2022 Site Investigation Report – Rev1

Calder Limestone Mine
Calder Bay, Prince of Wales Island, Alaska
Hazard Identification Number 4069
ADEC File Number 1532.38.001

Prepared for:

Columbia River Carbonates
300 North Pekin Road
Woodland, Washington

March 8, 2023

Prepared by:

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Columbia River Carbonates
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HydroCon Project No: 2015-010

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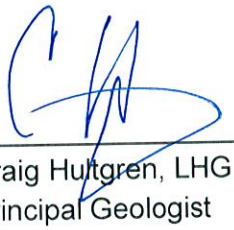

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1.0 INTRODUCTION

This 2022 Site Investigation Report has been prepared to document soil and groundwater sampling results performed in 2022 at the Calder Mine facility on Prince of Wales Island, Alaska. Work performed during this phase of the investigation by HydroCon followed the scope of work documented in the approved work plan[1].

1.1 *Site Description*

The site is located in the northwest portion of the Prince of Wales Island in Alaska (Figure 1). It is currently operating as a calcium carbonate mine, owned and operated by Columbia River Carbonates (CRC). The site includes an open-pit calcium carbonate mine, loading/barge area, fueling station, shop area, and camp site. Additional site improvements include gravel access roadways, diesel power generators, and a potable water storage/treatment system.

The potable water supply for the site comes from a spring located in the uplands above the Camp area (Figure 2). Water from the spring is routed via piping to a water treatment system consisting of poly storage tanks and a filtration system prior to use at the Camp. The location of this system is shown on Figure 3.

The Fueling Station (Figure 4) consists of two 20,000-gallon above ground storage tanks (ASTs) that supplies fuel to operate the machinery and generators at the site. This area of the site is located near the top of a ridge along the haul road where limestone is transported to the dock area. The area located on the south side of the haul road contains the two ASTs, fuel pump, and two large diesel generators. This area was blasted with dynamite to remove limestone bedrock to create an area to place these features. The area north of the haul road was likely filled with the blasted material along with rock mined at the site to create a level surface to construct the shop building and large parking area.

1.2 *Geology*

Prince of Wales Island is located within the Alexander Archipelago of Southeast Alaska. This region is composed of complex geology. Some of the region's bedrock was formed within 15 degrees of the equator and has been transported northward via seafloor spreading and ocean plate movement to its present location. The ocean crust conveyor belt moved fragments of original bedrock across the northeastern Pacific and caused their accretion onto ancient North America. Within the last 30,000 years the Archipelago has been scoured and shaped by glaciation and subsequently flooded by sea level rise.

Local geology at the Calder Mine site includes limestone which has locally been overlain by marine sediment. Soil encountered during subsurface excavation in the Camp Generator area consists of fine grain marine sediment, shells, and abundant wood debris. Soil at the Fueling Station consists of limestone fill generated from mining activities overlying native limestone bedrock. The upper 2 to 3 feet of the native

[1] HydroCon, *2022 Soil and Groundwater Sampling Work Plan*, September 16, 2022.

limestone is weathered and becomes more competent with depth. Perched groundwater is locally present near the contact of the fill and limestone bedrock near the 20,000-gallon ASTs.

1.3 *Site Environmental Investigation History*

This section provides a summary of environmental investigations performed at the site.

1.3.1 Carson Dorn, Inc.

In July 2004, Carson Dorn, Inc. (CDI) conducted a site assessment of the subject site. During the assessment, diesel contaminated soils were observed adjacent to the Camp Generator, downhill from the two 20,000-gallon diesel aboveground storage tanks (ASTs), also known as the Fueling Station, and in an existing stockpile of soil. CDI also noted the presence of a drum storage area west of the Fueling Station. These and other site features are shown on Figure 2.

CDI collected five soil samples during the site assessment. Soil analytical results indicated that the existing 15 cubic yard stockpile (Sample C-1) had a diesel range organics (DRO) concentration of 4,780 milligrams per kilogram (mg/kg). The two soil samples collected from Camp Generator area had a DRO concentration of 9,750 mg/kg near the 500-gallon diesel AST used to supply the generator (Sample G-2) and 485,000 mg/kg at the door of the Camp Generator (Sample G-1). In the Fueling Station area, a sample collected from the end of the westerly 20,000 AST had a DRO concentration of 16,400 mg/kg. The Method Two Alaska Department of Environmental Conservation (ADEC) cleanup level for DRO is 230 mg/kg.

In August 2004, CDI performed a drum inventory at the site. A total of 93 drums were present. Eighty of the drums were located in the drum storage area next to the Fueling Station and the remainder of the drums was located in the Shop area. The contents of the drums included new and used gasoline, diesel, oil, grease, antifreeze, and water. The contents were consolidated into 51 drums and shipped off the island for recycling.

In September 2004, CDI provided oversight for the removal of contaminated soil by excavation from the Camp area and Fueling Station. An estimated total of 100 cubic yards of soil was generated from the two excavations and from the 15 cubic yard stockpile and placed into an approximately 22’W x 60’L x 2’H (~100 cubic yards) bioremediation cell constructed on the site. This stockpile is referred to as the CDI Stockpile.

1.3.2 Due Diligence Investigation

On September 30, 2004, PNG Environmental (PNG) toured the site to observe site features and remedial action taken at the site by CDI as part of a due diligence investigation for a prospective purchaser. Mr. Larry Wilkenson (CDI’s representative) and Mr. David Oliver (SeaCal's Vice President) provided access to the site and assistance in explanation of site operations. After the tour was complete, PNG returned to selected areas of potential concern to collect soil samples for chemical analysis. A description of these tasks is provided below.

Areas investigated included walking the fuel delivery line from the fuel header to the two 18,000-gallon diesel ASTs, observation of the former drum storage area, machine shop, laboratory, Fueling Station, landfill, bone yard, rock crushing area, active mining area, bioremediation cell, camp, and the parking area near the small dock used for small watercraft and float plane boarding. The location of these areas is shown on Figures 1 through 5 in the report[2].

PNG collected a total of 22 surface soil samples from selected areas of the site that exhibited hydrocarbon impacts (visible stain and/or odor) to assess soil conditions. PNG purposely collected surface soil samples in areas exhibiting hydrocarbon impact or in locations where worst-case conditions were likely to be present (i.e., under elevated heating oil fuel storage tanks, drum storage area, pipe joints, near aboveground storage tanks, landfill, etc.). Surface soil samples were collected from these potential source areas as well as from two areas where soil remediation was conducted by CDI (Camp Generator and Fueling Station) using a clean shovel and a new pair of nitrile gloves. Samples were placed in labeled laboratory-prepared glass jars and sealed with a Teflon-lined lid. The samples were placed in a chilled cooler and shipped to Friedman & Bruya laboratory in Seattle, Washington along with chain-of-custody documentation for chemical analysis. The soil sample locations are shown on Figures 2 through 4 and the soil analytical data is summarized in Tables 1 through 4 of the report.

As noted in ADEC's request for a work plan[3], several of the soil samples collected during the due diligence investigation had concentrations of petroleum fuel related contaminants above their respective cleanup level. It should be noted that the due diligence soil samples were generally collected in areas of visibly stained surface soil and likely represented the worst-case scenario as far as contaminant concentrations at each location that was sampled.

1.3.3 Independent Cleanup - 2012

In 2012, CRC performed a remedial excavation near the Camp Generators. Visibly stained soil was removed from the area south of the generator. The excavation measured approximately 50' x 30'. The depth of the excavation was approximately 6 feet below ground surface (bgs). No confirmation samples were collected at that time. The contaminated soil was transported to the onsite bioremediation cell staging area. The soil was placed on and covered with heavy gauge plastic sheeting. Two stockpiles were created: 35'L x 16'W x 3.5'H (approximately 135 cubic yards) and 30'L x 10'W x 1.5'H (approximately 16 cubic yards). These stockpiles are referred to as the CRC1 and CRC2 Stockpiles, respectively. Anecdotal information indicated that most of the areas of surface staining identified by PNG during the due diligence investigation were excavated to remove petroleum impacted soil prior to CRC's ownership of the property. However, there's no report documenting this action.

1.3.4 HydroCon Investigation 2015

In August 2015 HydroCon personnel mobilized to the site to provide oversight and direction of remedial excavation in the two areas of known contamination (Camp Generator and Fueling Station)[4]. Southeast Road Builders Construction Company (subcontractor for CRC) performed the excavation using a Cat

[2] PNG. *Soil Sampling at the Calder Limestone Mine*, November 11, 2004.
[3] ADEC, *Request for Work Plan*, December 18, 2017.

336E trackhoe. All PCS was placed into a dump truck and hauled to the newly constructed biotreatment cell area referred to as the HydroCon Stockpile (Figure 2). Excavation activities were completed in both areas until either field screening indicated that the contamination was no longer present or camp infrastructure (generator and ASTs) presented obstruction for further remedial activities. Confirmation soil samples were collected from both excavation areas. Soil removed from the excavation was placed in the HydroCon stockpile. The soil within the stockpile was fertilized at a rate of 400 pounds urea and 100 pounds of phosphorus potassium fertilizer mix per 100 cubic yards of soil. The soil was mixed using the excavator bucket. After mixing, 10 mm polyethylene liners were placed over the stockpiled soil. In addition, HydroCon completed sampling of the existing stockpiles (CDI, CRC1, and CRC2) to assess remediation progress.

1.3.5 HydroCon Investigations 2016

On April 7, 2016, HydroCon returned to the site to perform additional remedial excavation work. Prior to HydroCon's arrival, CRC moved the generator and AST to a different location at the Camp to provide further access to perform additional remedial excavation work. HydroCon directed remedial excavation of approximately 200 cubic yards of PCS at the Camp Generator area[5]. Excavation began at the northern limit of the 2015 excavation and proceeded northward to as close to the banks of the wetland drainage ditch, Camp mess hall, and water treatment system as possible. Southeast Road Builders Construction Company performed the excavation using a Cat 336E trackhoe. All PCS was placed into a dump truck and hauled to the HydroCon Stockpile (Figure 2). The PCS was placed on top of new 30-mil plastic geomembrane, as described in the approved work plan.

As the soil was excavated (using an approximately 1.5 cubic yard excavator bucket) it was fertilized at a rate of 6 pounds urea and 1.5 pounds of phosphorus potassium fertilizer mix per 1.5 cubic yards of soil. The soil was mixed as it was placed into the truck and again as it was placed into the stockpile. After the completion of excavation activities, 10 mm polyethylene liners were placed over the stockpiled soil.

On September 27, 2016, HydroCon returned to the site to direct the excavation of 9 exploratory test pits (TP-1 through TP-9) to delineate the lateral extent of PCS near the Fueling Station (Figure 3), as requested by ADEC. Southeast Road Builders Construction Company performed the excavations using a Cat 336E trackhoe. The test pits were advanced until bedrock was encountered [ranging from approximately 4 to 5.5 feet below ground surface (bgs)]. One exception was test pit TP-2 where buried electrical lines were encountered at a depth of approximately 3 feet bgs. A soil sample was collected from the bottom of each test pit for analysis. Diesel was detected in three samples (TP2-3, TP4-4, and TP8-4.5) at a concentration up to 160 mg/kg which is below the cleanup level for diesel. Results of the investigation indicated that the lateral extent of petroleum contaminated soil has been fully characterized at the Fueling Station area of the site.

On September 28, 2016, HydroCon sampled the existing stockpiles (CRC1 and HydroCon) to assess remediation progress. Soil analytical results from the CRC1 stockpile indicated that three of the twelve stockpile samples exceeded the cleanup level for DRO. Soil analytical results of the HydroCon stockpile

[4] HydroCon. *Remedial Excavation and Soil Sampling Report*, October 25, 2015.
[5] HydroCon. *Remedial Excavation and Soil Sampling Report,* May 26, 2016.

indicated that all but one sample (HS-18) exceeded the cleanup level for DRO. HydroCon determined that further remediation and sampling was required before the stockpiles could be closed. HydroCon recommended that no additional sample be performed at the stockpiles until enough time (2 years) had passed to allow the enhanced natural attenuation processes to reduce the concentration of COCs in the two stockpiles.

1.3.6 HydroCon Investigation - 2018

In September 2018 HydroCon travelled to the site to perform soil, surface water, and groundwater sampling at the site following ADEC-approved work plan. The approved work plan addressed the request from ADEC to sample the areas of soil and groundwater contamination that exceeded one or more of ADEC's CULs during the PNG due diligence investigation.

Soil sampling was performed at the site to assess soil quality at historic sampling locations that had elevated concentrations of contaminants during the 2004 due diligence investigation and to assess remediation progress in the two soil stockpiles. A groundwater monitoring well (MW-1) was installed at the Fueling Station area near the footprint of the remedial excavation performed in 2016 to assess groundwater conditions. A surface water sample was also collected from the drainage ditch located adjacent (north) of the Camp Generator area where a release of diesel reportedly occurred.

In general, soil analytical results of the sampling at the historic sampling locations indicated that, with the exception CS-4/Camp AST-3 sampling location, the soil quality had improved significantly compared to the 2004 results. However, some of the soil results exceeded their respective ADEC Method 2 cleanup level and remedial action was recommended.

Results of the soil sampling in the two stockpiles indicated that significant progress in contaminant reduction was seen in both stockpiles compared to the previous sampling event. However, further remediation is required to achieve regulatory closure.

Two borings were drilled at the site using an air rotary rig. Boring HC-1 was drilled to 30 feet bgs to observe geologic conditions and the presence of groundwater bearing zones. Results of the drilling indicated that fill soil composed of sand, silt, and gravel is present from ground surface to approximately 7 feet bgs. Limestone bedrock is the original surface in this area and is present from approximately 7 feet bgs to a depth greater than 30 feet bgs. Perched groundwater is present at the interface of the fill and bedrock. Groundwater was not encountered in the limestone to a depth of 30 feet bgs. Monitoring well MW-1 was drilled next to HC-1 and installed to a depth of 8 feet bgs to monitor the perched aquifer. The well was developed and sampled. Groundwater analytical results indicated DRO is present in the well in excess of the ADEC Method 2 cleanup level.

The drainage ditch located north of the Camp Generator was sampled. Analytical results indicated that water quality in the drainage ditch is in compliance with ADEC's Water Quality Standards for Water Supply Aquaculture.

HydroCon prepared a report documenting the results of the investigation[6] including recommendations for remedial action at historic sampling locations that have contamination above ADEC Method 2 cleanup levels and perform further augmentation and tilling of the soil stockpiles to reduce contaminant concentrations. A conceptual site model (CSM) was prepared for the site and included in the report.

[6] HydroCon, *Soil and Groundwater Sampling Report – 2018*, November 28, 2018

1.3.7 HydroCon Investigation - 2019

In August 2019 HydroCon visited the site to perform remedial excavation work, well installation, groundwater sampling and performance sampling of two soil stockpiles.

Remedial excavations were performed at historic sampling locations that had concentrations of DRO above the CUL including two places in the Fueling Station Area (CS-6 and CS-8) and one place in the Camp Area (CS-4). These sampling locations are referred to as their original sample identification number (CS-4 located on the southwestern corner of the Bunkhouse in the Camp Area; CS-6 located south of the western-most 20,000-gallon AST; and CS-8 located southeast of the SW generator).

Although a significant amount of contamination was removed from each of the three remedial excavations, there is still soil remaining at each location that has DRO above the CUL. Two of the locations (CS-4 in the Camp Area and CS-6 in the Fueling Station area) have a portion of the remaining soil above the CUL that can't be excavated due to physical constraints (i.e., the Bunkhouse at CS-4 and the 20,000-gallon AST at CS-6). Further remedial excavation was performed in 2021 and is documented in Section 2 of this report. Soil from the remedial excavations was placed into a newly constructed stockpile (HydroCon2) located along the Haul Road.

Two monitoring wells (MW-2 and MW-3) were installed in the Fueling Station area to supplement monitoring well MW-1. Monitoring well MW-3 was dry and MW-2 had to be drilled significantly deeper than MW-1 in order to find a water bearing zone. The wells were developed and sampled (MW-1 and MW-2 only).

Soil sampling was performed at the two active soil stockpiles. Results indicated significant reduction in contamination concentrations in both stockpiles. HydroCon prepared a report to document the results of the investigation. A copy of the report[7] was provided to ADEC.

After reviewing the 2019 Investigation Report, HydroCon had a teleconference meeting with ADEC's project manager (Mr. Jeff Barsis) regarding the results of the investigation. Two of the key conclusions of the meeting included the following:

- Blasting of limestone bedrock was required to create a level area to construct the Fueling Station. Perched groundwater sitting on top of the limestone bedrock is locally present in the Fueling Station in depressions created by the blasting and/or excavation areas (i.e., MW-1) and absent in other locations (MW-3). ADEC concluded that this water does not pose a threat to ecological receptors or surface water bodies and is not necessary to monitor. Abandonment of the three monitoring wells was approved.
- The bioremediation of the soil in the HydroCon and CRC1 stockpiles has been successful at reducing contaminants to acceptable levels. Historic CRC2 and CDI soil stockpiles had previously achieved cleanup levels and were no longer being monitored. ADEC concluded that the soil in these stockpiles can be utilized as road fill at the site.

[7] HydroCon, *2019 Site Investigation Report*, December 3, 2019.

A memorandum[8] was prepared documenting well abandonment and stockpile decommissioning.

1.3.8 HydroCon Investigation 2021

On September 28-30, 2021, HydroCon travelled to the site to perform localized remedial action, compliance soil sampling in the remaining soil stockpile (HydroCon2) and install, develop and sample three monitoring wells (MW-4 through MW-6) in the Camp Area. Initial plans were to perform localized remedial excavation in three areas that had soil samples collected in 2019 that exceeded one of ADEC's Method 2 cleanup levels (CUL). This included two locations in the Fueling Station area (CS-6 and CS-8) and one location in the Camp Area (CS-4). Due to the presence of buried utility lines, no further excavation could safely be performed in the CS-4 and CS-8 locations. A remedial excavation was successfully performed at CS-6 removing the remaining accessible petroleum impacted soil above the CUL.

Three monitoring wells (MW-4 through MW-6) were installed in the Camp Area to monitor groundwater near the point of the diesel release around the generator. The wells were installed, developed and sampled. Analytical results indicated that all contaminants of concern (COC) were below their respective cleanup level. Groundwater was measured to flow towards the southwest with an approximate gradient of 0.03 feet/foot.

Soil sampling was performed at the HydroCon2 stockpile. Analytical results indicated a significant improvement in soil quality.

HydroCon requested that ADEC consider issuing regulatory closure for the site.

1.4 *2022 Soil and Groundwater Sampling Workplan*

HydroCon prepared a workplan[9] to complete soil, groundwater and surface water sampling at the site. The proposed tasks included the following:

- Obtain information, if available, of the location of subsurface utility lines in the Camp area.
- Perform groundwater monitoring at monitoring wells MW-4 through MW-6 at the Camp area.
- Collect soil samples at CS4 and CS1 areas to delineate the lateral extent of soil contamination at both locations shown on Figure 3.
- Collect soil samples at CS8 in the Fueling Station area west of sample CS8-W-3 location.
- Collect a surface water sample in the drainage ditch west at Camp area.
- Direct the placement of the treated soil from the HydroCon2 Stockpile at the Rock Dump area shown on Figure 2.

[8] HydroCon, *Well Abandonment and Soil Stockpile Decommissioning*, August 16, 2021.
[9] HydroCon, *2022 Soil and Groundwater Sampling Plan*, September 16, 2022.

2.0 SITE VISIT - 2022

On September 21-22, 2022, HydroCon travelled to the site to perform the work outlined in the approved work plan[10]. A description of the work performed at the site and analytical results is provided below.

2.1 *Pre-Sampling Activities*

2.1.1 Shipment of Field Supplies to the Site

Field supplies including well materials, sample containers and shipping coolers, and field instrumentation was placed on a barge for shipment to Thorne Bay, Alaska. CRC retrieved the materials prior to HydroCon's arrival and transported them to Calder Mine.

