oct-24 12:55	1
OCDD	2420	2000	121	78 - 144		31-Oct-24 12:55	1
2,3,7,8-TCDF	203	200	101	75 - 158		31-Oct-24 12:55	1
1,2,3,7,8-PeCDF	1200	1000	120	80 - 134		31-Oct-24 12:55	1
2,3,4,7,8-PeCDF	1120	1000	112	68 - 160		31-Oct-24 12:55	1
1,2,3,4,7,8-HxCDF	1210	1000	121	72 - 134		31-Oct-24 12:55	1
1,2,3,6,7,8-HxCDF	1210	1000	121	84 - 130		31-Oct-24 12:55	1
2,3,4,6,7,8-HxCDF	1170	1000	117	70 - 156		31-Oct-24 12:55	1
1,2,3,7,8,9-HxCDF	1200	1000	120	78 - 130		31-Oct-24 12:55	1
1,2,3,4,6,7,8-HpCDF	1170	1000	117	82 - 122		31-Oct-24 12:55	1
1,2,3,4,7,8,9-HpCDF	1160	1000	116	78 - 138		31-Oct-24 12:55	1
OCDF	2240	2000	112	63 - 170		31-Oct-24 12:55	1
Labeled Standards	Type		% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS		87.7	20 - 175		31-Oct-24 12:55	1
13C-1,2,3,7,8-PeCDD	IS		83.1	21 - 227		31-Oct-24 12:55	1
13C-1,2,3,4,7,8-HxCDD	IS		89.8	21 - 193		31-Oct-24 12:55	1
13C-1,2,3,6,7,8-HxCDD	IS		83.7	25 - 163		31-Oct-24 12:55	1
13C-1,2,3,7,8,9-HxCDD	IS		87.4	21 - 193		31-Oct-24 12:55	1
13C-1,2,3,4,6,7,8-HpCDD	IS		70.5	26 - 166		31-Oct-24 12:55	1
13C-OCDD	IS		56.6	13 - 199		31-Oct-24 12:55	1
13C-2,3,7,8-TCDF	IS		88.3	22 - 152		31-Oct-24 12:55	1
13C-1,2,3,7,8-PeCDF	IS		78.1	21 - 192		31-Oct-24 12:55	1
13C-2,3,4,7,8-PeCDF	IS		85.0	13 - 328		31-Oct-24 12:55	1
13C-1,2,3,4,7,8-HxCDF	IS		83.4	19 - 202		31-Oct-24 12:55	1
13C-1,2,3,6,7,8-HxCDF	IS		77.8	21 - 159		31-Oct-24 12:55	1
13C-2,3,4,6,7,8-HxCDF	IS		83.7	22 - 176		31-Oct-24 12:55	1
13C-1,2,3,7,8,9-HxCDF	IS		85.3	17 - 205		31-Oct-24 12:55	1
13C-1,2,3,4,6,7,8-HpCDF	IS		71.8	21 - 158		31-Oct-24 12:55	1
13C-1,2,3,4,7,8,9-HpCDF	IS		76.4	20 - 186		31-Oct-24 12:55	1
13C-OCDF	IS		66.3	13 - 199		31-Oct-24 12:55	1
37Cl-2,3,7,8-TCDD	CRS		106	31 - 191		31-Oct-24 12:55	1

Sample ID: BH_TRH_Pre Gab_20241021
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410125-01	Date Received:	23-Oct-24 09:51
Project:	Blue Heron	QC Batch:	B24J236	Date Extracted:	29-Oct-24
Matrix:	Water	Sample Size:	1.04 L	Column:	ZB-DIOXIN
Date Collected:	21-Oct-24 13:45				

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.506			01-Nov-24 02:52	1
1,2,3,7,8-PeCDD	ND	0.890			01-Nov-24 02:52	1
1,2,3,4,7,8-HxCDD	ND	1.01			01-Nov-24 02:52	1
1,2,3,6,7,8-HxCDD	ND	1.07			01-Nov-24 02:52	1
1,2,3,7,8,9-HxCDD	ND	1.13			01-Nov-24 02:52	1
1,2,3,4,6,7,8-HpCDD	6.56			J	01-Nov-24 02:52	1
OCDD	51.0				01-Nov-24 02:52	1
2,3,7,8-TCDF	ND	0.550			01-Nov-24 02:52	1
1,2,3,7,8-PeCDF	ND	0.553			01-Nov-24 02:52	1
2,3,4,7,8-PeCDF	ND	0.420			01-Nov-24 02:52	1
1,2,3,4,7,8-HxCDF	ND	0.613			01-Nov-24 02:52	1
1,2,3,6,7,8-HxCDF	ND	0.614			01-Nov-24 02:52	1
2,3,4,6,7,8-HxCDF	ND	0.626			01-Nov-24 02:52	1
1,2,3,7,8,9-HxCDF	ND	0.865			01-Nov-24 02:52	1
1,2,3,4,6,7,8-HpCDF	ND		1.42		01-Nov-24 02:52	1
1,2,3,4,7,8,9-HpCDF	ND	1.11			01-Nov-24 02:52	1
OCDF	1.35			J	01-Nov-24 02:52	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.0813
---------------------	--------