2.1.2 Underground Utility Information at the Camp Area

CRC provided HydroCon with a map of underground utility lines at the site. Several underground utilities are located in the Camp area including power, water and communication lines. The approximate locations of these utilities are shown on Figures 3 and 4.

2.2 *Field Screening*

Field screening techniques were utilized by HydroCon during the field investigation to assess if petroleum contamination is present in samples collected during the investigation. Field screening consisted of volatile organic vapor measurements using a photoionization detector (PID), sheen testing, visual observations (staining, etc.), and olfactory observations. The PID was calibrated before use at the site to a test gas standard consisting of 100 ppm isobutylene. A portion of each soil sample was placed in a sealable plastic baggie. The tip of the PID was inserted into the plastic bag in the airspace above the soil sample and the PID measurement was recorded. Sheen testing consisted of placing a small portion of soil in clear water and observing the water for the presence of hydrocarbon sheen. All PID readings, sheen test results, and olfactory observations were documented in the field notes (Attachment A).

[10] ADEC, *ADEC Approval Letter for the "2022 Soil and Groundwater Sampling Work Plan", dated September 16, 2022, September 23, 2022.*

2.3 *Abandonment of HydroCon2 Soil Stockpile*

CRC abandoned the HydroCon2 soil stockpile by transporting the treated soil to the Rock Dump area of the site shown on Figure 2. This location is greater than 500 feet from a surface water body. The soil was placed on the ground in an approximate 6-inch lift for use as road fill and then compressed by a tracked excavator. Photo documentation is included in Attachment B.

2.4 *Soil Sampling*

HydroCon attempted to collect soil samples at 3 locations at the site including CS-8 in the Fueling Station and CS-1 and CS-4 locations in the Camp area. A duplicate soil sample was collected at each location including sample CS1A-100-2 (collected from CS1A-1-2) and CS4A-100-2 (collected from CS4A-2-2). A discussion of each sampling location is provided below.

2.4.1 CS-8 Location

In 2021, HydroCon was unable to perform additional remedial excavation at this location due to the presence of the Connex Box that housed the generator and fuel and power lines located west of CS8-W-3 sample location. During a conference call with ADEC and CRC's representative (Mr. Mike Lehman), Mr. Lehman indicated that the Connex Box and generator had been moved from that area so ADEC requested that HydroCon perform the remedial excavation and confirmation sampling planned for 2021. When HydroCon visited the location in 2022 the Connex Box and generator were gone but the fuel line and buried power lines were still in place. Due to the presence of these utility lines HydroCon did not perform the excavation and sampling work at this location.

CS-4 Location

Due to the presence of underground utility lines in this area of the site, ADEC requested that HydroCon collect samples around the perimeter of this former source area to delineate the extent of contamination above the CUL. Five test pits labeled CS-4A-1 through CS-4A-5 were excavated at this location. Soil underlying the Camp Area is composed of approximately 2 feet of sand and gravel underlying a mixture of sand, gravel and cobbles (fill rock from the mine) which is difficult to dig or drill through. Soil samples were collected at the bottom of the gravel fill (2 feet bgs). There was no indication of petroleum contamination based on field screening results.

CS-1 Location

Similar to the CS-4 location, the presence of underground utility lines in this area of the site prevented excavation. ADEC requested that HydroCon collect samples around the perimeter of this former source area to delineate the extent of contamination above the CUL. Four test pits labeled CS-1A-1 through CS-1A-4 were excavated at this location. Similar soil conditions were encountered in this area resulting in the collection of samples at approximately 2 feet bgs. There was no indication of petroleum contamination based on field screening results.

2.5 *Groundwater Sampling*

On September 21, 2021 HydroCon collected water samples from the three wells using low flow sampling techniques. A duplicate water sample (MW100-W) was collected from MW-4. Prior to sampling the well cap was removed from each well and the water level was allowed to equilibrate before measurement. A clean electronic water level indicator was used to measure water levels.

Prior to groundwater sampling, the monitoring wells were purged with a low-flow peristaltic pump equipped with a new length of low-density polyethylene tubing attached to a new length of silicone tubing. The tubing intake was placed approximately 2 to 3 feet below the surface of the groundwater or mid-screen in each well. During purging, water quality was monitored using a Quanta multi-parameter water quality meter equipped with a flow-through cell. Groundwater parameters (temperature, pH, conductivity, dissolved oxygen, oxidation reduction potential and turbidity) were measured and recorded on a Groundwater Sample Collection form (Attachment C) along with bottle types and preservatives used. The water produced from the wells was non-turbid and did not exhibit petroleum odor or sheen.

The samples were placed in laboratory prepared and labeled glass jars including preservatives where necessary, sealed with Teflon-lined caps and placed into individual zip lock bags. A duplicate sample (MW-100) was collected from MW-4. The sample bottles were placed in a chilled cooler along with chain-of-custody documentation and transported to Alaska Air Cargo in Ketchikan Airport for transport to Freidman & Bruya Laboratory in Seattle, Washington for analysis.

2.6 *Surface Water Sampling*

HydroCon collected a surface water sample (SW-02) from the drainage ditch that's located north of the remedial excavation at the Camp Generator area. This is the second surface water sample collected in the ditch, the first being SW-1 collected in 2018. The location of SW-02 was selected near remedial excavation soil sample S13-6 (Figure 3). In order to not disturb the sediment within the drainage ditch, HydroCon placed new LDPE tubing in the ditch and extracted water using a peristaltic pump to fill the laboratory prepared sample bottles following the same procedures as the groundwater samples and analyzed for the same parameters as the groundwater samples listed below.

2.7 *Laboratory Analysis*

The samples collected from the site were analyzed for one or more of the following analyses:

- GRO using Alaska Method AK101
- DRO using Alaska Method AK102
- RRO using Alaska Method AK103
- VOCs using EPA Method 8260D
- SVOCs and PAHs using EPA Method 8270E

3.0 RESULTS OF INVESTIGATION

This section provides a discussion of the results of the sampling and analysis. The laboratory report and

chain-of-custody documentation are included in Attachment D. The laboratory sample receipt temperatures were recorded on the chain-of-custody forms and sample receipt conditions were noted in the case narrative.

3.1 *Field Screening Results*

Results of field screening indicated that there was no odor or hydrocarbon sheen in any of the soil or groundwater samples collected from the site. The highest PID reading recorded at the site was 0.1 ppm. All field screening results are recorded in the field notes (Appendix A).

3.2 *Soil Analytical Results*

Soil results are reported as milligrams per kilogram (mg/kg) or parts per million (ppm). The results are summarized on Tables 1 and 2 and Figure 3.

CS4 Location – There was no GRO, DRO or RRO detected above the laboratory's method reporting limit (MRL) in any of the samples. One VOC (0.052 mg/kg chloroform) was detected in the CS4A-100-2 sample and was flagged by the laboratory as being a laboratory contaminant (LC). Two PAHs (2-methylnapthalene and phenanthrene) were detected in the CS4A-1-2 and CS4A-5-2 samples at concentrations well below their respective CUL.

CS1 Location – GRO was detected in one sample (CS1A-100-2) at a concentration of 6.6 mg/kg. This concentration is below the CUL of 230 mg/kg. DRO was detected in each sample ranging from 160 to 550 mg/kg. The DRO CUL of 230 mg/kg was exceeded in the samples collected from CS1A-2, CS1A-3 and CS1A-4 locations. RRO was detected in the CS1A-100 and CS1A-4-2 samples at a concentration up to 58 mg/kg which are below the RRO CUL of 9,700 mg/kg. There was no BTEX detected in any of the samples. Two VOCs (0.052 mg/kg chloroform in sample CS1A-1-2 and 0.54 mg/kg 1,2,3-Trichloropropane) were detected and flagged by the laboratory as LC. Seven PAHs were detected in the samples including 2-methylnapthalene, 1-methylnaphthalene, naphthalene, phenanthrene, acenaphthene, chrysene, and pyrene. The concentrations of each detected PAH are below their respective CUL except naphthalene which was exceeded in each sample except CS1A-100-2.

3.3 *Groundwater Conditions*

The water purged from the wells during groundwater sampling activities on September 21, 2022 was non-turbid. There was no field indication of petroleum contamination.

Static water levels in the monitoring wells ranged from 3.10 to 3.79 feet below the top of the PVC well casing. The elevation of the groundwater in the wells was calculated using the elevation of the top of the casing (at the scribed reference mark) and subtracting the depth to water measurement (Table 3).

HydroCon prepared a groundwater elevation contour map from the data set to illustrate the direction of groundwater flow at the Camp Area of the Site (Figure 3). Groundwater flows towards the southwest with

an approximate gradient of 0.065 feet/foot between MW-6 and MW-5.

3.4 *Groundwater Analytical Results*

Groundwater results are reported as micrograms per liter (ug/L) or parts per billion (ppb). The results are summarized on Tables 4 through 6 and shown on Figure 4.

Petroleum Fuels
There was no GRO or RRO detected in any of the samples. DRO was detected in MW-5 at a concentration of 120 ug/L. This concentration is below the DRO CUL of 1,500 ug/L.

Volatile Organic Compounds
There was no detection of any VOC above their respective MRL in the samples. The total BTEX (TAH) was calculated for each sample result using ADEC's guidance approach. Half of the MRL was used for each non detect. The calculated TAH for each sample is 2.675 ug/L as shown on Table 4.

Semi-Volatile Organic Compounds
There were no SVOCs detected in the samples above their respective MRL. The sum total of all PAHs in each sample was calculated using ADEC's guidance approach. Half of the MRL was used for each non detect. Total PAHs for each sample is 0.52 ug/L. The results are shown on Table 5.

TAqH

The sum of TAH and total PAHs was calculated (TAqH) for each sample result (Table 6). The TAqH for each sample was 3.195 ug/L, which is below the maximum allowable TAqH of 15 ug/L.

3.5 *Surface Water Analytical Results*

Surface water results are reported as micrograms per liter (ug/L) or parts per billion (ppb). The results are summarized on Tables 7 and 8.

Petroleum Fuels
There was no GRO, DRO or RRO detected in the sample above their respective MRL.

Volatile Organic Compounds
There was no detection of any VOC above their respective MRL in the sample. The total BTEX (TAH) was calculated for the sample result using ADEC's guidance approach. Half of the MRL was used for each non detect. The calculated TAH for the sample is 2.675 ug/L.

Semi-Volatile Organic Compounds
There were no SVOCs detected in the sample above their respective MRL. The sum total of all PAHs in each sample was calculated using ADEC's guidance approach. Half of the MRL was used for each non detect. Total PAHs for each sample are 0.52 ug/L.

TAqH

The sum of TAH and total PAHs was calculated (TAqH) for the surface water sample result (Table 6). The TAqH for the sample was 3.195 ug/L, which is below the maximum allowable TAqH of 15 ug/L.

3.6 *Data Quality Review*

HydroCon collected two duplicate soil samples including CS1A-100-2 (collected from CS1A-1-2) and CS4A-100-2 (collected from CS4A-2-2). A duplicate water sample (MW100-W) was collected from MW-4. Results of those samples are discussed above and summarized on the attached tables.

Laboratory Quality Assurance

HydroCon performed a quality assurance/quality control (QA/QC) review of the analytical results, which is presented the attached Laboratory Data Review Checklist (Attachment E). Data qualifiers were placed on sample results by the laboratory including the following:

- LC – results of analysis due to laboratory contamination
- X – the chromatographic pattern does not resemble the fuel standard used for quantitation
- J/UJ – the sample results were assigned this data qualifier as being estimates due to the laboratory control spike (LCS) or LCS duplicate percent recoveries being outside the control limit.

The laboratory results are considered to be valid, as reported.

4.0 DISCUSSION

This section provides a discussion of the soil, groundwater and surface water sampling results, the remaining soil above the CUL left in place at the site due to inaccessibility, and recommendations for regulatory closure.

4.1 *Results of Soil Sampling in the Camp Area*

Soil sampling was performed in two locations (CS1 and CS4) to assess the lateral extent of contamination. Four locations were sampled as CS1 (former Genset East). Each of the four sampling locations had DRPH and/or naphthalene above the CUL. Each sample was collected at 2 feet bgs. It should be noted that the fill soil underlying the upper sand and gravel fill is composed of gravel and cobble with sand and silt matrix (reject rock from the mine). Over 50% of this fill is a large gravel or cobble and only the finer grain matrix can fit into a laboratory prepared jar. The sample results are only representative of the fine grain matrix and not the larger gravel and cobble, which constitute the majority of the soil. Therefore, the sample results are biased high.

Five locations were sampled around the perimeter of CS4 (former heating oil). Results indicated that none of the samples had any COC above their respective CUL.

4.2 *Results of Groundwater Sampling*

Groundwater underlying the Camp Area flows southwest towards Shakan Bay. Groundwater analytical results indicate that the only COC detected was a low concentration of DRO below the CUL in MW-5. These results confirm last year's findings that the extensive soil remedial excavations in the Camp Area have been successful in reducing contamination in the subsurface to acceptable levels that is protecting groundwater.

4.3 *Results of Surface Water Sampling*

Results of the surface water sampling indicated that there was no detection of any analyte above their respective MRL. The sample was collected next to the western extent of the remedial excavation sidewall (adjacent to the S13-6 sample location) that had DRO above the CUL. No further excavation was performed there due to the presence of water in the excavation and proximity to the edge of the drainage ditch. Results of the SW-02 sample indicates that impacts from the historic release of diesel at the Camp generator is not affecting water quality in the drainage ditch.

4.4 *Remaining Soil Contamination Left In-Place at the Site*

Extensive soil remedial excavations have taken place at the Site and all accessible petroleum impacted soil has been removed. A summary of the petroleum contaminated soil above the CUL left in-place at the Camp Area and Fueling Station is provided below. It should be noted that the maximum concentration of soil above the respective CULs is below ADEC's respective maximum allowable concentrations[11].

Camp Area

The extent of inaccessible soil contamination in the Camp Area above the CUL is shown on Figure 5. The large remedial excavation next to the diesel generator (location of the initial release) has three localized areas where soil contamination remains above the CUL. The approximate extent of soil contamination above the CUL in these areas is shown in red. All of these sampling locations were collected on the floor of the remedial excavation at the soil/water interface. No further excavation was performed due to the presence of water.

The Genset East (CS1 location) has petroleum impacted surface soil. No further excavation was performed in this area due to the presence buried utility lines. The approximate extent of the contamination above the CUL is shown in red.

The former heating oil tank next to the bunkhouse (CS4 location) has petroleum impacted soil above the CUL. The sample collected from the floor of the initial remedial excavation (collected at 2 feet bgs) was below CULs. No further excavation was performed due to the presence of buried utility lines. The approximate extent of soil above the CUL is shown in red.

[11] ADEC, *18 AAC 75 Oil and Other Hazardous Substances Pollution Control*, as amended through November 18, 2021.

Fueling Station

The extent of inaccessible soil contamination in the Fueling Station above the CUL is shown on Figure 6.

A small pocket of soil contamination above the CUL is present under the northern-most 20,000-gallon AST (CS6 location). The approximate extent is shown in red.

A small area of soil contamination above the CUL is present west of sample location CS8-W-3 at the SW Generator (CS8 location). No further excavation was performed due to the presence of buried power lines and above-ground fuel line. The approximate extent of soil above the CUL is shown in red.

The majority of the floor samples collected from the remedial excavation north of the northern-most 20.000-gallon AST had DRPH above the CUL. It should be noted that the floor of the excavation was limestone bedrock and the confirmation samples were collected right at the contact of the limestone. No further excavation could be performed due to the presence of bedrock. The sample results are believed to be biased high due to the presence of impacted perched water in the samples. The approximate extent of the contamination above the CUL is shown in red.

4.5 *Request for Regulatory Closure*

The results of the 2022 investigation indicate that the inaccessible soil contamination above the CUL left in place at the site has not adversely impacted groundwater and surface water quality at the site. None of the concentrations of remaining contaminants in soil exceed the maximum allowable concentrations of GRO, DRO or RRO. Potable water used at the site is collected from a spring located in the uplands above the Camp area. This water is passed through a filtration system prior to use at the Camp. Groundwater is not used as a potable water source.

All accessible soil contamination has been removed from the Site and successfully treated in the biotreatment soil stockpiles. All soil stockpiles have been decommissioned and the soil has been placed in the Rock Dump area as road fill. This location is greater than 500 feet away from a surface water body.

Current and future site use is for mining high grade limestone for industrial and agricultural purposes. Once mining has been completed, the infrastructure will likely be removed for use elsewhere. At that time, if necessary, remedial excavations can be performed to remove the residual diesel impacted soil above the CUL left in place at the site.

On behalf of Columbia River Carbonates, HydroCon requests that ADEC grants regulatory closure for the site.

5.0 QUALIFICATIONS

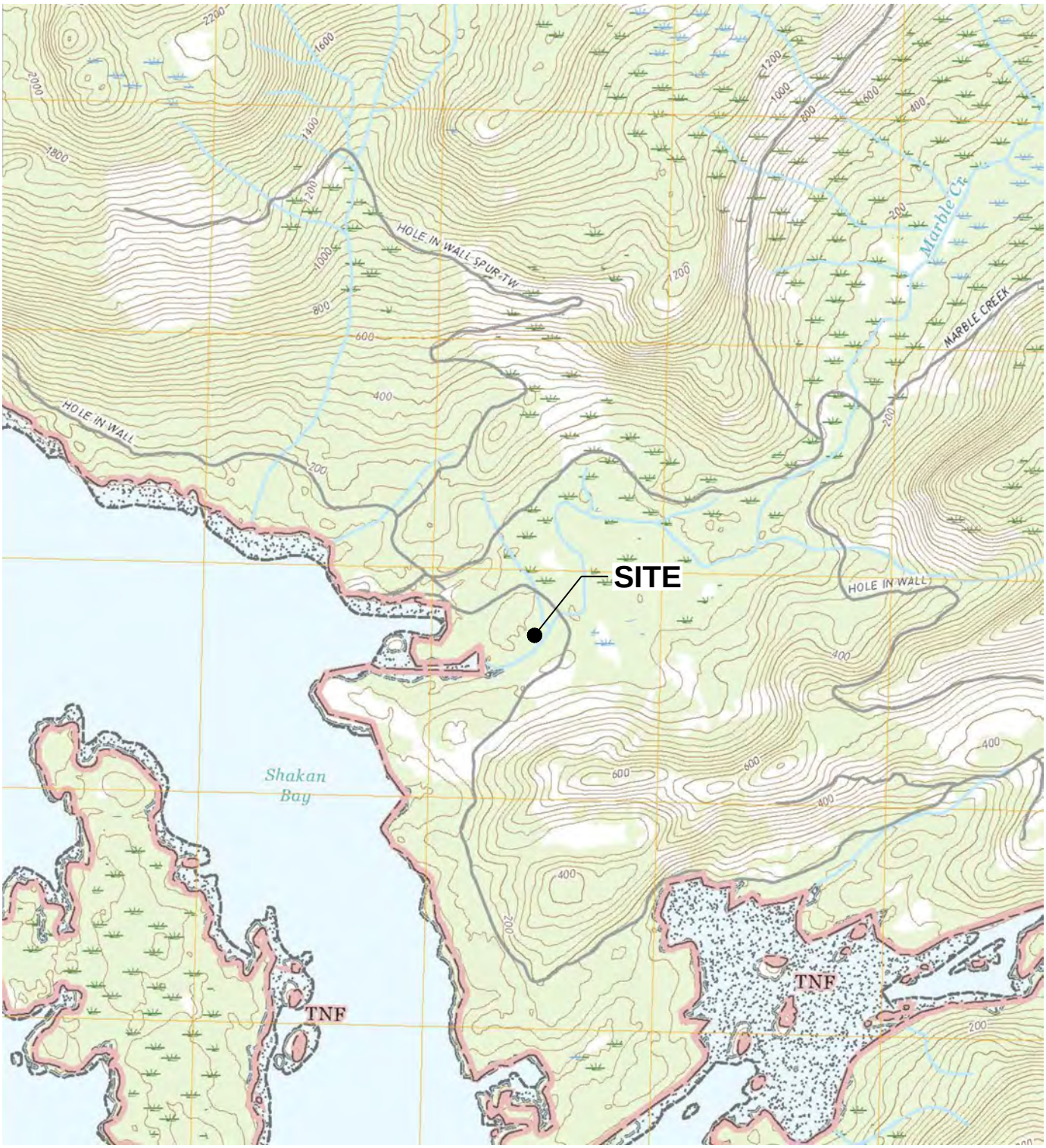
HydroCon's services will be performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period.

HydroCon makes no warranties, either expressed or implied, regarding the findings, conclusions or recommendations. Please note that HydroCon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report.

Findings and conclusions resulting from these services will be based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this monitoring. Subsurface conditions may vary from those encountered at specific sampling locations or during other surveys, tests, assessments, investigations, or exploratory services; the data, interpretations and findings are based solely upon data obtained at the time and within the scope of these services.

This report is intended for the sole use of **Columbia River Carbonates**. This report may not be used or relied upon by any other party without the written consent of HydroCon. The scope of services performed in execution of this work plan may not be appropriate to satisfy the needs of other users, and use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

FIGURES



NOTE(S):
USGS, PETERSBURG (A-5) NE QUADRANGLE
ALASKA
1:63 360 SERIES (TOPOGRAPHIC)

0 2000 4000
SCALE IN FEET
1" = 2000'

N
W E
S

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510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

DATE: 2-2-18
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 1
SITE LOCATION MAP

CALDER MINE
PRINCE WALES ISLAND
ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2016\Oct 2016\2015-010_BM-CMS-012918.dwg 2.17.2014

WATER SOURCE

CAMP GENSET

AREA OF
CONTAMINATION

HYDROCON 1
STOCKPILE

CALDER MINE SITE

HYDROCON 2
STOCKPILE

AREA OF
CONTAMINATION

SHOP AREA

CDI STOCKPILE
CRC1 & CRC2
STOCKPILES

FUELING
STATION

TOPSOIL STOCKPILE

ROCK DUMP

N
W E
S

0 600 1200
SCALE IN FEET
1" = 600'

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2015-010

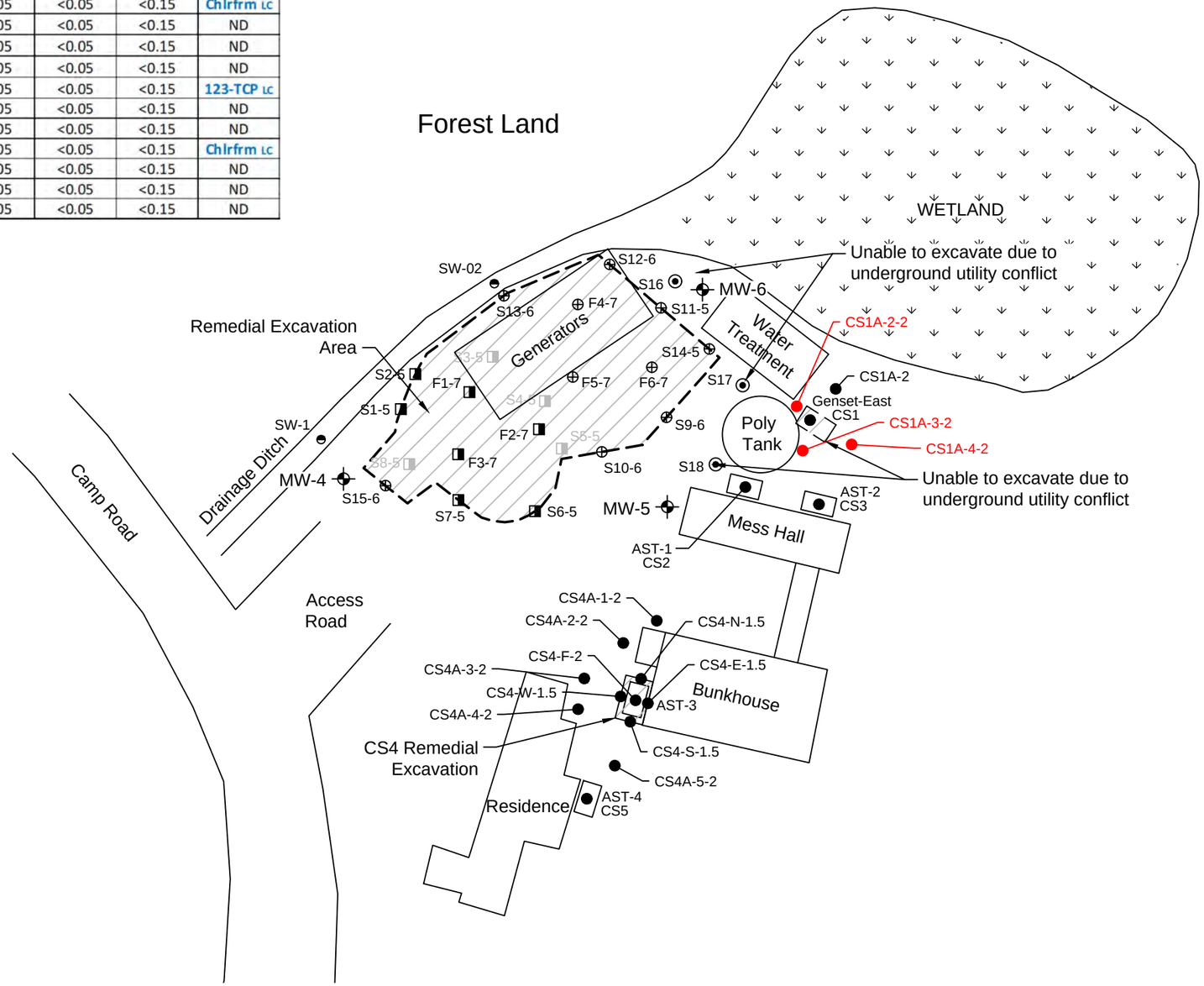
FIGURE 2
SITE FEATURES

CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

I:\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2021\Aug 2021\2015-010_BM-CMS-081321.dwg 2.17.2014

Field ID	Date	Analytical Results (mg/kg)							
		AK 101	AK 102	AK103	8260D				
		Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
ADEC Method 2 - Over 40" Zone		**230**	**230**	**9,700**	**0.022**	**6.7**	**0.13**	**1.5**	**various**
CS1A-1-2	9/21/2022	<5	160	<50	<0.03	<0.05	<0.05	<0.15	Chlrfrm LC
CS1A-100-2 (Dupe of CS1A-1-2)	9/21/2022	6.6	220	53 x	<0.03	<0.05	<0.05	<0.15	ND
CS1A-2-2	9/21/2022	<5	550	<50	<0.03	<0.05	<0.05	<0.15	ND
CS1A-3-2	9/21/2022	<5	270	<50	<0.03	<0.05	<0.05	<0.15	ND
CS1A-4-2	9/21/2022	<5	270	58 x	<0.03	<0.05	<0.05	<0.15	123-TCP LC
CS4A-1-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-2-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-100-2 (Dupe of CS4A-2-2)	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	Chlrfrm LC
CS4A-3-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-4-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-5-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND

Notes
mg/kg = milligrams per kilogram
Red denotes concentration exceeds ADEC Method 2 cleanup level.
Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level
< = not detected at a concentration exceeding the laboratory MRL shown
ND = not detected above respective laboratory method reporting limit
Chlrfrm= Chloroform (0.052 mg/kg both samples)
123-TCP = 1,2,3-Trichloropropane (0.54 mg/kg)
LC = laboratory contamination
x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.



LEGEND

- SITE BOUNDARY
- EXISTING ACCESS ROAD
- Genset-West ● SAMPLE LOCATIONS (PNG, 2004)
- CS1 ● 2018 SAMPLE LOCATIONS
- EXISTING STRUCTURES
- EXCAVATION LOCATION
- S16 ◉ DELINEATION SAMPLE LOCATIONS
- REMEDIAL EXCAVATION
- SW-1 ◓ SURFACE WATER SAMPLE
- ● SOIL SAMPLE EXCEEDS DRO CLEANUP LEVEL (230 mg/kg)

N W E S

0 20 40
SCALE IN FEET
1" = 20'

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CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 3
CAMP AREA
SOIL & SURFACE WATER SAMPLING LOCATIONS
CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

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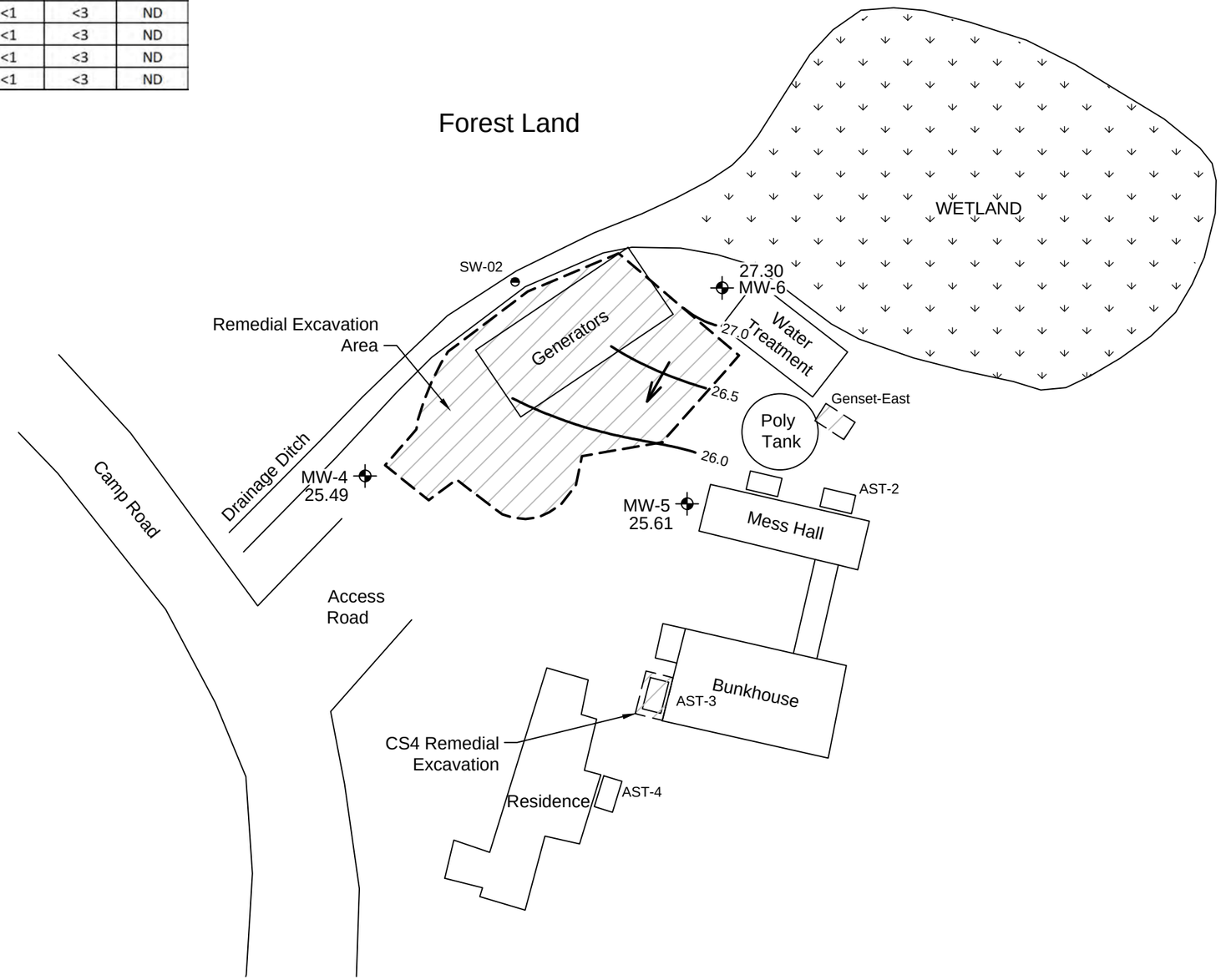
Field ID	Date	Groundwater Analytical Results (ug/L)							
		AK 101	AK 102	AK103	8260D				
		GRO	DRO	RRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
ADEC Method 2		**2,200**	**1,500**	**1,100**	**4.6**	**1,100**	**15**	**190**	
MW4-W	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND
MW100-W (Dupe MW4-W)	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND
MW5-W	9/21/2022	<100	120	<250	<0.35	<1	<1	<3	ND
MW6-W	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND
SW-02	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND



LEGEND

- MW01 — Monitoring Well
- SW-2 — Surface Water Sample
- Groundwater Elevation Contour
- 25.49 — Groundwater Surface Elevation
- Approximate Groundwater Flow Direction
- Remedial Excavation

N W E S

0 20 40

SCALE IN FEET
1" = 20'

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FIGURE 4
GROUNDWATER ANALYTICAL RESULTS
FOR SEPTEMBER 21, 2022
CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

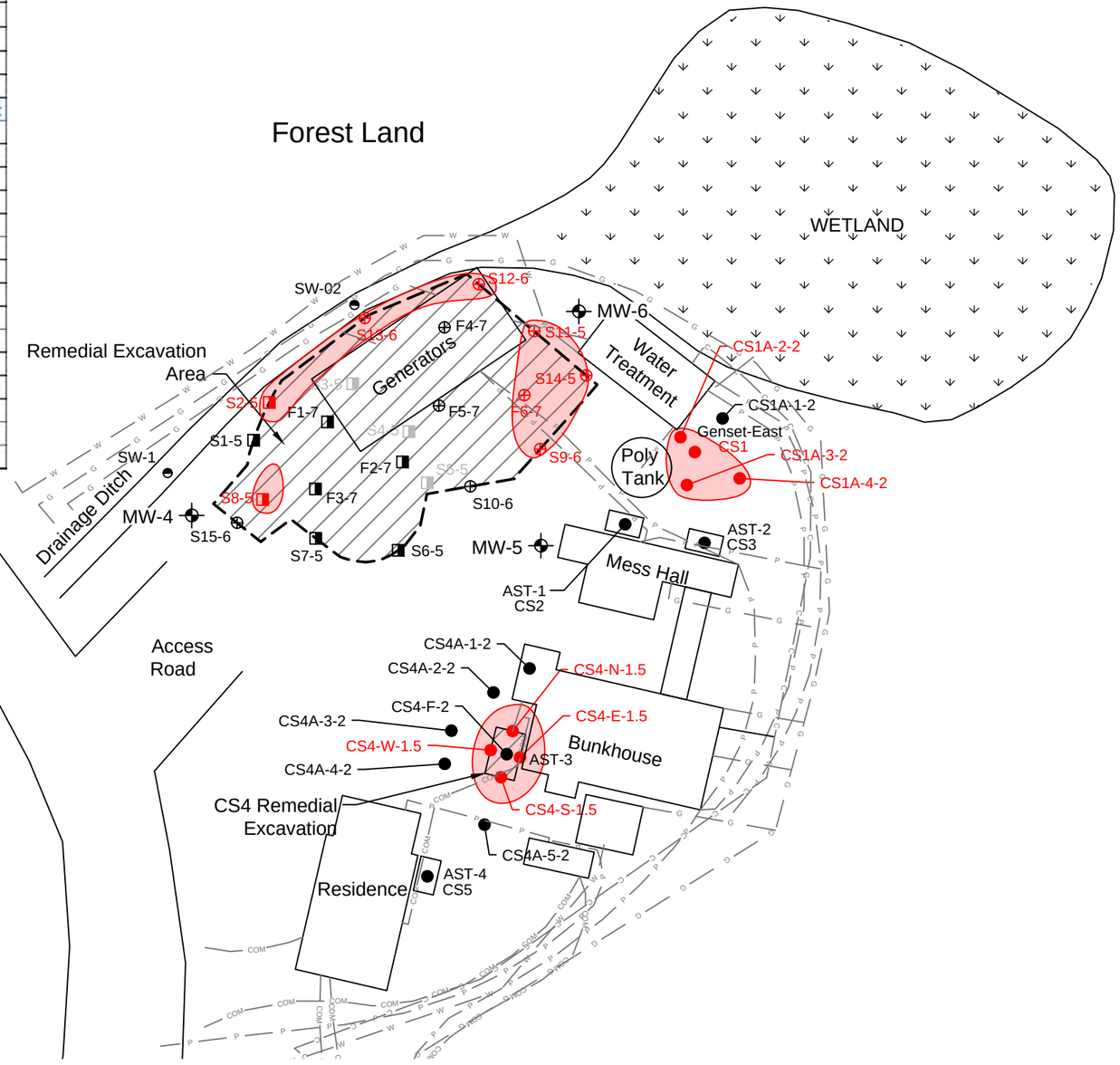
I:\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2022\July 2022\2015-010_BM-CMS-072222.dwg

Field ID	Date	Soil Analytical Results (mg/kg)							
		AK 101	AK 102	AK103	8260D				
		GRO	DRO	RRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
ADEC Method 2 - Over 40" Zone		**260**	**230**	**9,700**	**0.022**	**6.7**	**0.13**	**1.5**	**various**
Remedial Excavation - Camp Generator Area									
Genset East									
CS1-1	9/19/2018	-	350	49 x	-	-	-	-	-
CS1A-2-2	9/21/2022	<5	550	<50	<0.03	<0.05	<0.05	<0.15	ND
CS1A-3-2	9/21/2022	<5	270	<50	<0.03	<0.05	<0.05	<0.15	ND
CS1A-4-2	9/21/2022	<5	270	58 x	<0.03	<0.05	<0.05	<0.15	123-TCP LC
Former Heating Oil AST - Bunkhouse									
CS4-N-1.5	8/6/2019	-	1,100	100 x	-	-	-	-	-
CS4-S-1.5	8/6/2019	-	570	68 x	-	-	-	-	-
CS4-E-1.5	8/6/2019	-	1,800	190 x	<0.03	<0.05	<0.05	<0.15	ND
CS4-100 (Dupe CS4-E-1.5)	8/6/2019	-	1,600	180 x	<0.03	<0.05	<0.05	<0.15	124-TMB
CS4-W-1.5	8/6/2019	-	690	72 x	-	-	-	-	-
Camp Generator Remedial Excavation									
F6-7	4/7/2016	-	2,700	-	<0.02 pc	<0.02 pc	0.12 pc	0.82 pc	-
S2-5	8/25/2015	-	1,200	-	-	-	-	-	-
S8-5	8/25/2015	-	710	-	-	-	-	-	-
S9-6	4/7/2016	-	620	-	-	-	-	-	-
S11-5	4/7/2016	-	500	-	-	-	-	-	-
S12-6	4/7/2016	-	420	-	-	-	-	-	-
S13-6	4/7/2016	-	550	-	-	-	-	-	-
S14-5	4/7/2016	-	830	-	-	-	-	-	-

Notes
mg/kg = milligrams per kilogram
Red denotes concentration exceeds ADEC Method 2 cleanup level.
Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level
< = not detected at a concentration exceeding the laboratory MRL shown
ND = not detected above respective laboratory method reporting limit
Chlrfrm= Chloroform (0.052 mg/kg both samples)
123-TCP = 1,2,3-Trichloropropane (0.54 mg/kg)
LC = laboratory contamination
x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.