Totals

Total TCDD	ND	0.506				
Total PeCDD	ND	0.890				
Total HxCDD	ND	1.13				
Total HpCDD	13.4			J		
Total TCDF	ND	0.550				
Total PeCDF	ND	0.553				
Total HxCDF	1.35		2.30	J		
Total HpCDF	ND		4.10			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	85.4	25 - 164		01-Nov-24 02:52	1
13C-1,2,3,7,8-PeCDD	IS	78.5	25 - 181		01-Nov-24 02:52	1
13C-1,2,3,4,7,8-HxCDD	IS	79.9	32 - 141		01-Nov-24 02:52	1
13C-1,2,3,6,7,8-HxCDD	IS	74.5	28 - 130		01-Nov-24 02:52	1
13C-1,2,3,7,8,9-HxCDD	IS	76.1	32 - 141		01-Nov-24 02:52	1
13C-1,2,3,4,6,7,8-HpCDD	IS	65.0	23 - 140		01-Nov-24 02:52	1
13C-OCDD	IS	51.2	17 - 157		01-Nov-24 02:52	1
13C-2,3,7,8-TCDF	IS	88.8	24 - 169		01-Nov-24 02:52	1
13C-1,2,3,7,8-PeCDF	IS	74.3	24 - 185		01-Nov-24 02:52	1
13C-2,3,4,7,8-PeCDF	IS	79.4	21 - 178		01-Nov-24 02:52	1
13C-1,2,3,4,7,8-HxCDF	IS	77.5	26 - 152		01-Nov-24 02:52	1
13C-1,2,3,6,7,8-HxCDF	IS	72.4	26 - 123		01-Nov-24 02:52	1
13C-2,3,4,6,7,8-HxCDF	IS	77.4	28 - 136		01-Nov-24 02:52	1
13C-1,2,3,7,8,9-HxCDF	IS	77.2	29 - 147		01-Nov-24 02:52	1
13C-1,2,3,4,6,7,8-HpCDF	IS	63.6	28 - 143		01-Nov-24 02:52	1
13C-1,2,3,4,7,8,9-HpCDF	IS	68.8	26 - 138		01-Nov-24 02:52	1
13C-OCDF	IS	55.5	17 - 157		01-Nov-24 02:52	1
37Cl-2,3,7,8-TCDD	CRS	111	35 - 197		01-Nov-24 02:52	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

Sample ID: BH_TRH_Post Gab_20241021
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410125-02	Date Received:	23-Oct-24 09:51
Project:	Blue Heron	QC Batch:	B24J236	Date Extracted:	29-Oct-24
Matrix:	Water	Sample Size:	1.04 L	Column:	ZB-DIOXIN
Date Collected:	21-Oct-24 14:10				

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.476			01-Nov-24 03:38	1
1,2,3,7,8-PeCDD	ND	0.811			01-Nov-24 03:38	1
1,2,3,4,7,8-HxCDD	ND	0.667			01-Nov-24 03:38	1
1,2,3,6,7,8-HxCDD	ND	0.688			01-Nov-24 03:38	1
1,2,3,7,8,9-HxCDD	ND	0.729			01-Nov-24 03:38	1
1,2,3,4,6,7,8-HpCDD	6.54			J	01-Nov-24 03:38	1
OCDD	46.7			J	01-Nov-24 03:38	1
2,3,7,8-TCDF	ND	0.504			01-Nov-24 03:38	1
1,2,3,7,8-PeCDF	ND	0.437			01-Nov-24 03:38	1
2,3,4,7,8-PeCDF	ND	0.360			01-Nov-24 03:38	1
1,2,3,4,7,8-HxCDF	ND	0.455			01-Nov-24 03:38	1
1,2,3,6,7,8-HxCDF	ND	0.456			01-Nov-24 03:38	1
2,3,4,6,7,8-HxCDF	ND	0.494			01-Nov-24 03:38	1
1,2,3,7,8,9-HxCDF	ND	0.618			01-Nov-24 03:38	1
1,2,3,4,6,7,8-HpCDF	ND		1.38		01-Nov-24 03:38	1
1,2,3,4,7,8,9-HpCDF	ND	1.41			01-Nov-24 03:38	1
OCDF	ND		1.00		01-Nov-24 03:38	1

Toxic Equivalent

TEQMinWHO2005Dioxin 0.0794

Totals

Total TCDD	ND	0.476				
Total PeCDD	ND	0.811				
Total HxCDD	ND		1.50			
Total HpCDD	14.5			J		
Total TCDF	ND	0.504				
Total PeCDF	ND	0.437				
Total HxCDF	2.76			J		
Total HpCDF	2.97		4.34	J		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	85.0	25 - 164		01-Nov-24 03:38	1
13C-1,2,3,7,8-PeCDD	IS	78.1	25 - 181		01-Nov-24 03:38	1
13C-1,2,3,4,7,8-HxCDD	IS	81.0	32 - 141		01-Nov-24 03:38	1
13C-1,2,3,6,7,8-HxCDD	IS	75.0	28 - 130		01-Nov-24 03:38	1
13C-1,2,3,7,8,9-HxCDD	IS	78.7	32 - 141		01-Nov-24 03:38	1
13C-1,2,3,4,6,7,8-HpCDD	IS	64.7	23 - 140		01-Nov-24 03:38	1
13C-OCDD	IS	54.4	17 - 157		01-Nov-24 03:38	1
13C-2,3,7,8-TCDF	IS	86.6	24 - 169		01-Nov-24 03:38	1
13C-1,2,3,7,8-PeCDF	IS	73.6	24 - 185		01-Nov-24 03:38	1
13C-2,3,4,7,8-PeCDF	IS	79.2	21 - 178		01-Nov-24 03:38	1
13C-1,2,3,4,7,8-HxCDF	IS	77.8	26 - 152		01-Nov-24 03:38	1
13C-1,2,3,6,7,8-HxCDF	IS	72.0	26 - 123		01-Nov-24 03:38	1
13C-2,3,4,6,7,8-HxCDF	IS	78.5	28 - 136		01-Nov-24 03:38	1
13C-1,2,3,7,8,9-HxCDF	IS	78.6	29 - 147		01-Nov-24 03:38	1
13C-1,2,3,4,6,7,8-HpCDF	IS	66.5	28 - 143		01-Nov-24 03:38	1
13C-1,2,3,4,7,8,9-HpCDF	IS	66.7	26 - 138		01-Nov-24 03:38	1
13C-OCDF	IS	59.4	17 - 157		01-Nov-24 03:38	1
37Cl-2,3,7,8-TCDD	CRS	110	35 - 197		01-Nov-24 03:38	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

Sample ID: BH_TR1_Pre Gab_20241021
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410125-03	Date Received:	23-Oct-24 09:51
Project:	Blue Heron	QC Batch:	B24J236	Date Extracted:	29-Oct-24
Matrix:	Water	Sample Size:	1.03 L	Column:	ZB-DIOXIN
Date Collected:	21-Oct-24 15:00				