LEGEND

- SITE BOUNDARY
- EXISTING ACCESS ROAD
- Genset-West ● SAMPLE LOCATIONS (PNG, 2004)
- CS1 ● 2018 SAMPLE LOCATIONS
- EXISTING STRUCTURES
- EXCAVATION LOCATION
- S1 ◨ EXCAVATION SOIL SAMPLE (2015)
- REMEDIAL EXCAVATION
- SW-1 ◓ SURFACE WATER SAMPLE
- SOIL SAMPLE EXCEEDS DRO CLEANUP LEVEL (230 mg/kg)
- APPROX. AREA ABOVE CLEANUP LEVELS



N W E S

0 20 40
SCALE IN FEET
1" = 20'

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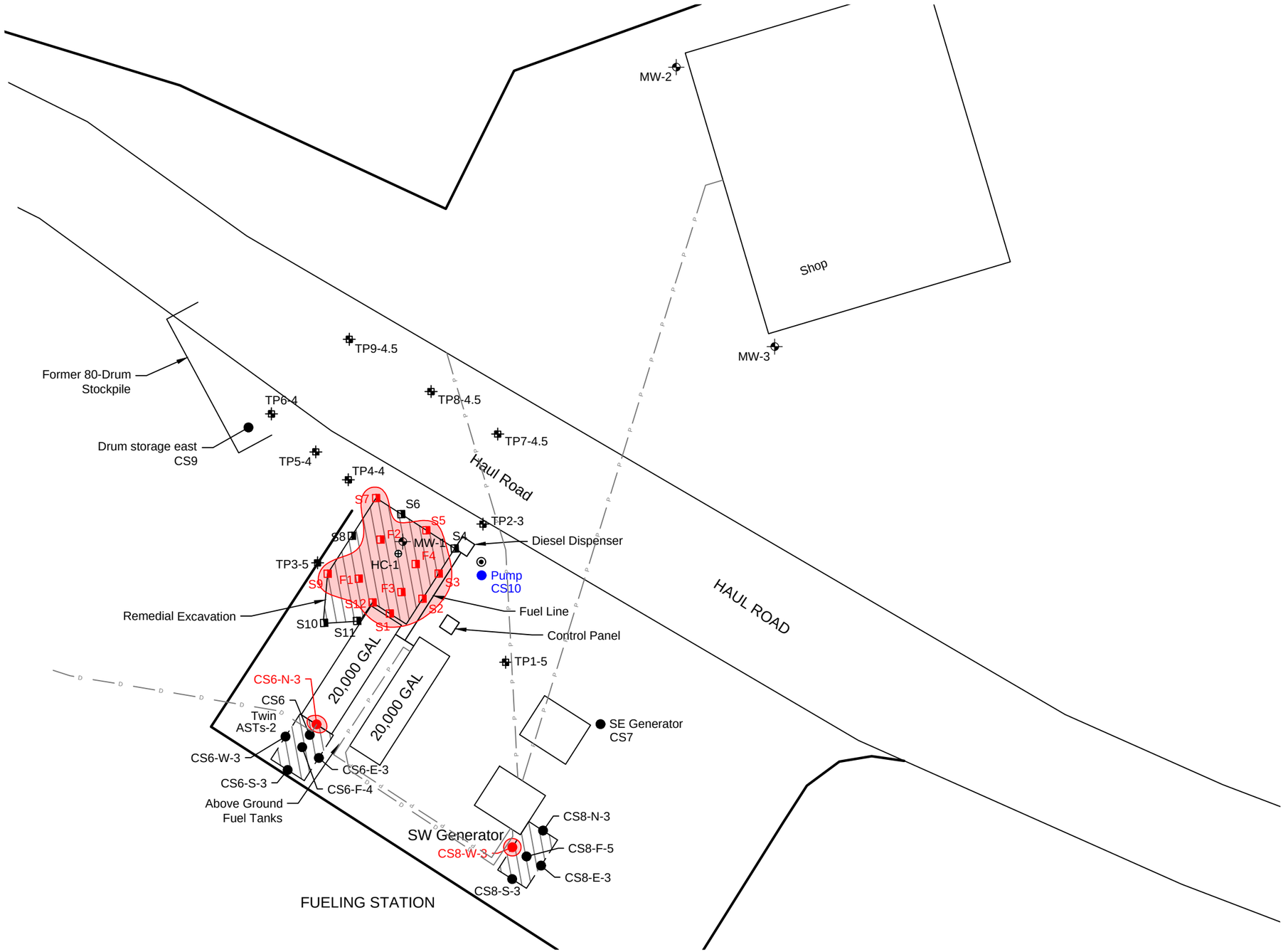
PROJECT NO: 2015-010

FIGURE 5
CAMP AREA
LOCATION OF REMAINING SOIL CONTAMINATION ABOVE CUL
CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

I:\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2022\Oct 2022\2015-010_BM-CMS-101022.dwg

Soil Analytical Results (mg/kg)			
		AK 102	AK103
Field ID	Date	DRO	RRO
ADEC Method 2 - Over 40" Zone		230	9,700
Fueling Station Remediation Excavation			
FS-F1-7	8/26/2015	1,700 J	-
FS-F2-7	8/26/2015	5,800 J	-
FS-F3-7	8/26/2015	4,000 J	-
FS-F4-7	8/26/2015	2,500 J	-
FS-FX	8/26/2015	2,100 J	-
FS-S1-6	8/26/2015	7,100 J	-
FS-S2-6	8/26/2015	4,600 J	-
FS-S3-5	8/26/2015	7,700 J	-
FS-S5-4	8/26/2015	1,500	-
FS-S7-4	8/26/2015	1,600	-
FS-S9-6	8/26/2015	540	-
FS-S12-6	8/26/2015	2,000 J	-
FS-SX	8/26/2015	9,200 J	-
SW Generator			
CS8-W-3	8/6/2019	270	52
Twin ASTs			
CS6-N-3	8/6/2019	4,200	3,400
CS6-100 (Dupe CS6-N-3)	8/6/2019	4,800	4,000

Notes:
Red denotes concentration exceeds ADEC Method 2 cleanup level.
Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level
< = not detected at a concentration exceeding the laboratory MRL shown
- = not analyzed
J = estimated value
ND = not detected above respective MRLs



LEGEND

- EXISTING ACCESS ROAD
- EXISTING STRUCTURES
- TP1-5 — TEST PIT LOCATION
- EXCAVATION LOCATION
- MW-1 — MONITORING WELL LOCATION
- SAMPLE LOCATION
- CS10 — 2018 SOIL SAMPLING LOCATION
- REMEDIAL EXCAVATION
- SOIL SAMPLE EXCEEDS DRO CLEANUP LEVEL (230 mg/kg)
- APPROX. AREA ABOVE CLEANUP LEVELS

N W E S

0 30 60
SCALE IN FEET
1" = 30'

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FIGURE 6
FUELING STATION AREAS
SOIL ABOVE CLEANUP LEVEL
CALDER MINE
PRINCE WALES ISLAND
ALASKA

I:\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2022\Oct 2022\2015-010_BM-CMS-101022.dwg

TABLES

Table 1
Soil Analytical Results
GRO, DRO, RRO, BTEX, and VOCs
Calder Mine
Prince of Wales Island, Alaska

		AK 101	AK 102	AK103	8260D				
		Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ADEC Method 2 - Over 40" Zone		**260**	**230**	**9,700**	**0.022**	**6.7**	**0.13**	**1.5**	**Various**
Field ID	**Date**								
Remedial Excavations and Test Pits - Camp Area									
Genset East									
Genset-East	9/30/2004	-	**4,100**	**240**	-	-	-	-	-
CS1-1	9/19/2018	-	**350**	**49 x**	-	-	-	-	-
CS1A-1-2	9/21/2022	<5	**160**	<50	<0.03	<0.05	<0.05	<0.15	**Chlrfrm LC**
CS1A-100-2 (Dupe of CS1A-1-2)	9/21/2022	**6.6**	**220**	**53 x**	<0.03	<0.05	<0.05	<0.15	ND
CS1A-2-2	9/21/2022	<5	**550**	<50	<0.03	<0.05	<0.05	<0.15	ND
CS1A-3-2	9/21/2022	<5	**270**	<50	<0.03	<0.05	<0.05	<0.15	ND
CS1A-4-2	9/21/2022	<5	**270**	**58 x**	<0.03	<0.05	<0.05	<0.15	**123-TCP LC**
Former Heating Oil AST - Bunkhouse									
Camp AST-3[1]	9/30/2004	-	**550**	<50	-	-	-	-	-
CS4-1[1]	9/19/2018	-	**480**	**99 x**	-	-	-	-	-
CS4-N-1.5	8/6/2019	-	**1,100**	**100 x**	-	-	-	-	-
CS4-S-1.5	8/6/2019	-	**570**	**68 x**	-	-	-	-	-
CS4-E-1.5	8/6/2019	-	**1,800**	**190 x**	<0.03	<0.05	<0.05	<0.15	ND
CS4-100 (Dupe CS4-E-1.5)	8/6/2019	-	**1,600**	**180 x**	<0.03	<0.05	<0.05	<0.15	**124-TMB**
CS4-W-1.5	8/6/2019	-	**690**	**72 x**	-	-	-	-	-
CS4-F-2	8/6/2019	-	<5	<25	-	-	-	-	-
CS4A-1-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-2-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-100-2 (Dupe of CS4A-2-2)	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	**Chlrfrm LC**
CS4A-3-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-4-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
CS4A-5-2	9/21/2022	<5	<10	<50	<0.03	<0.05	<0.05	<0.15	ND
Remedial Excavations - Fueling Station Area									
Twin AST-2[1]	9/30/2004	-	**2,700**	**11,000**	-	-	-	-	-
CS6-1[1]	9/18/2018	-	**1,100**	**630**	-	-	-	-	-
CS6-N-3	8/6/2019	-	**4,200**	**3,400**	<0.03	<0.05	<0.05	<0.15	ND
CS6-100 (Dupe CS6-N-3)	8/6/2019	-	**4,800**	**4,000**	<0.03	<0.05	<0.05	<0.15	ND
CS6-S-3	8/6/2019	-	<5	<25	-	-	-	-	-
CS6-E-3	8/6/2019	-	**66**	<25	-	-	-	-	-
CS6-W-3[1]	8/6/2019	-	**260**	<25	-	-	-	-	-
CS6-F-4	8/6/2019	-	**19**	<25	-	-	-	-	-
CS6-N2-3	9/29/2021	<5	**7.8 x**	<25	-	-	-	-	-
CS6-W2-3	9/29/2021	<5	<5	<25	-	-	-	-	-
CS6-S2-3	9/29/2021	<5	<5	<25	<0.03	<0.05	<0.05	<0.15	ND
CS6-D-3 (Dupe CS6-S2-3)	9/29/2021	<5	<5	<25	<0.03	<0.05	<0.05	<0.15	ND
SW Generator[1]	9/30/2004	-	**53,000**	**6,100**	-	-	-	-	-
CS8-1[1]	9/18/2018	-	**1,500**	**490**	-	-	-	-	-
CS8-N-3	8/6/2019	-	<5	<25	-	-	-	-	-
CS8-S-3	8/6/2019	-	**100**	<25	-	-	-	-	-
CS8-E-3	8/6/2019	-	<5	<25	-	-	-	-	-
CS8-W-3	8/6/2019	-	**270**	**52**	<0.03	<0.05	<0.05	<0.15	ND
CS8-F-5	8/6/2019	-	<5	<25	-	-	-	-	-
CS8-100 (Dupe)	8/6/2019	-	<5	<25	-	-	-	-	-
Boring MW-2					**Well has been Abandoned**				
MW2-5	8/6/2019	-	**5.5 x**	<25	<0.03	<0.05	<0.05	<0.15	ND
MW2-100 (Dupe MW2-5)	8/6/2019	-	<5	<25	<0.03	<0.05	<0.05	<0.15	ND
MW2-10	8/6/2019	-	**6.2 x**	<25	-	-	-	-	-
MW2-15	8/6/2019	-	**7.1 x**	<25	-	-	-	-	-
MW2-30	8/6/2019	-	**13 x**	**36**	-	-	-	-	-
Boring MW-3					**Well has been Abandoned**				
MW3-5	8/6/2019	-	**5.7 x**	<25	-	-	-	-	-
MW3-10	8/6/2019	-	<5	<25	-	-	-	-	-
MW3-14	8/6/2019	-	**8 x**	<25	<0.03	<0.05	<0.05	<0.15	ND
MW3-100 (Dupe MW3-14)	8/6/2019	-	<5	<25	<0.03	<0.05	<0.05	<0.15	ND

Table 1
Soil Analytical Results
GRO, DRO, RRO, BTEX, and VOCs
Calder Mine
Prince of Wales Island, Alaska

		AK 101	AK 102	AK103	8260D				
		Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ADEC Method 2 - Over 40" Zone		**260**	**230**	**9,700**	**0.022**	**6.7**	**0.13**	**1.5**	**Various**
Field ID	**Date**								
CRC1 Stockpile				**Stockpile has been closed**					
CRC-SP1	8/5/2019	-	**190**	**280**	<0.03	<0.05	<0.05	<0.15	**MC LC**
CRC-SP100 (Dupe CRC-SP1)	8/5/2019	-	**80**	**120**	<0.03	<0.05	<0.05	<0.15	ND
CRC-SP2	8/5/2019	-	**170**	**300**	---	---	---	---	---
CRC-SP3	8/5/2019	-	**240**	**220**	---	---	---	---	---
CRC-SP4	8/5/2019	-	**290**	**460**	---	---	---	---	---
HydroCon Stockpile				**Stockpile has been closed**					
HC-SP1	8/5/2019	-	**270**	**230**	---	---	---	---	---
HC-SP2	8/5/2019	-	**440**	**160**	---	---	---	---	---
HC-SP3	8/5/2019	-	**210**	**160**	---	---	---	---	---
HC-SP4	8/5/2019	-	**230**	**130**	---	---	---	---	---
HC-SP5	8/5/2019	-	**280**	**140**	---	---	---	---	---
HC-SP6	8/5/2019	-	**360**	**310**	---	---	---	---	---
HC-SP100 (Dupe)	8/5/2019	-	**280**	**130**	<0.03	<0.05	<0.05	<0.15	ND
HydroCon2 Stockpile				**Stockpile has been closed**					
HC2-SP1	9/29/2021	<5	**160 x**	**390**	---	---	---	---	---
HC2-SP2	9/29/2021	<5	**440**	**79 x**	---	---	---	---	---
HC2-SP3	9/29/2021	<5	**28**	<25	<0.03	<0.05	<0.05	<0.15	**MC LC**
HC2-D (Dupe HC2-SP3)	9/29/2021	<5	**25**	<25	<0.03	<0.05	<0.05	<0.15	**MC LC**
HC2-SP4	9/29/2021	<5	**69 x**	**140**	---	---	---	---	---

Notes

[1]Soil was removed by additional remedial excavation

mg/kg = milligrams per kilogram

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.

Red denotes concentration exceeds ADEC Method 2 cleanup level.

124-TMD = 1,2,4-Trimethylbenzene (0.328 mg/kg)

MC = methylene chloride (up to 0.58 mg/kg)

Chlrfrm = Chloroform (0.052 mg/kg - both samples)

123-TCP = 1,2,3-Trichloropropane (0.54 mg/kg)

LC = laboratory contamination

Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level

Alaska Department of Environmental Conservation (ADEC) Method 2 Oil Pollution & Hazardous Substances Pollution Control Regulations,Table B2, 18 AAC75, based on >40 inches of rainfall migration to groundwater.

< = not detected at a concentration exceeding the laboratory MRL shown

x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.

ND = not detected above respective laboratory method reporting limit

--- = not analyzed

Table 2
Soil Analytical Results
Detected PAHs and SVOCs
Calder Mine
Prince of Wales Island, Alaska

		8270E						
		2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Acenaphthene	Chrysene	Pyrene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ADEC Method 2 - Over 40" Zone		1.27	0.41	0.038	39	37	82	87
Field ID	**Date Sampled**							
Camp Area								
Genset East								
CS1A-1-2	9/21/2022	0.12	0.053	0.04	0.04	0.013	<0.01	0.011
CS1A-100-2 (Dupe of CS1A-1-2)	9/21/2022	0.089	0.042	0.032	0.031	<0.01	<0.01	<0.01
CS1A-2-2	9/21/2022	0.23	0.12	0.093	0.063	<0.01	<0.01	0.023
CS1A-3-2	9/21/2022	0.35	0.18	0.14	0.073	<0.01	0.012	0.028
CS1A-4-2	9/21/2022	0.27	0.15	0.11	0.055	<0.01	<0.01	0.021
Former Heating Oil AST - Bunkhouse								
CS4-E-1.5	8/6/2019	0.25	0.1	0.067	0.086	<0.05	<0.05	0.11
CS4-100 (Dupe)	8/6/2019	0.24	0.1	0.067	0.074	<0.05	<0.05	0.072
CS4A-1-2	9/21/2022	0.024	<0.01	<0.01	0.038	<0.01	<0.01	<0.01
CS4A-2-2	9/21/2022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CS4A-100-2 (Dupe of CS4A-2-2)	9/21/2022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CS4A-3-2	9/21/2022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CS4A-4-2	9/21/2022	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CS4A-5-2	9/21/2022	0.016	<0.01	<0.01	0.027	<0.01	<0.01	<0.01
CS6-N-3	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	0.23
CS6-100 (Dupe CS6-N-3)	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05	0.30
CS6-W2-3	9/29/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CS6-D (Dupe CS6-W2-3)	9/29/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
CS8-W-3	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.055
Boring MW-2		**Well has been Abandoned**						
MW2-5	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MW2-100 (Dupe)	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Boring MW-3		**Well has been Abandoned**						
MW3-14	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
MW3-100 (Dupe)	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Table 2
Soil Analytical Results
Detected PAHs and SVOCs
Calder Mine
Prince of Wales Island, Alaska

		8270E						
		2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Acenaphthene	Chrysene	Pyrene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ADEC Method 2 - Over 40" Zone		**1.27**	**0.41**	**0.038**	**39**	**37**	**82**	**87**
Field ID	**Date Sampled**							
CRC1 Stockpile	**Stockpile has been closed**							
CRC-SP1	8/5/2019	**0.028**	**0.012**	<0.01	**0.012**	<0.01	<0.01	<0.01
CRC-SP100 (Dupe)	8/5/2019	**0.033**	**0.016**	**0.01**	**0.013**	<0.01	<0.01	<0.01
HydroCon Stockpile	**Stockpile has been closed**							
HC-SP100	8/5/2019	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HydroCon2 Stockpile	**Stockpile has been closed**							
HC2-SP3	9/29/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HC2-D (Dupe)	9/29/2021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Notes

[1]Soil was removed by additional remedial excavation or properly disposed on site after successful remediation

Red denotes concentration exceeds ADEC Method 2 cleanup level.

Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.

Alaska Department of Environmental Conservation (ADEC) Method 2 Oil Pollution & Hazardous Substances Pollution Control Regulations, Table B2, 18 AAC75, based on >40 inches of rainfall migration to groundwater.

< = not detected at a concentration exceeding the laboratory MRL shown

mg/kg = milligrams per kilogram

Table 3
Depth to Water and Groundwater Elevation
Calder Mine
Prince of Wales Island, Alaska

		Measurements		
		Top of Casing	Depth to Groundwater	Groundwater Elevation
Well ID	Date	Feet	Feet	Feet
MW-4	9/29/21	28.90	3.38	25.52
	9/21/22		3.41	25.49
MW-5	9/29/21	29.40	3.80	25.60
	9/21/22		3.79	25.61
MW-6	9/29/21	30.40	3.00	27.40
	9/21/22		3.10	27.30

Notes:
Surveying done using a Arrow Gold GPS tracking unit.
This unit has a vertical accuary of 30 to 60 centimeters

Table 4
Groundwater Analytical Results
GRO, DRO, RRO, BTEX, and VOCs
Calder Mine
Prince of Wales Island, Alaska

		AK 101	AK 102	AK103	8260D				
		Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ADEC Method 2		**2,200**	**1,500**	**1,100**	**4.6**	**1,100**	**15**	**190**	
Field ID	**Date**								
Fueling Station Area		**Monitoring Wells have been Abandoned**							
MW-1	9/19/2018	---	**7,000**	**390 x**	<0.35	<1	<1	**6**	NA
MW100-W (Dupe MW-1)	8/7/2019	---	**7,400J**	**400 x**	<0.35	<1	<1	<3	ND
MW-1	8/7/2019	---	**5,300J**	<250	<0.35	<1	<1	**1.3**	124 TMB 135 TMB
MW-2	8/8/2019	---	**110**	<250	<0.35	<1	<1	<3	Acetone MEK
MW-3	8/8/2019	---	---	---	---	---	---	---	---
Camp Area		**Newly Installed Monitoring Wells**							**TAH**
MW4-W	9/30/2021	<100	**78 x**	<250	<0.35	<1	<1	<3	ND	2.675
MW100-W (Dupe MW4-W)	9/30/2021	<100	<50	<250	<0.35	<1	<1	<3	ND	2.675
MW4-W	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND	2.675
MW100-W (Dupe MW4-W)	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND	2.675
MW5-W	9/30/2021	<100	**500**	<250	<0.35	<1	<1	<3	ND	2.675
MW5-W	9/21/2022	<100	**120 x**	<250	<0.35	<1	<1	<3	ND	2.675
MW6-W	9/30/2021	<100	**120**	<250	<0.35	<1	<1	<3	ND	2.675
MW6-W	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	ND	2.675

Table 4
Groundwater Analytical Results
GRO, DRO, RRO, BTEX, and VOCs
Calder Mine
Prince of Wales Island, Alaska

	AK 101	AK 102	AK103	8260D				
	Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethyl-benzene	Total Xylenes	VOCs
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ADEC Method 2	2,200	1,500	1,100	4.6	1,100	15	190	
Field ID Date								

Notes
Red denotes concentration exceeds ADEC Method 2 cleanup level.
Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level
Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.
Alaska Department of Environmental Conservation (ADEC) Method 2 Oil Pollution & Hazardous Substances
Pollution Control Regulations,Table B2, 18 AAC75, based on >40 inches of rainfall migration to groundwater.
< = not detected at a concentration exceeding the laboratory MRL shown
ug/L = micrograms per liter
x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.
J = The result is an estimated quantity.
--- = insufficient amount of water in well to sample
ND = not detected above the respective laboratory method reporting limit
NA = not analyzed
124 TMB = 1,2,4-trimethylbenzene (1.5 ug/L)
135 TMB = 1,3,5-trimethylbenzene (1.6 ug/L)
MEK = 2-butanone (19 ug/L)
Acetone (180 ug/L)
TAH = sum of BTEX
Summation of BTEX should include 1/2 of laboratory method reporing limit (MRL) for non detects

Table 5
Groundwater Analytical Results
Detected PAHs and SVOCs
Calder Mine
Prince of Wales Island, Alaska

		8270E										
		2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Pyrene	Diethyl phthalate	Di-n-butyl phthalate	
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
ADEC Method 2		**11.1**	**35.9**	**1.65**	**261**	**534**	**294**	**175**	**121**	**1,480**	**902**	
Field ID	**Date Sampled**											
Fueling Station Area		**Monitoring Wells have been Abandoned**										
MW-1	9/19/2018	NA	NA	**0.74**	<0.06	**0.45**	**1.5**	**1.2**	**0.22**	NA	NA	
MW-1	8/7/2019	<0.2	<0.2	<0.2	<0.02	**0.072**	**0.056**	<0.02	**0.073**	<2	<2	
MW100-W (Dupe MW-1)	8/7/2019	<0.2	**0.4**	<0.2	<0.02	**0.088**	**0.31**	<0.02	**0.049**	<2	<2	
MW-2	8/8/2019	<0.2J	<0.2J	<0.2J	<0.02J	<0.02J	<0.02J	<0.02J	<0.02J	**3.2J**	**2.1J**	
MW-3	8/8/2019	---	---	---	---	---	---	---	---	---	---	
Camp Area		**Newly Installed Monitoring Wells**										**Sum of PAHs**
MW4-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<4	<4	0.515
MW100-W (Dupe MW4-W)[1]	9/30/2021	<0.4	<0.4	<0.4	<0.04	<0.04	<0.04	**0.049**	<0.04	<4	<4	0.544
MW4-W	9/21/2022	<0.4J	<0.4J	<0.4J	<0.04J	<0.04J	<0.04	<0.04	<0.04	<4	<4	0.52
MW100-W (Dupe MW4-W)	9/21/2022	<0.4J	<0.4J	<0.4J	<0.04	<0.04J	<0.04	<0.04	<0.04	<4	<4	0.52
MW5-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	<0.04	**0.18**	**0.16**	**0.072**	**4.80**	<4	0.867
MW5-W	9/21/2022	<0.4J	<0.4J	<0.4J	<0.04	<0.04J	<0.04	<0.04	<0.04	<4	<4	0.52
MW6-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	<0.04	**0.076**	**0.089**	<0.04	<4	<4	0.64
MW6-W	9/21/2022	<0.4J	<0.4J	<0.4J	<0.04	<0.04J	<0.04	<0.04	<0.04	<4	<4	0.52

Table 5
Groundwater Analytical Results
Detected PAHs and SVOCs
Calder Mine
Prince of Wales Island, Alaska

	8270E									
	2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Pyrene	Diethyl phthalate	Di-n-butyl phthalate
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ADEC Method 2	11.1	35.9	1.65	261	534	294	175	121	1,480	902

Notes
Red denotes concentration exceeds ADEC Method 2 cleanup level.
Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level
Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.
Alaska Department of Environmental Conservation (ADEC) Method 2 Oil Pollution & Hazardous Substances Pollution Control Regulations,Table B2, 18 AAC75, based on >40 inches of rainfall migration to groundwater.
< = not detected at a concentration exceeding the laboratory MRL shown
J = The result is an estimated quantity.
ug/L = micrograms per liter
--- = insufficient amount of water in well to sample
NA = not analyzed
[1] = Bis(2ethylhexyl)phthalate detected at concentration of 7.8 ug/L - lab assinged LC data qualifier as being a common lab and field contaminant
Summation of PAHs includes 1/2 of laboratory method reporing limit (MRL) for non detects following the "Guidelines for the Treatment of Non-detect Values, Data Reduction for Multiple Detections and Comparsion of Quantification Limits to Cleanup Values" (ADEC 2017)

Table 6

Groundwater Analytical Results
TAH and TAqH Results
Calder Mine
Prince of Wales Island, Alaska

		TAH	Sum of PAHs	TAqH
Cleanup Level (ug/L)		10		15
Field ID	**Date Sampled**			
Monitoring Well Samples				
MW4-W	9/30/2021	2.675	0.515	3.190
MW100-W (Duplicate)	9/30/2021	2.675	0.544	3.219
MW4-W	9/21/2022	2.675	0.52	3.195
MW100-W (Duplicate)	9/21/2022	2.675	0.52	3.195
MW5-W	9/30/2021	2.675	0.867	3.542
MW5-W	9/21/2022	2.675	0.52	3.195
MW6-W	9/30/2021	2.675	0.64	3.315
MW6-W	9/21/2022	2.675	0.52	3.195
Surface Water Samples				
SW-1	9/19/2018	2.675	0.45	3.125
SW-101 (Duplicate)	9/19/2018	2.675	0.45	3.125
SW-02	9/21/2022	2.675	0.52	3.195

Notes:

MRL - Method Reporting Limit (equivalent of limit of quantitation)
TAH = sum of BTEX
TAqH = sum of BTEX and PAHs

Summation of BTEX and PAHs includes 1/2 of MRL for non detects
Summation of PAHs should include 1/2 of laboratory method reporing limit (MRL) for non detects following the "Guidelines for the Treatment of Non-detect Values, Data Reduction for Multiple Detections and Comparsion of Quantification Limits to Cleanup Values" (ADEC 2017)

Table 7
Surface Water Analytical Results
GRO, DRO, RRO, BTEX, and VOCs
Calder Mine
Prince of Wales Island, Alaska

		AK 101	AK 102	AK103	EPA 8260					
		Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes	TAH	VOCs
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Water Quality Standards 18 AAC 70					**Total BTEX 10 ug/L**					
Camp Area Drainage Ditch										
SW-1	9/19/2018	- - -	**130**	<250	<0.35	<1	<1	<3	2.675	- - -
SW-101 (Duplicate)	9/19/2018	- - -	**480**	<300	<0.35	<1	<1	<3	2.675	- - -
SW-02	9/21/2022	<100	<50	<250	<0.35	<1	<1	<3	2.675	ND

Notes

[1]Soil was removed by additional remedial excavation

Red denotes concentration exceeds Water Quality Standards - Water Supply Aquaculture

Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the cleanup level

Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.

Alaska Department of Environmental Conservation (ADEC)

- - - = Not analyzed for this parameter

< = not detected at a concentration exceeding the laboratory MRL shown

ug/L = micrograms per Liter

ND = all VOCs were not detected above their respective MRL

TAH = sum of BTEX

Summation of BTEX should include 1/2 of laboratory method reporing limit (MRL) for non detects

Table 8
Surface Water Analytical Results
Detected PAHs and SVOCs
Calder Mine
Prince of Wales Island, Alaska

		8270D SIM																
		Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(ghi)perylene	Sum of PAHs
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Water Quality Standards 18 AAC 70		**Total PAHs 15 ug/L**																
Field ID	**Date Sampled**																	
Camp Area Drainage Ditch																		
SW-1	9/18/2018	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.03j	<0.06	<0.06	<0.06	<0.03j	<0.06	0.45
SW-101	9/18/2018	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	<0.03j	<0.06	<0.06	<0.06	<0.03j	<0.06	0.45
SW-02	9/21/2022	<0.4J	<0.04J	<0.04J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.52

Notes
Red denotes concentration exceeds Water Quality Standards - Water Supply Aquaculture
Blue denotes concentratin that exceeds the laboratory method reporting limit but is below the ADEC Method 2 cleanup level
Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.
Alaska Department of Environmental Conservation (ADEC)
< = not detected at a concentration exceeding the laboratory MRL shown
ug/L = micrograms per Liter
j -The analyte concentration is reported below the lowest calibration standard; the value reported is an estimate.

ATTACHMENT A

FIELD NOTES

Hydro Con	**DAILY FIELD REPORT**	Hydrocon Job Number:
	Project Name: Calder mine	Date: 9/21/22
Phone: 360.998.2902 1339 Commerce Ave., Suite 211; Longview, WA	Client: Columbia River Carbonates	Page: 1 Of 2
Prepared By: C. Hultgren	Location: POW Island, AK	Arrival: Departure:
Purpose:	Weather: SUN/clear	Permit:

(1300) Arrive at site - Go to office And then Shop area to look for mike Lehman.

(1315) meet mike @ Camp. Discuss what plans And get sample equipment / bottles.

(1345) Have heart & safety meeting - sign CRC Acknowledgement form.

(1400) Go to fueling station
Connex / Generator box has been moved. However, fuel line And underground utility conflicts prevent excavation / sampling (see photo)

Go to Camp Area

Rob sets up for sampling wells

	DTW	TIME
mw-4	3.41	1510
mw-5	3.79	1512
mw-6	3.10	1515

Sampling	Time of Sample collection
mw04	1600
mw5	1530
mw6	1500
SW2	1630

Hydro Con	DAILY FIELD REPORT	Hydrocon Job Number:
	Project Name: Calder Mine	Date: 9/21/21
Phone: 360.998.2902	Client: CRC	Page: 2 Of 2
1339 Commerce Ave., Suite 211; Longview, WA		
Prepared By: C. Hultgren	Location: Pow Island, AK	Arrival:
		Departure:
Purpose:	Weather:	Permit:

Camp Area – Soil Sampling

CS4 Area – Call these test pits "CS4A" – test pit # – depth

(CS4A location)

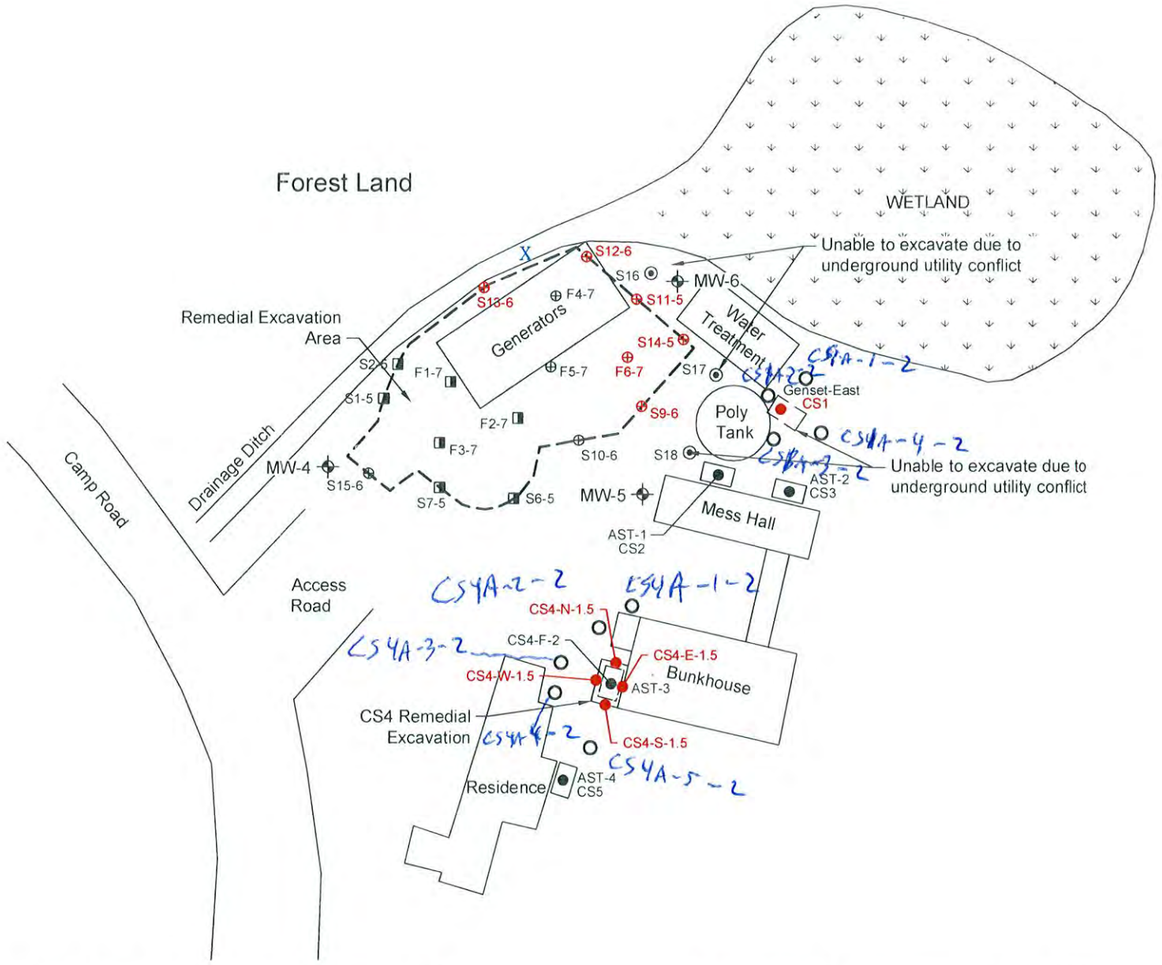
Time	Sample ID	PID	Notes
1540	CS4A-1-2	0.1 1'/0.1 2'	Sample @ 2' bgs
1555	CS4A-2-2	0.0 @ 1'/0.1 2'	" collect Dupe CS4A-100-2
1605	CS4A-3-2	0.0 1'/0.1 2'	"
1615	CS4A-4-2	0.0 @ 1'/0.1 2'	"
1625	CS4A-5-2	0.01 / 0.01 2'	"

NO odor/NO stain

Sample ID CS1A location

~~Time~~ Col	~~Sample~~ Cit ~~ID~~ Time	PID	Notes
CS1A-1-2	1645	0.1 1'/0.1 2'	Sample @ 2' bgs ^ NO odor/NO stain
CS1A-2-2	1655	0.1 1'/0.1 2'	
CS1A-3-2	1705	0.0 1'/0.1 2'	
CS1A-4-2	1715	0.01 1'/0.01 2'	

Collect Dupe ~~CS1A~~ CS1A-100-2



LEGEND

- SITE BOUNDARY
- EXISTING ACCESS ROAD
- Genset-West — SAMPLE LOCATIONS (PNG. 2004)
- CS1 — 2018 SAMPLE LOCATIONS
- EXISTING STRUCTURES
- EXCAVATION LOCATION
- S16 — DELINEATION SAMPLE LOCATIONS
- REMEDIAL EXCAVATION
- PROPOSED SOIL SAMPLING LOCAIONS
- S13-6 — SOIL SAMPLE EXCEEDS DRO CLEANUP LEVEL (230 mg/kg)
- X — SURFACE WATER SAMPLE LOCATION

N

0 20 40

SCALE IN FEET
1" = 20'

HydroCon
510 Allen St Suite B Kelso Wa 98626 Ph(360)-703-6086

DATE: 7-22-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 3
CAMP AREA
PROPOSED SOIL AND SURFACE WATER SAMPLING LOCATIONS
CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

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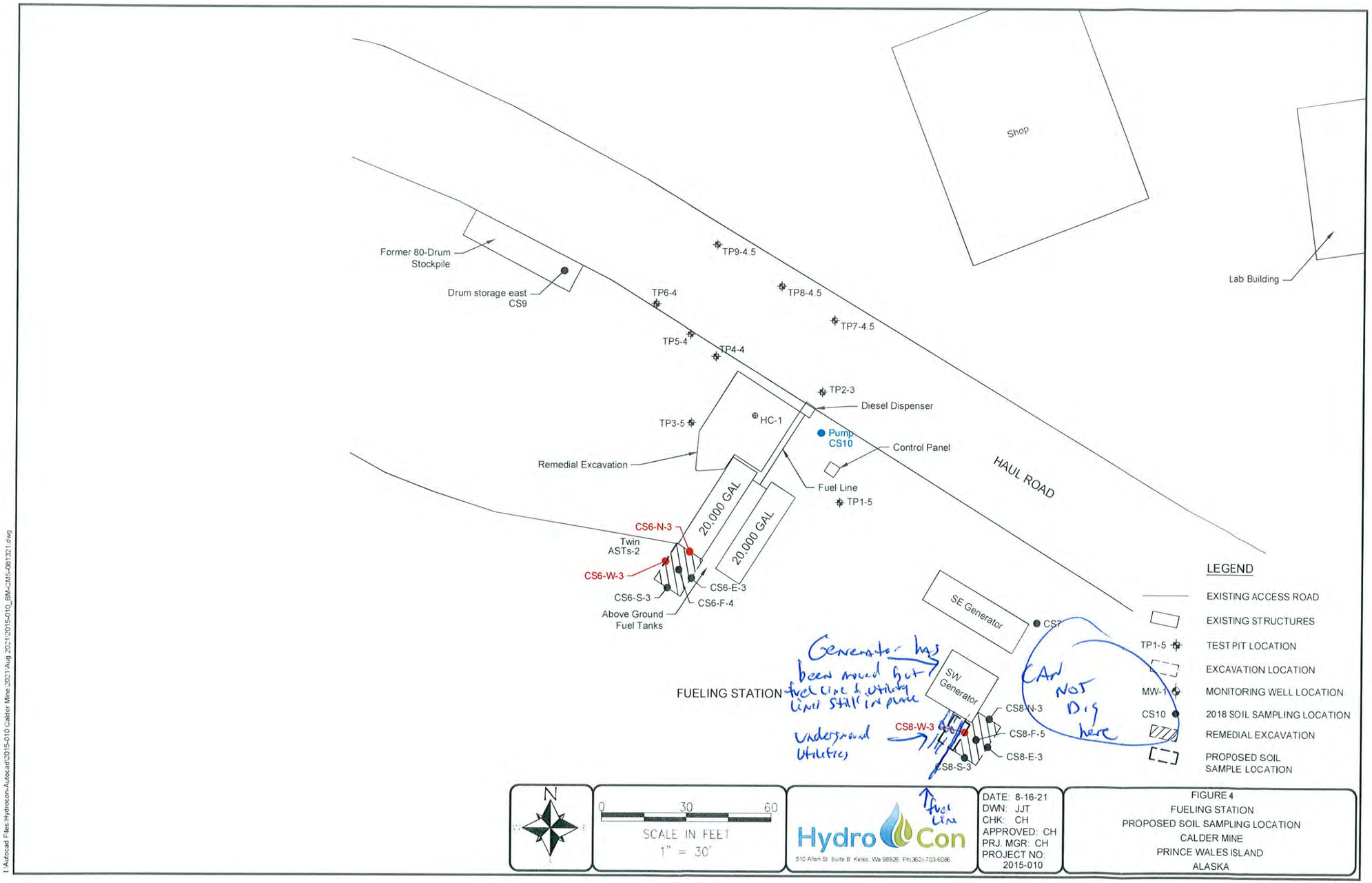
Shop
Lab Building
Former 80-Drum Stockpile
Drum storage east CS9
TP9-4.5
TP8-4.5
TP7-4.5
TP6-4
TP5-4
TP4-4
TP2-3
Diesel Dispenser
TP3-5
HC-1
Pump CS10
Control Panel
Remedial Excavation
Fuel Line
TP1-5
HAUL ROAD
20,000 GAL
20,000 GAL
CS6-N-3
Twin ASTs-2
CS6-W-3
CS6-E-3
CS6-S-3
CS6-F-4
Above Ground Fuel Tanks
FUELING STATION
SE Generator
CS7
Generator has been moved but fuel line & utility line still in place
SW Generator
CAN NOT Dig here
CS8-N-3
CS8-W-3
CS8-F-5
CS8-E-3
CS8-S-3
Underground Utilities
Fuel Line
LEGEND
EXISTING ACCESS ROAD
EXISTING STRUCTURES
TP1-5 TEST PIT LOCATION
EXCAVATION LOCATION
MW-1 MONITORING WELL LOCATION
CS10 2018 SOIL SAMPLING LOCATION
REMEDIAL EXCAVATION
PROPOSED SOIL SAMPLE LOCATION
N
0 30 60
SCALE IN FEET
1" = 30'
HydroCon
510 Allen St Suite B Kelso, Wa 98626 Ph(360)-703-6086
DATE: 8-16-21
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010
FIGURE 4
FUELING STATION
PROPOSED SOIL SAMPLING LOCATION
CALDER MINE
PRINCE WALES ISLAND
ALASKA
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ATTACHMENT B

PHOTO DOCUMENTATION

PHOTO 1
Utility lines next to Camp Bunkhouse.