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.644			01-Nov-24 04:24	1
1,2,3,7,8-PeCDD	ND		1.55		01-Nov-24 04:24	1
1,2,3,4,7,8-HxCDD	3.31			J	01-Nov-24 04:24	1
1,2,3,6,7,8-HxCDD	11.8			J	01-Nov-24 04:24	1
1,2,3,7,8,9-HxCDD	5.14			J	01-Nov-24 04:24	1
1,2,3,4,6,7,8-HpCDD	235				01-Nov-24 04:24	1
OCDD	1900				01-Nov-24 04:24	1
2,3,7,8-TCDF	ND		1.85		01-Nov-24 04:24	1
1,2,3,7,8-PeCDF	ND	1.16			01-Nov-24 04:24	1
2,3,4,7,8-PeCDF	3.28			J	01-Nov-24 04:24	1
1,2,3,4,7,8-HxCDF	4.59			J	01-Nov-24 04:24	1
1,2,3,6,7,8-HxCDF	3.08			J	01-Nov-24 04:24	1
2,3,4,6,7,8-HxCDF	2.53			J	01-Nov-24 04:24	1
1,2,3,7,8,9-HxCDF	ND		0.402		01-Nov-24 04:24	1
1,2,3,4,6,7,8-HpCDF	86.8				01-Nov-24 04:24	1
1,2,3,4,7,8,9-HpCDF	ND		2.51		01-Nov-24 04:24	1
OCDF	76.3				01-Nov-24 04:24	1

Toxic Equivalent

TEQMinWHO2005Dioxin	7.84
---------------------	------

Totals

Total TCDD	3.86		5.80	J		
Total PeCDD	4.62		16.9	J		
Total HxCDD	97.3		102			
Total HpCDD	505					
Total TCDF	10.3		26.0			
Total PeCDF	32.3		42.6			
Total HxCDF	102					
Total HpCDF	194		197			

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	81.6	25 - 164		01-Nov-24 04:24	1
13C-1,2,3,7,8-PeCDD	IS	74.7	25 - 181		01-Nov-24 04:24	1
13C-1,2,3,4,7,8-HxCDD	IS	78.9	32 - 141		01-Nov-24 04:24	1
13C-1,2,3,6,7,8-HxCDD	IS	72.2	28 - 130		01-Nov-24 04:24	1
13C-1,2,3,7,8,9-HxCDD	IS	76.2	32 - 141		01-Nov-24 04:24	1
13C-1,2,3,4,6,7,8-HpCDD	IS	62.7	23 - 140		01-Nov-24 04:24	1
13C-OCDD	IS	56.7	17 - 157		01-Nov-24 04:24	1
13C-2,3,7,8-TCDF	IS	84.0	24 - 169		01-Nov-24 04:24	1
13C-1,2,3,7,8-PeCDF	IS	72.6	24 - 185		01-Nov-24 04:24	1
13C-2,3,4,7,8-PeCDF	IS	77.8	21 - 178		01-Nov-24 04:24	1
13C-1,2,3,4,7,8-HxCDF	IS	76.2	26 - 152		01-Nov-24 04:24	1
13C-1,2,3,6,7,8-HxCDF	IS	70.2	26 - 123		01-Nov-24 04:24	1
13C-2,3,4,6,7,8-HxCDF	IS	76.2	28 - 136		01-Nov-24 04:24	1
13C-1,2,3,7,8,9-HxCDF	IS	78.2	29 - 147		01-Nov-24 04:24	1
13C-1,2,3,4,6,7,8-HpCDF	IS	65.6	28 - 143		01-Nov-24 04:24	1
13C-1,2,3,4,7,8,9-HpCDF	IS	65.9	26 - 138		01-Nov-24 04:24	1
13C-OCDF	IS	59.6	17 - 157		01-Nov-24 04:24	1
37Cl-2,3,7,8-TCDD	CRS	111	35 - 197		01-Nov-24 04:24	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

Sample ID: BH_TR1_Post Gab_20241021
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2410125-04	Date Received:	23-Oct-24 09:51
Project:	Blue Heron	QC Batch:	B24J236	Date Extracted:	29-Oct-24
Matrix:	Water	Sample Size:	1.03 L	Column:	ZB-DIOXIN
Date Collected:	21-Oct-24 15:20				

Analyte	Conc. (pg/L)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.705			01-Nov-24 05:10	1
1,2,3,7,8-PeCDD	ND	0.891			01-Nov-24 05:10	1
1,2,3,4,7,8-HxCDD	ND	1.22			01-Nov-24 05:10	1
1,2,3,6,7,8-HxCDD	ND	1.39			01-Nov-24 05:10	1
1,2,3,7,8,9-HxCDD	ND	1.30			01-Nov-24 05:10	1
1,2,3,4,6,7,8-HpCDD	5.78			J	01-Nov-24 05:10	1
OCDD	24.7			J	01-Nov-24 05:10	1
2,3,7,8-TCDF	ND	0.652			01-Nov-24 05:10	1
1,2,3,7,8-PeCDF	ND	0.655			01-Nov-24 05:10	1
2,3,4,7,8-PeCDF	ND	0.503			01-Nov-24 05:10	1
1,2,3,4,7,8-HxCDF	ND	0.665			01-Nov-24 05:10	1
1,2,3,6,7,8-HxCDF	ND	0.693			01-Nov-24 05:10	1
2,3,4,6,7,8-HxCDF	ND	0.727			01-Nov-24 05:10	1
1,2,3,7,8,9-HxCDF	ND	0.970			01-Nov-24 05:10	1
1,2,3,4,6,7,8-HpCDF	0.922			J	01-Nov-24 05:10	1
1,2,3,4,7,8,9-HpCDF	ND	1.05			01-Nov-24 05:10	1
OCDF	ND	1.32			01-Nov-24 05:10	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.0744
---------------------	--------

Totals

Total TCDD	ND	0.705		
Total PeCDD	ND	0.891		
Total HxCDD	1.86		2.89	J
Total HpCDD	5.78		12.5	J
Total TCDF	ND	0.652		
Total PeCDF	ND	0.655		
Total HxCDF	ND	0.970		
Total HpCDF	0.922		1.87	J