PHOTO 2
Water treatment system and poly tank with utility lines.

PHOTO 3
Camp generator - utility penetgrations camp

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 1
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 4
Camp mess hall with utility line penetration.

PHOTO 5
Corner of mess hall with utility line penetration.

PHOTO 6
Fueling Station CS8 Location

Connex generator had been moved.
However, fuel line and elerical utility lines are present west of CS8-W sample location. Unable to excavate/sample at this location.

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 2
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 7
Measure depth to water.

PHOTO 8
Test pit excavation using Mini Trackhoe.

PHOTO 9
PID - Mini Rae 3000

Hydro Con
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 3
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 10
CS4A-1

PHOTO 11
CS4A-2

PHOTO 12
CS4A-3

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 4
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 13
CS4A-4

PHOTO 14
Surface water sampling.

PHOTO 15
CS1A-1

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 5
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 16
Fill at ~2' bgs consisting of limestone reject gravel and cobbles from mine.

PHOTO 17
CS1A-2

PHOTO 18
CS1A-3

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 6
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 19
CS1A-4

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-4-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 7
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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PHOTO 20
HydroCon2 Stockpile
Former location of HydroCon2 stockpile.

PHOTO 21
HydroCon2 Stockpile
Thinly spread treated soil from HydroCon2 stockpile at the Rock Dump.

HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

DATE: 10-24-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 8
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

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ATTACHMENT C

GROUNDWATER SAMPLE COLLECTION FORMS

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW04

Project Name: CRC
Hydrocon Project #: 2015-010
Date 9-21-22

Sample I.D. MW04-W Time: 1600
Field Duplicate I.D. MW100-W Time: 1600
Personnel: DAH

WELL INFORMATION

Monument condition: ☑ Good ☐ Needs repair _____ ☐ Water in Monument
Well cap condition: ☑ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☑ Not measured _____ ppm ☐ Odor _____
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 3.41 ft Intake Depth (BTOC) _____ Begin Purging Well: 1537
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☑ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: ☑ Drummed ☐ Remediation System ☐ Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (µS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1540	3.43	±0.1	11.6	460.1	0.48	7.17	-12.3	21.71
1543	|	|	11.6	461.0	0.33	7.14	-29.1	22.27
1546	|	|	11.7	460.0	0.29	7.15	-26.5	22.15
1549	|	|	11.8	460.9	0.26	7.17	-32.5	19.90
1552	|	|	11.7	460.2	0.26	7.17	-34.3	20.79
1555	|	|	11.7	460.7	0.26	7.17	-35.2	20.20

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	12	HCL	No 0.45 0.10	
500 mL Amber	4	—	No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW05

Project Name: CRC
Hydrocon Project #:
Date
Sample I.D. MW05-U Time: 1530
Field Duplicate I.D. Time:
Personnel:

WELL INFORMATION

Monument condition: ☑ Good ☐ Needs repair ☐ Water in Monument
Well cap condition: ☑ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☑ Not measured ppm ☐ Odor
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other
Comments

PURGING INFORMATION

Total well depth ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s):
Depth to product — ft
Depth to water 3.79 ft Intake Depth (BTOC) Begin Purging Well: 1507
Casing volume ft (H_2O) X gal/ft = gal. X 3 = gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☑ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other
Bailer type: Water Disposal: ☑ Drummed ☐ Remediation System ☐ Other

FIELD PARAMETERS

Odor and/or Sheen: —

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1510	3.81	20.1	11.5	427.6	0.57	7.13	-57.9	6.55
1513			11.5	430.1	0.37	7.12	-75.3	7.33
1516			11.6	431.4	0.30	7.13	-83.9	6.20
1519			11.6	434.3	0.27	7.13	-87.2	8.37
1522			11.6	435.3	0.21	7.13	-90.0	5.19
1525			11.6	435.1	0.24	7.13	-92.2	5.09

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments:

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	6	HCL	(No) 0.45 0.10	
500mL Amb.	2	—	(No) 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments:

GROUNDWATER SAMPLE COLLECTION FORM

Hydro Con

Well I.D. Number: MW 6

Project Name: CRC
Hydrocon Project #: 2015-010
Date 9-21-22

Sample I.D. MW06-W Time: 1500
Field Duplicate I.D. _____ Time: _____
Personnel: _____

WELL INFORMATION

Monument condition: ☑ Good ☐ Needs repair _____ ☐ Water in Monument
Well cap condition: ☑ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☑ Not measured _____ ppm ☐ Odor _____
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 3.10 ft Intake Depth (BTOC) _____ Begin Purging Well: 1435
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft (2")=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☑ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: ☑ Drummed ☐ Remediation System ☐ Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1438	3.12	20.1	11.3	390.0	0.68	7.51	166.3	8.76
1441			11.3	372.4	0.42	7.37	105.0	7.00
1444			11.3	372.3	0.30	7.37	104.6	7.29
1447			11.3	367.6	0.26	7.34	63.0	5.85
1450			11.3	367.4	0.25	7.34	53.2	6.38
1453			11.3	367.6	0.24	7.34	27.6	5.65

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: _____

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	6	HCl	(No) 0.45 0.10	
500 mL Amber	2	—	(No) 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

G=3.80' S=3.79 4=3.41'

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number:

Project Name: CRC
Hydrocon Project #: 2015-010
Date 9-21-22

Sample I.D. SW-02 Time: 1630
Field Duplicate I.D. _____ Time: _____
Personnel: RHH

WELL INFORMATION

Monument condition: ☐ Good ☐ Needs repair _____ ☐ Water in Monument
Well cap condition: ☐ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☐ Not measured _____ ppm ☐ Odor _____
Well diameter: ☐ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments Surface water grab Sample. (stream)

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☐ Not measured Screen Interval(s): _____
Depth to product _____ ft
Depth to water _____ ft Intake Depth (BTOC) _____ Begin Purging Well: _____
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

Pump type ☑ Peristaltic ☐ Centrifugal ☐ Dedicated Bladder ☐ Non-Dedicated Bladder Other _____
Bailer type: _____ Water Disposal: ☑ Drummed ☐ Remediation System ☐ Other _____

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (mS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: grab Sample

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL Vial	6	HCL	No 0.45 0.10	
500 mL Amber	2	—	No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

ATTACHMENT D

LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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October 6, 2022

Craig Hultgren, Project Manager
HydroCon
1339 Commerce Ave, Suite 211
Longview, WA 98632

Dear Mr Hultgren:

Included are the results from the testing of material submitted on September 23, 2022 from the Calder Mine, F&BI 209401 project. There are 39 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rob Honsberger
HDC1006R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 23, 2022 by Friedman & Bruya, Inc. (ADEC laboratory approval number UST-007) from the HydroCon Calder Mine, F&BI 209401 project. The samples were received at 6 °C in good condition and were refrigerated upon receipt. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon	Date Sampled
209401 -01	CS4A-1-2	09/21/22
209401 -02	CS4A-2-2	09/21/22
209401 -03	CS4A-3-2	09/21/22
209401 -04	CS4A-4-2	09/21/22
209401 -05	CS4A-5-2	09/21/22
209401 -06	CS4A-100-2	09/21/22
209401 -07	CS1A-1-2	09/21/22
209401 -08	CS1A-2-2	09/21/22
209401 -09	CS1A-3-2	09/21/22
209401 -10	CS1A-4-2	09/21/22
209401 -11	CS1A-100-2	09/21/22

The samples were analyzed as follows.

GRO (soil) - Analysis Method AK 101

All quality control requirements were acceptable.

DRO/RRO (soil) - Analysis Method AK 102/AK 103

All quality control requirements were acceptable.

PAHs (soil) - Analysis Method 8270

All quality control requirements were acceptable.

VOCs (soil) - Analysis Method 8260

The 8260D calibration standard failed the acceptance criteria for methylene chloride. The data were flagged accordingly. Chloroform was detected in samples CS4A-100-2 and CS1A-1-2. The data were flagged as possibly due to lab contamination. The 8260D laboratory control sample exceeded the acceptance criteria for 1,1,2-trichloroethane. The compound was not detected, therefore the data were acceptable. All other quality control requirements were acceptable.

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401
Date Extracted: 09/28/22
Date Analyzed: 09/28/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD AK 101

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range (C6-C10)	Surrogate (% Recovery) (Limit 58-139)
CS4A-1-2 209401-01	<5	96
CS4A-2-2 209401-02	<5	90
CS4A-3-2 209401-03	<5	91
CS4A-4-2 209401-04	<5	89
CS4A-5-2 209401-05	<5	93
CS4A-100-2 209401-06	<5	90
CS1A-1-2 209401-07	<5	90
CS1A-2-2 209401-08	6.6	89
CS1A-3-2 209401-09	<5	90
CS1A-4-2 209401-10	<5	93

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401
Date Extracted: 09/28/22
Date Analyzed: 09/28/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD AK 101

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Gasoline Range (C6-C10)	Surrogate (% Recovery) (Limit 58-139)
CS1A-100-2 209401-11	<5	90
Method Blank 02-2101 MB	<5	106

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401
Date Extracted: 09/28/22
Date Analyzed: 09/29/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
CS4A-1-2 209401-01	<50	95
CS4A-2-2 209401-02	<50	86
CS4A-3-2 209401-03	<50	93
CS4A-4-2 209401-04	<50	94
CS4A-5-2 209401-05	<50	95
CS4A-100-2 209401-06	<50	89
CS1A-1-2 209401-07	<50	92
CS1A-2-2 209401-08	<50	93
CS1A-3-2 209401-09	<50	96
CS1A-4-2 209401-10	58 x	84

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401
Date Extracted: 09/28/22
Date Analyzed: 09/29/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
CS1A-100-2 209401-11	53 x	94
Method Blank 02-2278 MB	<50	99

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401
Date Extracted: 09/28/22
Date Analyzed: 09/29/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Surrogate (% Recovery) (Limit 50-150)
CS4A-1-2 209401-01	<10	95
CS4A-2-2 209401-02	<10	86
CS4A-3-2 209401-03	<10	93
CS4A-4-2 209401-04	<10	94
CS4A-5-2 209401-05	<10	95
CS4A-100-2 209401-06	<10	89
CS1A-1-2 209401-07	160	92
CS1A-2-2 209401-08	550	93
CS1A-3-2 209401-09	270	96
CS1A-4-2 209401-10	270	84

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401
Date Extracted: 09/28/22
Date Analyzed: 09/29/22

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Surrogate (% Recovery) (Limit 50-150)
CS1A-100-2 209401-11	220	94
Method Blank 02-2278 MB	<10	99

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS4A-1-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-01
Date Analyzed:	09/28/22	Data File:	092823.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	106	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS4A-2-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-02
Date Analyzed:	09/28/22	Data File:	092824.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	104	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS4A-3-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-03
Date Analyzed:	09/28/22	Data File:	092825.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	103	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS4A-4-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-04
Date Analyzed:	09/28/22	Data File:	092826.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	104	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS4A-5-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-05
Date Analyzed:	09/28/22	Data File:	092827.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	93	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	105	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS4A-100-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-06
Date Analyzed:	09/28/22	Data File:	092828.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	104	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	0.052 lc	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS1A-1-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-07
Date Analyzed:	09/28/22	Data File:	092829.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	106	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	0.052 lc	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS1A-2-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-08
Date Analyzed:	09/28/22	Data File:	092830.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	90	109
Toluene-d8	104	89	112
4-Bromofluorobenzene	102	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS1A-3-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-09
Date Analyzed:	09/28/22	Data File:	092831.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	90	109
Toluene-d8	103	89	112
4-Bromofluorobenzene	105	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS1A-4-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-10
Date Analyzed:	09/28/22	Data File:	092832.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	105	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	0.54
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CS1A-100-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	209401-11
Date Analyzed:	09/28/22	Data File:	092833.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	108	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5 ca	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/28/22	Lab ID:	02-2293 mb
Date Analyzed:	09/28/22	Data File:	092805.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	90	109
Toluene-d8	102	89	112
4-Bromofluorobenzene	105	84	115

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<1	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<1	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4A-1-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-01 1/5
Date Analyzed:	09/30/22	Data File:	093020.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	94	16	137
2-Fluorobiphenyl	98	46	122
2,4,6-Tribromophenol	99	17	154
Terphenyl-d14	99	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	0.024
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.038
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4A-2-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-02 1/5
Date Analyzed:	09/30/22	Data File:	093021.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	88	16	137
2-Fluorobiphenyl	94	46	122
2,4,6-Tribromophenol	99	17	154
Terphenyl-d14	96	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4A-3-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-03 1/5
Date Analyzed:	09/30/22	Data File:	093022.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	88	16	137
2-Fluorobiphenyl	92	46	122
2,4,6-Tribromophenol	95	17	154
Terphenyl-d14	96	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4A-4-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-04 1/5
Date Analyzed:	09/30/22	Data File:	093023.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	92	16	137
2-Fluorobiphenyl	96	46	122
2,4,6-Tribromophenol	101	17	154
Terphenyl-d14	94	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4A-5-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-05 1/5
Date Analyzed:	09/30/22	Data File:	093024.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	102	16	137
2-Fluorobiphenyl	95	46	122
2,4,6-Tribromophenol	101	17	154
Terphenyl-d14	94	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	0.016
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.027
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4A-100-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-06 1/5
Date Analyzed:	09/30/22	Data File:	093015.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	95	10	198
2-Fluorobiphenyl	93	45	117
2,4,6-Tribromophenol	106	11	158
Terphenyl-d14	111	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS1A-1-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-07 1/5
Date Analyzed:	09/30/22	Data File:	093010.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	94	10	198
2-Fluorobiphenyl	94	45	117
2,4,6-Tribromophenol	100	11	158
Terphenyl-d14	115	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.040
2-Methylnaphthalene	0.12
1-Methylnaphthalene	0.053
Acenaphthylene	<0.01
Acenaphthene	0.013
Fluorene	<0.01
Phenanthrene	0.040
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.011
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS1A-2-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-08 1/5
Date Analyzed:	09/30/22	Data File:	093011.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	96	10	198
2-Fluorobiphenyl	93	45	117
2,4,6-Tribromophenol	99	11	158
Terphenyl-d14	107	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.093
2-Methylnaphthalene	0.23
1-Methylnaphthalene	0.12
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.063
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.023
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS1A-3-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-09 1/5
Date Analyzed:	09/30/22	Data File:	093012.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	95	10	198
2-Fluorobiphenyl	94	45	117
2,4,6-Tribromophenol	103	11	158
Terphenyl-d14	111	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.14
2-Methylnaphthalene	0.35
1-Methylnaphthalene	0.18
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.073
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.028
Benz(a)anthracene	<0.01
Chrysene	0.012
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS1A-4-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-10 1/5
Date Analyzed:	09/30/22	Data File:	093013.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	99	10	198
2-Fluorobiphenyl	96	45	117
2,4,6-Tribromophenol	105	11	158
Terphenyl-d14	112	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.11
2-Methylnaphthalene	0.27
1-Methylnaphthalene	0.15
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.055
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	0.021
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS1A-100-2	Client:	HydroCon
Date Received:	09/23/22	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	209401-11 1/5
Date Analyzed:	09/30/22	Data File:	093014.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	101	10	198
2-Fluorobiphenyl	101	45	117
2,4,6-Tribromophenol	109	11	158
Terphenyl-d14	111	50	124

Compounds:	Concentration mg/kg (ppm)
Naphthalene	0.032
2-Methylnaphthalene	0.089
1-Methylnaphthalene	0.042
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	0.031
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	Calder Mine, F&BI 209401
Date Extracted:	09/30/22	Lab ID:	02-2384 mb 1/5
Date Analyzed:	09/30/22	Data File:	093019.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	108	16	137
2-Fluorobiphenyl	103	46	122
2,4,6-Tribromophenol	108	17	154
Terphenyl-d14	104	31	167

Compounds:	Concentration mg/kg (ppm)
Naphthalene	<0.01
2-Methylnaphthalene	<0.01
1-Methylnaphthalene	<0.01
Acenaphthylene	<0.01
Acenaphthene	<0.01
Fluorene	<0.01
Phenanthrene	<0.01
Anthracene	<0.01
Fluoranthene	<0.01
Pyrene	<0.01
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01
Benzo(g,h,i)perylene	<0.01

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR TPH AS GASOLINE USING METHOD AK 101

Laboratory Code: 209390-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	mg/kg (ppm)	20	90	71-131

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Motor Oil	mg/kg (ppm)	250	84	90	70-130	7