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	79.1	25 - 164		01-Nov-24 05:10	1
13C-1,2,3,7,8-PeCDD	IS	71.6	25 - 181		01-Nov-24 05:10	1
13C-1,2,3,4,7,8-HxCDD	IS	72.1	32 - 141		01-Nov-24 05:10	1
13C-1,2,3,6,7,8-HxCDD	IS	68.2	28 - 130		01-Nov-24 05:10	1
13C-1,2,3,7,8,9-HxCDD	IS	70.6	32 - 141		01-Nov-24 05:10	1
13C-1,2,3,4,6,7,8-HpCDD	IS	58.0	23 - 140		01-Nov-24 05:10	1
13C-OCDD	IS	48.6	17 - 157		01-Nov-24 05:10	1
13C-2,3,7,8-TCDF	IS	83.0	24 - 169		01-Nov-24 05:10	1
13C-1,2,3,7,8-PeCDF	IS	68.2	24 - 185		01-Nov-24 05:10	1
13C-2,3,4,7,8-PeCDF	IS	73.5	21 - 178		01-Nov-24 05:10	1
13C-1,2,3,4,7,8-HxCDF	IS	69.0	26 - 152		01-Nov-24 05:10	1
13C-1,2,3,6,7,8-HxCDF	IS	66.0	26 - 123		01-Nov-24 05:10	1
13C-2,3,4,6,7,8-HxCDF	IS	71.5	28 - 136		01-Nov-24 05:10	1
13C-1,2,3,7,8,9-HxCDF	IS	69.9	29 - 147		01-Nov-24 05:10	1
13C-1,2,3,4,6,7,8-HpCDF	IS	58.1	28 - 143		01-Nov-24 05:10	1
13C-1,2,3,4,7,8,9-HpCDF	IS	60.8	26 - 138		01-Nov-24 05:10	1
13C-OCDF	IS	54.9	17 - 157		01-Nov-24 05:10	1
37Cl-2,3,7,8-TCDD	CRS	109	35 - 197		01-Nov-24 05:10	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

DATA QUALIFIERS & ABBREVIATIONS

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

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

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.

CoC/Label Reconciliation Report WO# 2410125

LabNumber	CoC Sample ID	Sample Alias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2410125-01	A BH_TRH_Pre Gab_20241021	☒	21-Oct-24 13:45	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-01	B BH_TRH_Pre Gab_20241021	☒	21-Oct-24 13:45	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-02	A BH_TRH_Post Gab_20241021	☒	21-Oct-24 14:10	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-02	B BH_TRH_Post Gab_20241021	☒	21-Oct-24 14:10	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-03	A BH_TR1_Pre Gab_20241021	☒	21-Oct-24 15:00	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-03	B BH_TR1_Pre Gab_20241021	☒	21-Oct-24 15:00	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-04	A BH_TR1_Post Gab_20241021	☒	21-Oct-24 15:20	☒	Amber Glass NM Bottle, 1L	Aqueous
2410125-04	B BH_TR1_Post Gab_20241021	☒	21-Oct-24 15:20	☒	Amber Glass NM Bottle, 1L	Aqueous

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

	Yes	No	NA	Comments:
Sample Container Intact?	☒			
Sample Custody Seals Intact?			☒	
Adequate Sample Volume?	☒			
Container Type Appropriate for Analysis(es)	☒			

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None Other

Verified by/Date: 16 10/23/24
WJS 10/23/24



December 26, 2024

**Enthalpy Analytical - El Dorado Hills
Work Order No. 2412064**

Mr. John Kuiper
WSP
7376 SW Durham Road
Portland, OR 97224

Dear Mr. Kuiper,

Enclosed are the results for the sample set received at Enthalpy Analytical - EDH on December 11, 2024 under your Project Name 'Blue Heron'.

Enthalpy Analytical - EDH is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at byron.clack@enthalpy.com.

Thank you for choosing Enthalpy Analytical - EDH as part of your analytical support team.

Sincerely,

A handwritten signature in black ink that reads 'Byron Clack'.

Byron Clack
Project Manager

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

Enthalpy Analytical - EDH Work Order No. 2412064

Case Narrative

Sample Condition on Receipt:

Three water samples and three soil samples were received and stored securely in accordance with Enthalpy Analytical - EDH standard operating procedures and EPA methodology. The samples were received in good condition and within the method temperature requirements.

Analytical Notes:

EPA Method 1613B (Aqueous)

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

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

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limit in the Method Blank. The OPR recoveries were within the method acceptance criteria.

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

EPA Method 1613B (Solid)

The samples were extracted and analyzed for tetra-through-octa chlorinated dioxins and furans by EPA Method 1613B using a ZB-DIOXIN GC column.

Holding Times

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

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected above the sample quantitation limit in the Method Blank. The OPR recoveries were within the method acceptance criteria.

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

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	4
Sample Inventory.....	5
Analytical Results.....	6
Qualifiers.....	12
Certifications.....	13
Sample Receipt.....	14

Sample Inventory Report

Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2412064-01	BH_DPSed#1_20241210	10-Dec-24 09:45	11-Dec-24 09:33	Amber Glass, 120 mL
2412064-02	BH_DPSed#2_20241210	10-Dec-24 10:00	11-Dec-24 09:33	Amber Glass, 120 mL
2412064-03	BH_DPSed#3_20241210	10-Dec-24 10:15	11-Dec-24 09:33	Amber Glass, 120 mL Amber Glass, 120 mL
2412064-04	BH_DPSW#1_20241210	10-Dec-24 10:30	11-Dec-24 09:33	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L
2412064-05	BH_DPSW#2_20241210	10-Dec-24 10:40	11-Dec-24 09:33	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L
2412064-06	BH_DPSW#3_20241210	10-Dec-24 10:45	11-Dec-24 09:33	Amber Glass NM Bottle, 1L Amber Glass NM Bottle, 1L

ANALYTICAL RESULTS

Sample ID: Method Blank
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	B24L138-BLK1	Date Extracted:	16-Dec-24
Project:	Blue Heron	QC Batch:	B24L138	Column:	ZB-DIOXIN
Matrix:	Solid	Sample Size:	10.0 g		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND	0.153			18-Dec-24 19:58	1
1,2,3,7,8-PeCDD	ND	0.173			18-Dec-24 19:58	1
1,2,3,4,7,8-HxCDD	ND	0.264			18-Dec-24 19:58	1
1,2,3,6,7,8-HxCDD	ND	0.286			18-Dec-24 19:58	1
1,2,3,7,8,9-HxCDD	ND	0.284			18-Dec-24 19:58	1
1,2,3,4,6,7,8-HpCDD	ND	0.350			18-Dec-24 19:58	1
OCDD	ND	0.337			18-Dec-24 19:58	1
2,3,7,8-TCDF	ND	0.0856			18-Dec-24 19:58	1
1,2,3,7,8-PeCDF	ND	0.104			18-Dec-24 19:58	1
2,3,4,7,8-PeCDF	ND	0.0785			18-Dec-24 19:58	1
1,2,3,4,7,8-HxCDF	ND	0.0908			18-Dec-24 19:58	1
1,2,3,6,7,8-HxCDF	ND	0.102			18-Dec-24 19:58	1
2,3,4,6,7,8-HxCDF	ND	0.108			18-Dec-24 19:58	1
1,2,3,7,8,9-HxCDF	ND	0.135			18-Dec-24 19:58	1
1,2,3,4,6,7,8-HpCDF	ND	0.115			18-Dec-24 19:58	1
1,2,3,4,7,8,9-HpCDF	ND	0.133			18-Dec-24 19:58	1
OCDF	ND	0.368			18-Dec-24 19:58	1

Toxic Equivalent

TEQMinWHO2005Dioxin	0.00
---------------------	------

Totals

Total TCDD	ND	0.153
Total PeCDD	ND	0.173
Total HxCDD	ND	0.286
Total HpCDD	ND	0.350
Total TCDF	ND	0.0856
Total PeCDF	ND	0.104
Total HxCDF	ND	0.135
Total HpCDF	ND	0.133

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	58.0	25 - 164		18-Dec-24 19:58	1
13C-1,2,3,7,8-PeCDD	IS	52.8	25 - 181		18-Dec-24 19:58	1
13C-1,2,3,4,7,8-HxCDD	IS	58.9	32 - 141		18-Dec-24 19:58	1
13C-1,2,3,6,7,8-HxCDD	IS	57.4	28 - 130		18-Dec-24 19:58	1
13C-1,2,3,7,8,9-HxCDD	IS	59.2	32 - 141		18-Dec-24 19:58	1
13C-1,2,3,4,6,7,8-HpCDD	IS	54.4	23 - 140		18-Dec-24 19:58	1
13C-OCDD	IS	57.2	17 - 157		18-Dec-24 19:58	1
13C-2,3,7,8-TCDF	IS	56.1	24 - 169		18-Dec-24 19:58	1
13C-1,2,3,7,8-PeCDF	IS	53.1	24 - 185		18-Dec-24 19:58	1
13C-2,3,4,7,8-PeCDF	IS	51.4	21 - 178		18-Dec-24 19:58	1
13C-1,2,3,4,7,8-HxCDF	IS	59.8	26 - 152		18-Dec-24 19:58	1
13C-1,2,3,6,7,8-HxCDF	IS	55.7	26 - 123		18-Dec-24 19:58	1
13C-2,3,4,6,7,8-HxCDF	IS	57.9	28 - 136		18-Dec-24 19:58	1
13C-1,2,3,7,8,9-HxCDF	IS	57.7	29 - 147		18-Dec-24 19:58	1
13C-1,2,3,4,6,7,8-HpCDF	IS	55.8	28 - 143		18-Dec-24 19:58	1
13C-1,2,3,4,7,8,9-HpCDF	IS	58.2	26 - 138		18-Dec-24 19:58	1
13C-OCDF	IS	57.0	17 - 157		18-Dec-24 19:58	1
37Cl-2,3,7,8-TCDD	CRS	61.5	35 - 197		18-Dec-24 19:58	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: OPR
EPA Method 1613B

Client Data				Laboratory Data			
Name:	WSP			Lab Sample:	B24L138-BS1		
Project:	Blue Heron			QC Batch:	B24L138	Date Extracted:	16-Dec-24 09:08
Matrix:	Solid			Sample Size:	10.0 g	Column:	ZB-DIOXIN