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD AK 102

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	500	109	109	70-130	0

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 209435-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	1	<0.5	22	21	10-142	5
Chloromethane	mg/kg (ppm)	1	<0.5	56	54	10-126	4
Vinyl chloride	mg/kg (ppm)	1	<0.05	52	49	10-138	6
Bromomethane	mg/kg (ppm)	1	<0.5	52	49	10-163	6
Chloroethane	mg/kg (ppm)	1	<0.5	64	61	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	1	<0.5	57	56	10-176	2
Acetone	mg/kg (ppm)	5	<5	59	71	10-163	18
1,1-Dichloroethene	mg/kg (ppm)	1	<0.05	74	71	10-160	4
Hexane	mg/kg (ppm)	1	<0.25	69	67	10-137	3
Methylene chloride	mg/kg (ppm)	1	<0.5	61	59	10-156	3
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	<0.05	87	84	21-145	4
trans-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	86	82	14-137	5
1,1-Dichloroethane	mg/kg (ppm)	1	<0.05	86	83	19-140	4
2,2-Dichloropropane	mg/kg (ppm)	1	<0.05	100	92	10-158	8
cis-1,2-Dichloroethene	mg/kg (ppm)	1	<0.05	92	88	25-135	4
Chloroform	mg/kg (ppm)	1	<0.05	83	77	21-145	7
2-Butanone (MEK)	mg/kg (ppm)	5	<1	68	64	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	<0.05	90	88	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	1	<0.05	94	91	10-156	3
1,1-Dichloropropene	mg/kg (ppm)	1	<0.05	89	86	17-140	3
Carbon tetrachloride	mg/kg (ppm)	1	<0.05	95	93	9-164	2
Benzene	mg/kg (ppm)	1	<0.03	87	85	29-129	2
Trichloroethene	mg/kg (ppm)	1	<0.02	97	96	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	1	<0.05	91	88	30-135	3
Bromodichloromethane	mg/kg (ppm)	1	<0.05	91	87	23-155	4
Dibromomethane	mg/kg (ppm)	1	<0.05	93	89	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	5	<1	96	91	24-155	5
cis-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	93	88	28-144	6
Toluene	mg/kg (ppm)	1	<0.05	88	82	35-130	7
trans-1,3-Dichloropropene	mg/kg (ppm)	1	<0.05	86	82	26-149	5
1,1,2-Trichloroethane	mg/kg (ppm)	1	<0.05	90	85	10-205	6
2-Hexanone	mg/kg (ppm)	5	<0.5	69	65	15-166	6
1,3-Dichloropropane	mg/kg (ppm)	1	<0.05	88	85	31-137	3
Tetrachloroethene	mg/kg (ppm)	1	<0.025	84	81	20-133	4
Dibromochloromethane	mg/kg (ppm)	1	<0.05	87	84	28-150	4
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	<0.05	88	83	28-142	6
Chlorobenzene	mg/kg (ppm)	1	<0.05	87	83	32-129	5
Ethylbenzene	mg/kg (ppm)	1	<0.05	87	82	32-137	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	90	86	31-143	5
m,p-Xylene	mg/kg (ppm)	2	<0.1	88	82	34-136	7
o-Xylene	mg/kg (ppm)	1	<0.05	88	85	33-134	3
Styrene	mg/kg (ppm)	1	<0.05	86	81	35-137	6
Isopropylbenzene	mg/kg (ppm)	1	<0.05	87	82	31-142	6
Bromoform	mg/kg (ppm)	1	<0.05	81	78	21-156	4
n-Propylbenzene	mg/kg (ppm)	1	<0.05	88	85	23-146	3
Bromobenzene	mg/kg (ppm)	1	<0.05	89	86	34-130	3
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	<0.05	86	83	18-149	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	<0.05	83	77	28-140	7
1,2,3-Trichloropropane	mg/kg (ppm)	1	<0.05	93	91	25-144	2
2-Chlorotoluene	mg/kg (ppm)	1	<0.05	87	85	31-134	2
4-Chlorotoluene	mg/kg (ppm)	1	<0.05	89	86	31-136	3
tert-Butylbenzene	mg/kg (ppm)	1	<0.05	89	84	30-137	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	<0.05	85	82	10-182	4
sec-Butylbenzene	mg/kg (ppm)	1	<0.05	86	83	23-145	4
p-Isopropyltoluene	mg/kg (ppm)	1	<0.05	86	82	21-149	5
1,3-Dichlorobenzene	mg/kg (ppm)	1	<0.05	86	83	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	1	<0.05	90	87	29-129	3
1,2-Dichlorobenzene	mg/kg (ppm)	1	<0.05	83	82	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	<0.5	79	82	11-161	4
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	<0.25	77	77	22-142	0
Hexachlorobutadiene	mg/kg (ppm)	1	<0.25	77	79	10-142	3
Naphthalene	mg/kg (ppm)	1	<0.05	81	80	14-157	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	<0.25	74	75	20-144	1

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	1	71	10-146
Chloromethane	mg/kg (ppm)	1	91	27-133
Vinyl chloride	mg/kg (ppm)	1	96	22-139
Bromomethane	mg/kg (ppm)	1	91	38-114
Chloroethane	mg/kg (ppm)	1	100	9-163
Trichlorofluoromethane	mg/kg (ppm)	1	109	10-196
Acetone	mg/kg (ppm)	5	102	52-141
1,1-Dichloroethene	mg/kg (ppm)	1	114	47-128
Hexane	mg/kg (ppm)	1	129	43-142
Methylene chloride	mg/kg (ppm)	1	100	10-184
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	1	115	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	1	124	67-129
1,1-Dichloroethane	mg/kg (ppm)	1	111	68-115
2,2-Dichloropropane	mg/kg (ppm)	1	160	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	1	126	72-127
Chloroform	mg/kg (ppm)	1	111	66-120
2-Butanone (MEK)	mg/kg (ppm)	5	96	30-197
1,2-Dichloroethane (EDC)	mg/kg (ppm)	1	125	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	1	121	62-131
1,1-Dichloropropene	mg/kg (ppm)	1	126	69-128
Carbon tetrachloride	mg/kg (ppm)	1	135	60-139
Benzene	mg/kg (ppm)	1	114	71-118
Trichloroethene	mg/kg (ppm)	1	120	63-121
1,2-Dichloropropane	mg/kg (ppm)	1	123	72-127
Bromodichloromethane	mg/kg (ppm)	1	122	57-126
Dibromomethane	mg/kg (ppm)	1	122	62-123
4-Methyl-2-pentanone	mg/kg (ppm)	5	130	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	1	113	67-122
Toluene	mg/kg (ppm)	1	115	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	1	116	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	1	117 vo	64-115
2-Hexanone	mg/kg (ppm)	5	94	33-152
1,3-Dichloropropane	mg/kg (ppm)	1	118	72-130
Tetrachloroethene	mg/kg (ppm)	1	112	72-114
Dibromochloromethane	mg/kg (ppm)	1	118	55-121
1,2-Dibromoethane (EDB)	mg/kg (ppm)	1	116	74-132
Chlorobenzene	mg/kg (ppm)	1	109	76-111
Ethylbenzene	mg/kg (ppm)	1	115	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	1	118	64-121
m,p-Xylene	mg/kg (ppm)	2	116	78-122
o-Xylene	mg/kg (ppm)	1	117	77-124
Styrene	mg/kg (ppm)	1	114	74-126
Isopropylbenzene	mg/kg (ppm)	1	113	76-127
Bromoform	mg/kg (ppm)	1	109	56-132
n-Propylbenzene	mg/kg (ppm)	1	118	74-124
Bromobenzene	mg/kg (ppm)	1	121	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	1	116	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	1	120	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	1	125	61-137
2-Chlorotoluene	mg/kg (ppm)	1	116	74-121
4-Chlorotoluene	mg/kg (ppm)	1	118	75-122
tert-Butylbenzene	mg/kg (ppm)	1	116	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	1	114	76-125
sec-Butylbenzene	mg/kg (ppm)	1	114	71-130
p-Isopropyltoluene	mg/kg (ppm)	1	115	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	1	114	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	1	116	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	1	112	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	1	114	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	1	105	64-135
Hexachlorobutadiene	mg/kg (ppm)	1	110	50-153
Naphthalene	mg/kg (ppm)	1	107	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	1	103	63-138

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 209401-04 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	mg/kg (ppm)	0.83	<0.01	81	83	50-150	2
2-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	85	87	50-150	2
1-Methylnaphthalene	mg/kg (ppm)	0.83	<0.01	85	87	50-150	2
Acenaphthylene	mg/kg (ppm)	0.83	<0.01	89	88	50-150	1
Acenaphthene	mg/kg (ppm)	0.83	<0.01	85	84	50-150	1
Fluorene	mg/kg (ppm)	0.83	<0.01	88	90	50-150	2
Phenanthrene	mg/kg (ppm)	0.83	<0.01	90	88	10-170	2
Anthracene	mg/kg (ppm)	0.83	<0.01	91	92	50-150	1
Fluoranthene	mg/kg (ppm)	0.83	<0.01	94	94	10-203	0
Pyrene	mg/kg (ppm)	0.83	<0.01	85	85	10-208	0
Benz(a)anthracene	mg/kg (ppm)	0.83	<0.01	89	90	37-146	1
Chrysene	mg/kg (ppm)	0.83	<0.01	91	90	36-144	1
Benzo(a)pyrene	mg/kg (ppm)	0.83	<0.01	91	91	40-150	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	<0.01	90	92	45-157	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	<0.01	90	86	50-150	5
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	<0.01	86	91	24-145	6
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	<0.01	86	89	31-137	3
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	<0.01	82	83	14-141	1

Date of Report: 10/06/22
Date Received: 09/23/22
Project: Calder Mine, F&BI 209401

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Naphthalene	mg/kg (ppm)	0.83	83	61-102
2-Methylnaphthalene	mg/kg (ppm)	0.83	87	62-108
1-Methylnaphthalene	mg/kg (ppm)	0.83	87	62-108
Acenaphthylene	mg/kg (ppm)	0.83	89	61-111
Acenaphthene	mg/kg (ppm)	0.83	85	61-110
Fluorene	mg/kg (ppm)	0.83	90	62-114
Phenanthrene	mg/kg (ppm)	0.83	89	64-112
Anthracene	mg/kg (ppm)	0.83	91	63-111
Fluoranthene	mg/kg (ppm)	0.83	94	66-115
Pyrene	mg/kg (ppm)	0.83	85	65-112
Benz(a)anthracene	mg/kg (ppm)	0.83	90	64-116
Chrysene	mg/kg (ppm)	0.83	92	66-119
Benzo(a)pyrene	mg/kg (ppm)	0.83	93	62-116
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	94	61-118
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	94	65-119
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	84	64-130
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	83	67-131
Benzo(g,h,i)perylene	mg/kg (ppm)	0.83	78	67-126

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

209401 — 09/23/22 — CI3

Page # 1 of 2

Report To Craig Holtgren
Company HydroCon
Address
City, State, ZIP Longview, WA
Phone 360 998-2902 Email craig@hydroconllc.net

SAMPLERS (*signature*)

PROJECT NAME: Calder Mine

PO #

REMARKS: ~~CH~~ CH
Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
☒ Standard turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Archive samples
☐ Other
Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: ~~NWTPH-Dx~~	~~NWTPH-Gx~~	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260D	PAHs EPA 8270E	PCBs EPA 8082	AK101	AK102	AK103		Notes
CS4A-1-2	01 A-E	9/21/22	1540	Soil	5					X	X		X	X	X		
CS4A-2-2	02		1555		5					X	X		X	X	X		
CS4A-3-2	03		1605		5					X	X		X	X	X		
CS4A-4-2	04 A-F		1615		6					X	X		X	X	X		
CS4A-5-2	05		1625		6					X	X		X	X	X		
CS4A-100-2	06 A-E		1630		~~5~~ 6					X	X		X	X	X		received 5 samples (AP)
CS1A-1-2	07 A-F		~~1615~~ 1625 CH		6					X	X		X	X	X		
CS1A-2-2	08		~~1625~~ 1635 CH		6					X	X		X	X	X		
CS1A-3-2	09		1705		6					X	X		X	X	X		
CS1A-4-2	10	↓	1715	↓	6					X	X		X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Craig Holtgren	HydroCon	9/23/22	
Received by:	AHMUB	FHB	9/23/22	1930
Relinquished by:				
Received by:		Samples received at ~~6~~ °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

209401

SAMPLE CHAIN OF CUSTODY

09/23/22 CB

Page # 2 of 2

Report To Craig Hultgren

Company Hydrocon

Address

City, State, ZIP Longview

Phone (360) 998-2902 Email Craigh@hydroconllc.net

SAMPLERS (signature)

PROJECT NAME: Caldor mine

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- X Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260 (D)	PAHs EPA 8270 (E)	PCBs EPA 8082	AK101	AK102	AK103		Notes
CSIA-100-2	11A-F	9/22/22	1220	Soil	6					X	X		X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Craig Hultgren	Hydrocon	9/23/22	
Received by:	AHMB	FTB	9/23/22	1930
Relinquished by:				
Received by:		Samples received at 6 °C		

Friedman & Bruya, Inc.
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 6, 2022

Craig Hultgren, Project Manager
HydroCon
1339 Commerce Ave, Suite 211
Longview, WA 98632

Dear Mr Hultgren:

Included are the results from the testing of material submitted on September 23, 2022 from the CRC 2015-010, F&BI 209400 project. There are 23 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rob Honsberger
HDC1006R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 23, 2022 by Friedman & Bruya, Inc. (ADEC laboratory approval number UST-007) from the HydroCon CRC 2015-010, F&BI 209400 project. The samples were received at 6 °C in good condition and were refrigerated upon receipt. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon	Date Sampled
209400 -01	MW05-w	09/21/22
209400 -02	MW06-w	09/21/22
209400 -03	MW04-w	09/21/22
209400 -04	MW100-w	09/21/22
209400 -05	SW-02	09/21/22
209400 -06	Purge-w	09/22/22
209400 -07	Trip Blank	NA

The samples were analyzed as follows.

DRO/RRO (water) - Analysis Method AK 102/AK 103

All quality control requirements were acceptable.

VOCs (water) - Analysis Method 8260

The 8260D laboratory control sample exceeded the acceptance criteria for chloroethane. The compound was not detected, therefore the data were acceptable.
All other quality control requirements were acceptable.

SVOCs (water) - Analysis Method 8270 SIM

Several compounds in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. The data were flagged accordingly. All other quality control requirements were acceptable.

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400
Date Extracted: 09/29/22
Date Analyzed: 09/29/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS GASOLINE USING METHOD AK 101

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Gasoline Range (C_6-C_{10})	Surrogate (% Recovery) (Limit 51-134)
MW05-w 209400-01	<100	94
MW06-w 209400-02	<100	91
MW04-w 209400-03	<100	94
MW100-w 209400-04	<100	94
SW-02 209400-05	<100	91
Method Blank 02-2332 MB	<100	92

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400
Date Extracted: 09/28/22
Date Analyzed: 09/28/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
MW05-w 209400-01	<250	98
MW06-w 209400-02	<250	95
MW04-w 209400-03	<250	95
MW100-w 209400-04	<250	95
SW-02 209400-05	<250	94
Purge-w 209400-06	<250	90
Method Blank 02-2366 MB	<250	76

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400
Date Extracted: 09/28/22
Date Analyzed: 09/28/22

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Surrogate (% Recovery) (Limit 50-150)
MW05-w 209400-01	120 x	121
MW06-w 209400-02	<50	131
MW04-w 209400-03	<50	127
MW100-w 209400-04	<50	122
SW-02 209400-05	<50	122
Purge-w 209400-06	73 x	122
Method Blank 02-2366 MB	<50	115

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW05-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/26/22	Lab ID:	209400-01
Date Analyzed:	09/26/22	Data File:	092640.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	92	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW06-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/26/22	Lab ID:	209400-02
Date Analyzed:	09/26/22	Data File:	092641.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	71	132
Toluene-d8	100	68	139
4-Bromofluorobenzene	96	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW04-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/26/22	Lab ID:	209400-03
Date Analyzed:	09/27/22	Data File:	092642.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	103	68	139
4-Bromofluorobenzene	94	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW100-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/26/22	Lab ID:	209400-04
Date Analyzed:	09/27/22	Data File:	092643.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	71	132
Toluene-d8	101	68	139
4-Bromofluorobenzene	94	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	SW-02	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/26/22	Lab ID:	209400-05
Date Analyzed:	09/27/22	Data File:	092644.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	71	132
Toluene-d8	101	68	139
4-Bromofluorobenzene	96	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/26/22	Lab ID:	02-2182 mb
Date Analyzed:	09/26/22	Data File:	092607.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	96	62	136