Analyte	Amt Found (pg/g)	Spike Amt	% Recovery	Limits	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	20.8	20.0	104	67 - 158		18-Dec-24 16:52	1
1,2,3,7,8-PeCDD	111	100	111	70 - 142		18-Dec-24 16:52	1
1,2,3,4,7,8-HxCDD	104	100	104	70 - 164		18-Dec-24 16:52	1
1,2,3,6,7,8-HxCDD	107	100	107	76 - 134		18-Dec-24 16:52	1
1,2,3,7,8,9-HxCDD	108	100	108	64 - 162		18-Dec-24 16:52	1
1,2,3,4,6,7,8-HpCDD	107	100	107	70 - 140		18-Dec-24 16:52	1
OCDD	238	200	119	78 - 144		18-Dec-24 16:52	1
2,3,7,8-TCDF	21.1	20.0	105	75 - 158		18-Dec-24 16:52	1
1,2,3,7,8-PeCDF	108	100	108	80 - 134		18-Dec-24 16:52	1
2,3,4,7,8-PeCDF	103	100	103	68 - 160		18-Dec-24 16:52	1
1,2,3,4,7,8-HxCDF	105	100	105	72 - 134		18-Dec-24 16:52	1
1,2,3,6,7,8-HxCDF	112	100	112	84 - 130		18-Dec-24 16:52	1
2,3,4,6,7,8-HxCDF	104	100	104	70 - 156		18-Dec-24 16:52	1
1,2,3,7,8,9-HxCDF	107	100	107	78 - 130		18-Dec-24 16:52	1
1,2,3,4,6,7,8-HpCDF	107	100	107	82 - 122		18-Dec-24 16:52	1
1,2,3,4,7,8,9-HpCDF	105	100	105	78 - 138		18-Dec-24 16:52	1
OCDF	205	200	103	63 - 170		18-Dec-24 16:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	76.8	20 - 175		18-Dec-24 16:52	1
13C-1,2,3,7,8-PeCDD	IS	68.1	21 - 227		18-Dec-24 16:52	1
13C-1,2,3,4,7,8-HxCDD	IS	72.5	21 - 193		18-Dec-24 16:52	1
13C-1,2,3,6,7,8-HxCDD	IS	70.5	25 - 163		18-Dec-24 16:52	1
13C-1,2,3,7,8,9-HxCDD	IS	74.4	21 - 193		18-Dec-24 16:52	1
13C-1,2,3,4,6,7,8-HpCDD	IS	66.3	26 - 166		18-Dec-24 16:52	1
13C-OCDD	IS	73.3	13 - 199		18-Dec-24 16:52	1
13C-2,3,7,8-TCDF	IS	72.8	22 - 152		18-Dec-24 16:52	1
13C-1,2,3,7,8-PeCDF	IS	69.9	21 - 192		18-Dec-24 16:52	1
13C-2,3,4,7,8-PeCDF	IS	73.0	13 - 328		18-Dec-24 16:52	1
13C-1,2,3,4,7,8-HxCDF	IS	75.6	19 - 202		18-Dec-24 16:52	1
13C-1,2,3,6,7,8-HxCDF	IS	71.3	21 - 159		18-Dec-24 16:52	1
13C-2,3,4,6,7,8-HxCDF	IS	72.5	22 - 176		18-Dec-24 16:52	1
13C-1,2,3,7,8,9-HxCDF	IS	73.7	17 - 205		18-Dec-24 16:52	1
13C-1,2,3,4,6,7,8-HpCDF	IS	69.1	21 - 158		18-Dec-24 16:52	1
13C-1,2,3,4,7,8,9-HpCDF	IS	70.4	20 - 186		18-Dec-24 16:52	1
13C-OCDF	IS	74.8	13 - 199		18-Dec-24 16:52	1
37Cl-2,3,7,8-TCDD	CRS	82.0	31 - 191		18-Dec-24 16:52	1

Sample ID: BH_DPSed#1_20241210
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2412064-01	Date Received:	11-Dec-24 09:33
Project:	Blue Heron	QC Batch:	B24L138	Date Extracted:	16-Dec-24
Matrix:	Soil	Sample Size:	12.8 g	Column:	ZB-DIOXIN
Date Collected:	10-Dec-24 09:45	% Solids:	78.6		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	1.53				19-Dec-24 11:30	1
1,2,3,7,8-PeCDD	2.17			J	19-Dec-24 11:30	1
1,2,3,4,7,8-HxCDD	1.64			J	19-Dec-24 11:30	1
1,2,3,6,7,8-HxCDD	8.04				19-Dec-24 11:30	1
1,2,3,7,8,9-HxCDD	5.68				19-Dec-24 11:30	1
1,2,3,4,6,7,8-HpCDD	166				19-Dec-24 11:30	1
OCDD	1630				19-Dec-24 11:30	1
2,3,7,8-TCDF	2.50				19-Dec-24 11:30	1
1,2,3,7,8-PeCDF	1.29			J	19-Dec-24 11:30	1
2,3,4,7,8-PeCDF	3.68				19-Dec-24 11:30	1
1,2,3,4,7,8-HxCDF	5.32				19-Dec-24 11:30	1
1,2,3,6,7,8-HxCDF	3.45				19-Dec-24 11:30	1
2,3,4,6,7,8-HxCDF	1.28			J	19-Dec-24 11:30	1
1,2,3,7,8,9-HxCDF	0.609			J	19-Dec-24 11:30	1
1,2,3,4,6,7,8-HpCDF	33.9				19-Dec-24 11:30	1
1,2,3,4,7,8,9-HpCDF	3.46				19-Dec-24 11:30	1
OCDF	57.8				19-Dec-24 11:30	1

Toxic Equivalent

TEQMinWHO2005Dioxin	10.2
---------------------	------

Totals

Total TCDD	6.45	9.51
Total PeCDD	13.8	16.5
Total HxCDD	73.2	
Total HpCDD	341	
Total TCDF	22.1	30.3
Total PeCDF	43.6	44.4
Total HxCDF	64.4	
Total HpCDF	91.5	92.5

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	73.9	25 - 164		19-Dec-24 11:30	1
13C-1,2,3,7,8-PeCDD	IS	75.4	25 - 181		19-Dec-24 11:30	1
13C-1,2,3,4,7,8-HxCDD	IS	70.9	32 - 141		19-Dec-24 11:30	1
13C-1,2,3,6,7,8-HxCDD	IS	70.1	28 - 130		19-Dec-24 11:30	1
13C-1,2,3,7,8,9-HxCDD	IS	71.3	32 - 141		19-Dec-24 11:30	1
13C-1,2,3,4,6,7,8-HpCDD	IS	77.7	23 - 140		19-Dec-24 11:30	1
13C-OCDD	IS	74.0	17 - 157		19-Dec-24 11:30	1
13C-2,3,7,8-TCDF	IS	77.4	24 - 169		19-Dec-24 11:30	1
13C-1,2,3,7,8-PeCDF	IS	69.6	24 - 185		19-Dec-24 11:30	1
13C-2,3,4,7,8-PeCDF	IS	68.2	21 - 178		19-Dec-24 11:30	1
13C-1,2,3,4,7,8-HxCDF	IS	72.9	26 - 152		19-Dec-24 11:30	1
13C-1,2,3,6,7,8-HxCDF	IS	72.4	26 - 123		19-Dec-24 11:30	1
13C-2,3,4,6,7,8-HxCDF	IS	71.6	28 - 136		19-Dec-24 11:30	1
13C-1,2,3,7,8,9-HxCDF	IS	74.2	29 - 147		19-Dec-24 11:30	1
13C-1,2,3,4,6,7,8-HpCDF	IS	74.2	28 - 143		19-Dec-24 11:30	1
13C-1,2,3,4,7,8,9-HpCDF	IS	80.7	26 - 138		19-Dec-24 11:30	1
13C-OCDF	IS	78.1	17 - 157		19-Dec-24 11:30	1
37Cl-2,3,7,8-TCDD	CRS	80.7	35 - 197		19-Dec-24 11:30	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_DPSed#2_20241210
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2412064-02	Date Received:	11-Dec-24 09:33
Project:	Blue Heron	QC Batch:	B24L138	Date Extracted:	16-Dec-24
Matrix:	Soil	Sample Size:	13.2 g	Column:	ZB-DIOXIN
Date Collected:	10-Dec-24 10:00	% Solids:	76.5		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.737		19-Dec-24 12:15	1
1,2,3,7,8-PeCDD	5.55				19-Dec-24 12:15	1
1,2,3,4,7,8-HxCDD	5.10				19-Dec-24 12:15	1
1,2,3,6,7,8-HxCDD	20.0				19-Dec-24 12:15	1
1,2,3,7,8,9-HxCDD	11.6				19-Dec-24 12:15	1
1,2,3,4,6,7,8-HpCDD	414				19-Dec-24 12:15	1
OCDD	4680				19-Dec-24 12:15	1
2,3,7,8-TCDF	3.13				19-Dec-24 12:15	1
1,2,3,7,8-PeCDF	1.96			J	19-Dec-24 12:15	1
2,3,4,7,8-PeCDF	3.05				19-Dec-24 12:15	1
1,2,3,4,7,8-HxCDF	9.82				19-Dec-24 12:15	1
1,2,3,6,7,8-HxCDF	4.53				19-Dec-24 12:15	1
2,3,4,6,7,8-HxCDF	4.99				19-Dec-24 12:15	1
1,2,3,7,8,9-HxCDF	1.55			J	19-Dec-24 12:15	1
1,2,3,4,6,7,8-HpCDF	84.8				19-Dec-24 12:15	1
1,2,3,4,7,8,9-HpCDF	5.83				19-Dec-24 12:15	1
OCDF	327				19-Dec-24 12:15	1

Toxic Equivalent

TEQMinWHO2005Dioxin	19.1
---------------------	------

Totals

Total TCDD	4.60	6.07
Total PeCDD	23.1	29.9
Total HxCDD	136	
Total HpCDD	869	
Total TCDF	46.8	52.1
Total PeCDF	101	102
Total HxCDF	149	
Total HpCDF	330	

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	75.2	25 - 164		19-Dec-24 12:15	1
13C-1,2,3,7,8-PeCDD	IS	73.4	25 - 181		19-Dec-24 12:15	1
13C-1,2,3,4,7,8-HxCDD	IS	72.9	32 - 141		19-Dec-24 12:15	1
13C-1,2,3,6,7,8-HxCDD	IS	70.5	28 - 130		19-Dec-24 12:15	1
13C-1,2,3,7,8,9-HxCDD	IS	70.1	32 - 141		19-Dec-24 12:15	1
13C-1,2,3,4,6,7,8-HpCDD	IS	73.5	23 - 140		19-Dec-24 12:15	1
13C-OCDD	IS	74.5	17 - 157		19-Dec-24 12:15	1
13C-2,3,7,8-TCDF	IS	72.8	24 - 169		19-Dec-24 12:15	1
13C-1,2,3,7,8-PeCDF	IS	68.4	24 - 185		19-Dec-24 12:15	1
13C-2,3,4,7,8-PeCDF	IS	68.1	21 - 178		19-Dec-24 12:15	1
13C-1,2,3,4,7,8-HxCDF	IS	72.3	26 - 152		19-Dec-24 12:15	1
13C-1,2,3,6,7,8-HxCDF	IS	70.4	26 - 123		19-Dec-24 12:15	1
13C-2,3,4,6,7,8-HxCDF	IS	69.8	28 - 136		19-Dec-24 12:15	1
13C-1,2,3,7,8,9-HxCDF	IS	69.8	29 - 147		19-Dec-24 12:15	1
13C-1,2,3,4,6,7,8-HpCDF	IS	71.3	28 - 143		19-Dec-24 12:15	1
13C-1,2,3,4,7,8,9-HpCDF	IS	76.0	26 - 138		19-Dec-24 12:15	1
13C-OCDF	IS	75.2	17 - 157		19-Dec-24 12:15	1
37Cl-2,3,7,8-TCDD	CRS	82.1	35 - 197		19-Dec-24 12:15	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: BH_DPSed#3_20241210
EPA Method 1613B

Client Data		Laboratory Data			
Name:	WSP	Lab Sample:	2412064-03	Date Received:	11-Dec-24 09:33
Project:	Blue Heron	QC Batch:	B24L138	Date Extracted:	16-Dec-24
Matrix:	Soil	Sample Size:	15.3 g	Column:	ZB-DIOXIN
Date Collected:	10-Dec-24 10:15	% Solids:	66.4		

Analyte	Conc. (pg/g)	EDL	EMPC	Qualifiers	Analyzed	Dilution
2,3,7,8-TCDD	ND		0.439		19-Dec-24 13:01	1
1,2,3,7,8-PeCDD	ND		0.415		19-Dec-24 13:01	1
1,2,3,4,7,8-HxCDD	1.25			J	19-Dec-24 13:01	1
1,2,3,6,7,8-HxCDD	5.09				19-Dec-24 13:01	1
1,2,3,7,8,9-HxCDD	2.78				19-Dec-24 13:01	1
1,2,3,4,6,7,8-HpCDD	95.2				19-Dec-24 13:01	1
OCDD	1090				19-Dec-24 13:01	1
2,3,7,8-TCDF	2.08				19-Dec-24 13:01	1
1,2,3,7,8-PeCDF	ND		0.694		19-Dec-24 13:01	1
2,3,4,7,8-PeCDF	1.56			J	19-Dec-24 13:01	1
1,2,3,4,7,8-HxCDF	ND		1.78		19-Dec-24 13:01	1
1,2,3,6,7,8-HxCDF	1.51			J	19-Dec-24 13:01	1
2,3,4,6,7,8-HxCDF	1.22			J	19-Dec-24 13:01	1
1,2,3,7,8,9-HxCDF	ND	0.876			19-Dec-24 13:01	1
1,2,3,4,6,7,8-HpCDF	19.0				19-Dec-24 13:01	1
1,2,3,4,7,8,9-HpCDF	ND		1.62		19-Dec-24 13:01	1
OCDF	40.2				19-Dec-24 13:01	1

Toxic Equivalent

TEQMinWHO2005Dioxin	3.34
---------------------	------

Totals

Total TCDD	ND	2.30
Total PeCDD	3.42	7.42
Total HxCDD	42.5	
Total HpCDD	223	
Total TCDF	9.91	13.4
Total PeCDF	15.6	17.5
Total HxCDF	26.3	28.5
Total HpCDF	48.5	50.1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Analyzed	Dilution
13C-2,3,7,8-TCDD	IS	44.0	25 - 164		19-Dec-24 13:01	1
13C-1,2,3,7,8-PeCDD	IS	45.1	25 - 181		19-Dec-24 13:01	1
13C-1,2,3,4,7,8-HxCDD	IS	44.8	32 - 141		19-Dec-24 13:01	1
13C-1,2,3,6,7,8-HxCDD	IS	44.4	28 - 130		19-Dec-24 13:01	1
13C-1,2,3,7,8,9-HxCDD	IS	41.6	32 - 141		19-Dec-24 13:01	1
13C-1,2,3,4,6,7,8-HpCDD	IS	46.4	23 - 140		19-Dec-24 13:01	1
13C-OCDD	IS	47.0	17 - 157		19-Dec-24 13:01	1
13C-2,3,7,8-TCDF	IS	41.8	24 - 169		19-Dec-24 13:01	1
13C-1,2,3,7,8-PeCDF	IS	42.0	24 - 185		19-Dec-24 13:01	1
13C-2,3,4,7,8-PeCDF	IS	41.1	21 - 178		19-Dec-24 13:01	1
13C-1,2,3,4,7,8-HxCDF	IS	45.3	26 - 152		19-Dec-24 13:01	1
13C-1,2,3,6,7,8-HxCDF	IS	43.2	26 - 123		19-Dec-24 13:01	1
13C-2,3,4,6,7,8-HxCDF	IS	40.2	28 - 136		19-Dec-24 13:01	1
13C-1,2,3,7,8,9-HxCDF	IS	40.1	29 - 147		19-Dec-24 13:01	1
13C-1,2,3,4,6,7,8-HpCDF	IS	46.1	28 - 143		19-Dec-24 13:01	1
13C-1,2,3,4,7,8,9-HpCDF	IS	47.7	26 - 138		19-Dec-24 13:01	1
13C-OCDF	IS	47.4	17 - 157		19-Dec-24 13:01	1
37Cl-2,3,7,8-TCDD	CRS	48.4	35 - 197		19-Dec-24 13:01	1

EDL - Sample specific estimated detection limit

EMPC - Estimated maximum possible concentration

The results are reported in dry weight.

The sample size is reported in wet weight.

DATA QUALIFIERS & ABBREVIATIONS

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

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

Enthalpy Analytical - EDH Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	2211390
Nevada Division of Environmental Protection	CA00413
New Hampshire Environmental Accreditation Program	207721
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-021
Texas Commission on Environmental Quality	T104704189-22-13
Vermont Department of Health	VT-4042
Virginia Department of General Services	11276
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters can be found at Enthalpy.com/Resources/Accreditations.



Laboratory Project ID: 2412064 Temp: 1.8 °C
Storage ID: WR-2 Storage Secured: ☒ Yes ☐ No

TAT Standard: ☒ 21 days
(check one): Rush (surcharge may apply)
☐ 14 days ☐ 7 days Other:

[illegible]

Name: _____
 Company: _____
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: _____
 Email: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other;

CoC/Label Reconciliation Report WO# 2412064

LabNumber	CoC Sample ID	SampleAlias	Sample Date/Time	Container	BaseMatrix	Sample Comments
2412064-01	A BH_DPSed#1_20241210	Blue Heron	10-Dec-24 09:45	Amber Glass, 120 mL	Solid	
2412064-02	A BH_DPSed#2_20241210	Blue Heron	10-Dec-24 10:00	Amber Glass, 120 mL	Solid	
2412064-03	A BH_DPSed#3_20241210	Blue Heron	10-Dec-24 10:15	Amber Glass, 120 mL	Solid	
2412064-03	B BH_DPSed#3_20241210	Blue Heron	10-Dec-24 10:15	Amber Glass, 120 mL	Solid	
2412064-04	A BH_DPSW#1_20241210	Blue Heron	10-Dec-24 10:30	Amber Glass NM Bottle, 1L	Aqueous	
2412064-04	B BH_DPSW#1_20241210	Blue Heron	10-Dec-24 10:30	Amber Glass NM Bottle, 1L	Aqueous	
2412064-05	A BH_DPSW#2_20241210	Blue Heron	10-Dec-24 10:40	Amber Glass NM Bottle, 1L	Aqueous	
2412064-05	B BH_DPSW#2_20241210	Blue Heron	10-Dec-24 10:40	Amber Glass NM Bottle, 1L	Aqueous	
2412064-06	A BH_DPSW#3_20241210	Blue Heron	10-Dec-24 10:45	Amber Glass NM Bottle, 1L	Aqueous	
2412064-06	B BH_DPSW#3_20241210	Blue Heron	10-Dec-24 10:45	Amber Glass NM Bottle, 1L	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.

Any discrepancies are noted in the following columns.

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

Comments: ③ underlined part updated to "underscore" symbol was 12/11/24

Preservation Documented: Na2S2O3 Trizma NH4CH3CO2 None Other

Verified by/Date: 1/2 12/11/24
WDS 12/11/24