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.02	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<5	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<5
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<0.2
2-Butanone (MEK)	<20	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<0.2	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<0.5	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<0.4	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<0.5
trans-1,3-Dichloropropene	<0.4	Naphthalene	<1
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW05-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/28/22	Lab ID:	209400-01 1/2
Date Analyzed:	09/30/22	Data File:	093007.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29	11	65
Phenol-d6	22	11	65
Nitrobenzene-d5	66	11	173
2-Fluorobiphenyl	67	44	108
2,4,6-Tribromophenol	88	10	140
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<4	2,6-Dinitrotoluene	<2
Bis(2-chloroethyl) ether	<0.4 jl	3-Nitroaniline	<40
2-Chlorophenol	<4	Acenaphthene	<0.04 jl
1,3-Dichlorobenzene	<0.4	2,4-Dinitrophenol	<12
1,4-Dichlorobenzene	<0.4	Dibenzofuran	<0.4 jl
1,2-Dichlorobenzene	<0.4 jl	2,4-Dinitrotoluene	<2
Benzyl alcohol	<4	4-Nitrophenol	<12
2,2'-Oxybis(1-chloropropane)	<0.4 jl	Diethyl phthalate	<4
2-Methylphenol	<4	Fluorene	<0.04
Hexachloroethane	<0.4	4-Chlorophenyl phenyl ether	<0.4
N-Nitroso-di-n-propylamine	<0.4 jl	N-Nitrosodiphenylamine	<0.4
3-Methylphenol + 4-Methylphenol	<8	4-Nitroaniline	<40
Nitrobenzene	<0.4 jl	4,6-Dinitro-2-methylphenol	<12
Isophorone	<0.4 jl	4-Bromophenyl phenyl ether	<0.4
2-Nitrophenol	<4	Hexachlorobenzene	<0.4
2,4-Dimethylphenol	<4 jl	Pentachlorophenol	<2
Benzoic acid	<20	Phenanthrene	<0.04
Bis(2-chloroethoxy)methane	<0.4	Anthracene	<0.04
2,4-Dichlorophenol	<4	Carbazole	<0.4
1,2,4-Trichlorobenzene	<0.4 jl	Di-n-butyl phthalate	<4
Naphthalene	<0.4 jl	Fluoranthene	<0.04
Hexachlorobutadiene	<0.4 jl	Pyrene	<0.04
4-Chloroaniline	<40	Benzyl butyl phthalate	<4
4-Chloro-3-methylphenol	<4	Benz(a)anthracene	<0.04
2-Methylnaphthalene	<0.4 jl	Chrysene	<0.04
1-Methylnaphthalene	<0.4 jl	Bis(2-ethylhexyl) phthalate	<6.4
Hexachlorocyclopentadiene	<1.2	Di-n-octyl phthalate	<4
2,4,6-Trichlorophenol	<4	Benzo(a)pyrene	<0.04
2,4,5-Trichlorophenol	<4	Benzo(b)fluoranthene	<0.04
2-Chloronaphthalene	<0.4 jl	Benzo(k)fluoranthene	<0.04
2-Nitroaniline	<2	Indeno(1,2,3-cd)pyrene	<0.04
Dimethyl phthalate	<4	Dibenz(a,h)anthracene	<0.04
Acenaphthylene	<0.04	Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW06-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/28/22	Lab ID:	209400-02 1/2
Date Analyzed:	09/30/22	Data File:	093008.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12	11	65
Phenol-d6	21	11	65
Nitrobenzene-d5	85	11	173
2-Fluorobiphenyl	87	44	108
2,4,6-Tribromophenol	50	10	140
Terphenyl-d14	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<4	2,6-Dinitrotoluene	<2
Bis(2-chloroethyl) ether	<0.4 jl	3-Nitroaniline	<40
2-Chlorophenol	<4	Acenaphthene	<0.04 jl
1,3-Dichlorobenzene	<0.4	2,4-Dinitrophenol	<12
1,4-Dichlorobenzene	<0.4	Dibenzofuran	<0.4 jl
1,2-Dichlorobenzene	<0.4 jl	2,4-Dinitrotoluene	<2
Benzyl alcohol	<4	4-Nitrophenol	<12
2,2'-Oxybis(1-chloropropane)	<0.4 jl	Diethyl phthalate	<4
2-Methylphenol	<4	Fluorene	<0.04
Hexachloroethane	<0.4	4-Chlorophenyl phenyl ether	<0.4
N-Nitroso-di-n-propylamine	<0.4 jl	N-Nitrosodiphenylamine	<0.4
3-Methylphenol + 4-Methylphenol	<8	4-Nitroaniline	<40
Nitrobenzene	<0.4 jl	4,6-Dinitro-2-methylphenol	<12
Isophorone	<0.4 jl	4-Bromophenyl phenyl ether	<0.4
2-Nitrophenol	<4	Hexachlorobenzene	<0.4
2,4-Dimethylphenol	<4 jl	Pentachlorophenol	<2
Benzoic acid	<20	Phenanthrene	<0.04
Bis(2-chloroethoxy)methane	<0.4	Anthracene	<0.04
2,4-Dichlorophenol	<4	Carbazole	<0.4
1,2,4-Trichlorobenzene	<0.4 jl	Di-n-butyl phthalate	<4
Naphthalene	<0.4 jl	Fluoranthene	<0.04
Hexachlorobutadiene	<0.4 jl	Pyrene	<0.04
4-Chloroaniline	<40	Benzyl butyl phthalate	<4
4-Chloro-3-methylphenol	<4	Benz(a)anthracene	<0.04
2-Methylnaphthalene	<0.4 jl	Chrysene	<0.04
1-Methylnaphthalene	<0.4 jl	Bis(2-ethylhexyl) phthalate	<6.4
Hexachlorocyclopentadiene	<1.2	Di-n-octyl phthalate	<4
2,4,6-Trichlorophenol	<4	Benzo(a)pyrene	<0.04
2,4,5-Trichlorophenol	<4	Benzo(b)fluoranthene	<0.04
2-Chloronaphthalene	<0.4 jl	Benzo(k)fluoranthene	<0.04
2-Nitroaniline	<2	Indeno(1,2,3-cd)pyrene	<0.04
Dimethyl phthalate	<4	Dibenz(a,h)anthracene	<0.04
Acenaphthylene	<0.04	Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW04-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/28/22	Lab ID:	209400-03 1/2
Date Analyzed:	09/30/22	Data File:	093009.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	33	11	65
Phenol-d6	26	11	65
Nitrobenzene-d5	81	11	173
2-Fluorobiphenyl	82	44	108
2,4,6-Tribromophenol	90	10	140
Terphenyl-d14	95	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<4	2,6-Dinitrotoluene	<2
Bis(2-chloroethyl) ether	<0.4 jl	3-Nitroaniline	<40
2-Chlorophenol	<4	Acenaphthene	<0.04 jl
1,3-Dichlorobenzene	<0.4	2,4-Dinitrophenol	<12
1,4-Dichlorobenzene	<0.4	Dibenzofuran	<0.4 jl
1,2-Dichlorobenzene	<0.4 jl	2,4-Dinitrotoluene	<2
Benzyl alcohol	<4	4-Nitrophenol	<12
2,2'-Oxybis(1-chloropropane)	<0.4 jl	Diethyl phthalate	<4
2-Methylphenol	<4	Fluorene	<0.04
Hexachloroethane	<0.4	4-Chlorophenyl phenyl ether	<0.4
N-Nitroso-di-n-propylamine	<0.4 jl	N-Nitrosodiphenylamine	<0.4
3-Methylphenol + 4-Methylphenol	<8	4-Nitroaniline	<40
Nitrobenzene	<0.4 jl	4,6-Dinitro-2-methylphenol	<12
Isophorone	<0.4 jl	4-Bromophenyl phenyl ether	<0.4
2-Nitrophenol	<4	Hexachlorobenzene	<0.4
2,4-Dimethylphenol	<4 jl	Pentachlorophenol	<2
Benzoic acid	<20	Phenanthrene	<0.04
Bis(2-chloroethoxy)methane	<0.4	Anthracene	<0.04
2,4-Dichlorophenol	<4	Carbazole	<0.4
1,2,4-Trichlorobenzene	<0.4 jl	Di-n-butyl phthalate	<4
Naphthalene	<0.4 jl	Fluoranthene	<0.04
Hexachlorobutadiene	<0.4 jl	Pyrene	<0.04
4-Chloroaniline	<40	Benzyl butyl phthalate	<4
4-Chloro-3-methylphenol	<4	Benz(a)anthracene	<0.04
2-Methylnaphthalene	<0.4 jl	Chrysene	<0.04
1-Methylnaphthalene	<0.4 jl	Bis(2-ethylhexyl) phthalate	<6.4
Hexachlorocyclopentadiene	<1.2	Di-n-octyl phthalate	<4
2,4,6-Trichlorophenol	<4	Benzo(a)pyrene	<0.04
2,4,5-Trichlorophenol	<4	Benzo(b)fluoranthene	<0.04
2-Chloronaphthalene	<0.4 jl	Benzo(k)fluoranthene	<0.04
2-Nitroaniline	<2	Indeno(1,2,3-cd)pyrene	<0.04
Dimethyl phthalate	<4	Dibenz(a,h)anthracene	<0.04
Acenaphthylene	<0.04	Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW100-w	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/28/22	Lab ID:	209400-04 1/2
Date Analyzed:	09/30/22	Data File:	093010.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	28	11	65
Phenol-d6	22	11	65
Nitrobenzene-d5	62	11	173
2-Fluorobiphenyl	70	44	108
2,4,6-Tribromophenol	101	10	140
Terphenyl-d14	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<4	2,6-Dinitrotoluene	<2
Bis(2-chloroethyl) ether	<0.4 jl	3-Nitroaniline	<40
2-Chlorophenol	<4	Acenaphthene	<0.04 jl
1,3-Dichlorobenzene	<0.4	2,4-Dinitrophenol	<12
1,4-Dichlorobenzene	<0.4	Dibenzofuran	<0.4 jl
1,2-Dichlorobenzene	<0.4 jl	2,4-Dinitrotoluene	<2
Benzyl alcohol	<4	4-Nitrophenol	<12
2,2'-Oxybis(1-chloropropane)	<0.4 jl	Diethyl phthalate	<4
2-Methylphenol	<4	Fluorene	<0.04
Hexachloroethane	<0.4	4-Chlorophenyl phenyl ether	<0.4
N-Nitroso-di-n-propylamine	<0.4 jl	N-Nitrosodiphenylamine	<0.4
3-Methylphenol + 4-Methylphenol	<8	4-Nitroaniline	<40
Nitrobenzene	<0.4 jl	4,6-Dinitro-2-methylphenol	<12
Isophorone	<0.4 jl	4-Bromophenyl phenyl ether	<0.4
2-Nitrophenol	<4	Hexachlorobenzene	<0.4
2,4-Dimethylphenol	<4 jl	Pentachlorophenol	<2
Benzoic acid	<20	Phenanthrene	<0.04
Bis(2-chloroethoxy)methane	<0.4	Anthracene	<0.04
2,4-Dichlorophenol	<4	Carbazole	<0.4
1,2,4-Trichlorobenzene	<0.4 jl	Di-n-butyl phthalate	<4
Naphthalene	<0.4 jl	Fluoranthene	<0.04
Hexachlorobutadiene	<0.4 jl	Pyrene	<0.04
4-Chloroaniline	<40	Benzyl butyl phthalate	<4
4-Chloro-3-methylphenol	<4	Benz(a)anthracene	<0.04
2-Methylnaphthalene	<0.4 jl	Chrysene	<0.04
1-Methylnaphthalene	<0.4 jl	Bis(2-ethylhexyl) phthalate	<6.4
Hexachlorocyclopentadiene	<1.2	Di-n-octyl phthalate	<4
2,4,6-Trichlorophenol	<4	Benzo(a)pyrene	<0.04
2,4,5-Trichlorophenol	<4	Benzo(b)fluoranthene	<0.04
2-Chloronaphthalene	<0.4 jl	Benzo(k)fluoranthene	<0.04
2-Nitroaniline	<2	Indeno(1,2,3-cd)pyrene	<0.04
Dimethyl phthalate	<4	Dibenz(a,h)anthracene	<0.04
Acenaphthylene	<0.04	Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	SW-02	Client:	HydroCon
Date Received:	09/23/22	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/28/22	Lab ID:	209400-05 1/2
Date Analyzed:	09/30/22	Data File:	093011.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	36	11	65
Phenol-d6	27	11	65
Nitrobenzene-d5	92	11	173
2-Fluorobiphenyl	76	44	108
2,4,6-Tribromophenol	89	10	140
Terphenyl-d14	93	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<4	2,6-Dinitrotoluene	<2
Bis(2-chloroethyl) ether	<0.4 jl	3-Nitroaniline	<40
2-Chlorophenol	<4	Acenaphthene	<0.04 jl
1,3-Dichlorobenzene	<0.4	2,4-Dinitrophenol	<12
1,4-Dichlorobenzene	<0.4	Dibenzofuran	<0.4 jl
1,2-Dichlorobenzene	<0.4 jl	2,4-Dinitrotoluene	<2
Benzyl alcohol	<4	4-Nitrophenol	<12
2,2'-Oxybis(1-chloropropane)	<0.4 jl	Diethyl phthalate	<4
2-Methylphenol	<4	Fluorene	<0.04
Hexachloroethane	<0.4	4-Chlorophenyl phenyl ether	<0.4
N-Nitroso-di-n-propylamine	<0.4 jl	N-Nitrosodiphenylamine	<0.4
3-Methylphenol + 4-Methylphenol	<8	4-Nitroaniline	<40
Nitrobenzene	<0.4 jl	4,6-Dinitro-2-methylphenol	<12
Isophorone	<0.4 jl	4-Bromophenyl phenyl ether	<0.4
2-Nitrophenol	<4	Hexachlorobenzene	<0.4
2,4-Dimethylphenol	<4 jl	Pentachlorophenol	<2
Benzoic acid	<20	Phenanthrene	<0.04
Bis(2-chloroethoxy)methane	<0.4	Anthracene	<0.04
2,4-Dichlorophenol	<4	Carbazole	<0.4
1,2,4-Trichlorobenzene	<0.4 jl	Di-n-butyl phthalate	<4
Naphthalene	<0.4 jl	Fluoranthene	<0.04
Hexachlorobutadiene	<0.4 jl	Pyrene	<0.04
4-Chloroaniline	<40	Benzyl butyl phthalate	<4
4-Chloro-3-methylphenol	<4	Benz(a)anthracene	<0.04
2-Methylnaphthalene	<0.4 jl	Chrysene	<0.04
1-Methylnaphthalene	<0.4 jl	Bis(2-ethylhexyl) phthalate	<6.4
Hexachlorocyclopentadiene	<1.2	Di-n-octyl phthalate	<4
2,4,6-Trichlorophenol	<4	Benzo(a)pyrene	<0.04
2,4,5-Trichlorophenol	<4	Benzo(b)fluoranthene	<0.04
2-Chloronaphthalene	<0.4 jl	Benzo(k)fluoranthene	<0.04
2-Nitroaniline	<2	Indeno(1,2,3-cd)pyrene	<0.04
Dimethyl phthalate	<4	Dibenz(a,h)anthracene	<0.04
Acenaphthylene	<0.04	Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	CRC 2015-010, F&BI 209400
Date Extracted:	09/28/22	Lab ID:	02-2375 mb2
Date Analyzed:	09/29/22	Data File:	092913.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	39	11	65
Phenol-d6	25	11	65
Nitrobenzene-d5	87	11	173
2-Fluorobiphenyl	81	44	108
2,4,6-Tribromophenol	89	10	140
Terphenyl-d14	101	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<2	2,6-Dinitrotoluene	<1
Bis(2-chloroethyl) ether	<0.2 jl	3-Nitroaniline	<20
2-Chlorophenol	<2	Acenaphthene	<0.02 jl
1,3-Dichlorobenzene	<0.2	2,4-Dinitrophenol	<6
1,4-Dichlorobenzene	<0.2	Dibenzofuran	<0.2 jl
1,2-Dichlorobenzene	<0.2 jl	2,4-Dinitrotoluene	<1
Benzyl alcohol	<2	4-Nitrophenol	<6
2,2'-Oxybis(1-chloropropane)	<0.2 jl	Diethyl phthalate	<2
2-Methylphenol	<2	Fluorene	<0.02
Hexachloroethane	<0.2	4-Chlorophenyl phenyl ether	<0.2
N-Nitroso-di-n-propylamine	<0.2 jl	N-Nitrosodiphenylamine	<0.2
3-Methylphenol + 4-Methylphenol	<4	4-Nitroaniline	<20
Nitrobenzene	<0.2 jl	4,6-Dinitro-2-methylphenol	<6
Isophorone	<0.2 jl	4-Bromophenyl phenyl ether	<0.2
2-Nitrophenol	<2	Hexachlorobenzene	<0.2
2,4-Dimethylphenol	<2 jl	Pentachlorophenol	<1
Benzoic acid	<10	Phenanthrene	<0.02
Bis(2-chloroethoxy)methane	<0.2	Anthracene	<0.02
2,4-Dichlorophenol	<2	Carbazole	<0.2
1,2,4-Trichlorobenzene	<0.2 jl	Di-n-butyl phthalate	<2
Naphthalene	<0.2 jl	Fluoranthene	<0.02
Hexachlorobutadiene	<0.2 jl	Pyrene	<0.02
4-Chloroaniline	<20	Benzyl butyl phthalate	<2
4-Chloro-3-methylphenol	<2	Benz(a)anthracene	<0.02
2-Methylnaphthalene	<0.2 jl	Chrysene	<0.02
1-Methylnaphthalene	<0.2 jl	Bis(2-ethylhexyl) phthalate	<3.2
Hexachlorocyclopentadiene	<0.6	Di-n-octyl phthalate	<2
2,4,6-Trichlorophenol	<2	Benzo(a)pyrene	<0.02
2,4,5-Trichlorophenol	<2	Benzo(b)fluoranthene	<0.02
2-Chloronaphthalene	<0.2 jl	Benzo(k)fluoranthene	<0.02
2-Nitroaniline	<1	Indeno(1,2,3-cd)pyrene	<0.02
Dimethyl phthalate	<2	Dibenz(a,h)anthracene	<0.02
Acenaphthylene	<0.02	Benzo(g,h,i)perylene	<0.04

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TPH AS GASOLINE USING METHOD AK 101

Laboratory Code: 209400-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Gasoline	ug/L (ppb)	1,000	105	69-134

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS MOTOR OIL USING METHOD AK 103

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Motor Oil	ug/L (ppb)	2,500	106	97	60-120	9

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD AK 102

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel	ug/L (ppb)	2,500	90	97	75-125	7

Date of Report: 10/06/22
Date Received: 09/23/22
Project: CRC 2015-010, F&BI 209400

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: 209383-08 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	10	<1	110	50-150
Chloromethane	ug/L (ppb)	10	<10	101	50-150
Vinyl chloride	ug/L (ppb)	10	0.062	111	16-176
Bromomethane	ug/L (ppb)	10	<5	107	10-193
Chloroethane	ug/L (ppb)	10	<1	131	50-150
Trichlorofluoromethane	ug/L (ppb)	10	<1	112	50-150
Acetone	ug/L (ppb)	50	<50	103	15-179
1,1-Dichloroethene	ug/L (ppb)	10	<1	112	50-150
Hexane	ug/L (ppb)	10	<5	124	49-161
Methylene chloride	ug/L (ppb)	10	<5	119	40-143
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	<1	104	50-150
trans-1,2-Dichloroethene	ug/L (ppb)	10	<1	106	50-150
1,1-Dichloroethane	ug/L (ppb)	10	<1	106	50-150
2,2-Dichloropropane	ug/L (ppb)	10	<1	117	10-335
cis-1,2-Dichloroethene	ug/L (ppb)	10	<1	109	50-150
Chloroform	ug/L (ppb)	10	<1	104	50-150
2-Butanone (MEK)	ug/L (ppb)	50	<20	96	34-168
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	<0.2	104	50-150
1,1,1-Trichloroethane	ug/L (ppb)	10	<1	107	50-150
1,1-Dichloropropene	ug/L (ppb)	10	<1	105	50-150
Carbon tetrachloride	ug/L (ppb)	10	<0.5	108	50-150
Benzene	ug/L (ppb)	10	<0.35	103	50-150
Trichloroethene	ug/L (ppb)	10	<0.5	105	43-133
1,2-Dichloropropane	ug/L (ppb)	10	<1	108	50-150
Bromodichloromethane	ug/L (ppb)	10	<0.5	104	50-150
Dibromomethane	ug/L (ppb)	10	<1	103	50-150
4-Methyl-2-pentanone	ug/L (ppb)	50	<10	119	50-150
cis-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	105	48-145
Toluene	ug/L (ppb)	10	<1	102	50-150
trans-1,3-Dichloropropene	ug/L (ppb)	10	<0.4	92	37-152
1,1,2-Trichloroethane	ug/L (ppb)	10	<0.5	112	50-150
2-Hexanone	ug/L (ppb)	50	<10	105	50-150
1,3-Dichloropropane	ug/L (ppb)	10	<1	105	50-150
Tetrachloroethene	ug/L (ppb)	10	<1	105	50-150
Dibromochloromethane	ug/L (ppb)	10	<0.5	95	33-164
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	<1	98	50-150
Chlorobenzene	ug/L (ppb)	10	<1	99	50-150
Ethylbenzene	ug/L (ppb)	10	<1	98	50-150
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	<1	99	50-150
m,p-Xylene	ug/L (ppb)	20	<2	106	50-150
o-Xylene	ug/L (ppb)	10	<1	98	50-150
Styrene	ug/L (ppb)	10	<1	101	50-150
Isopropylbenzene	ug/L (ppb)	10	<1	102	50-150
Bromoform	ug/L (ppb)	10	<5	93	23-161
n-Propylbenzene	ug/L (ppb)	10	<1	104	50-150
Bromobenzene	ug/L (ppb)	10	<1	105	50-150
1,3,5-Trimethylbenzene	ug/L (ppb)	10	<1	106	50-150
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	<0.2	101	10-235
1,2,3-Trichloropropane	ug/L (ppb)	10	<1	102	33-151
2-Chlorotoluene	ug/L (ppb)	10	<1	103	50-150
4-Chlorotoluene	ug/L (ppb)	10	<1	103	50-150
tert-Butylbenzene	ug/L (ppb)	10	<1	102	50-150
1,2,4-Trimethylbenzene	ug/L (ppb)	10	<1	102	50-150
sec-Butylbenzene	ug/L (ppb)	10	<1	104	46-139
p-Isopropyltoluene	ug/L (ppb)	10	<1	106	46-140
1,3-Dichlorobenzene	ug/L (ppb)	10	<1	104	50-150
1,4-Dichlorobenzene	ug/L (ppb)	10	<1	109	50-150
1,2-Dichlorobenzene	ug/L (ppb)	10	<1	102	50-150
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	<10	87	50-150
1,2,4-Trichlorobenzene	ug/L (ppb)	10	<1	103	50-150
Hexachlorobutadiene	ug/L (ppb)	10	<0.5	101	42-150
Naphthalene	ug/L (ppb)	10	<1	101	50-150
1,2,3-Trichlorobenzene	ug/L (ppb)	10	<1	100	44-155

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Project: CRC 2015-010, F&BI 209400

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260D

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	10	108	98	70-130	10
Chloromethane	ug/L (ppb)	10	103	95	70-130	8
Vinyl chloride	ug/L (ppb)	10	115	103	70-130	11
Bromomethane	ug/L (ppb)	10	109	107	28-182	2
Chloroethane	ug/L (ppb)	10	142 vo	129	70-130	10
Trichlorofluoromethane	ug/L (ppb)	10	105	105	70-130	0
Acetone	ug/L (ppb)	50	101	88	42-155	14
1,1-Dichloroethene	ug/L (ppb)	10	116	108	70-130	7
Hexane	ug/L (ppb)	10	111	98	50-161	12
Methylene chloride	ug/L (ppb)	10	101	93	29-192	8
Methyl t-butyl ether (MTBE)	ug/L (ppb)	10	106	99	70-130	7
trans-1,2-Dichloroethene	ug/L (ppb)	10	108	99	70-130	9
1,1-Dichloroethane	ug/L (ppb)	10	113	100	70-130	12
2,2-Dichloropropane	ug/L (ppb)	10	119	109	70-130	9
cis-1,2-Dichloroethene	ug/L (ppb)	10	111	103	70-130	7
Chloroform	ug/L (ppb)	10	109	99	70-130	10
2-Butanone (MEK)	ug/L (ppb)	50	105	94	50-157	11
1,2-Dichloroethane (EDC)	ug/L (ppb)	10	107	98	70-130	9
1,1,1-Trichloroethane	ug/L (ppb)	10	111	102	70-130	8
1,1-Dichloropropene	ug/L (ppb)	10	109	100	70-130	9
Carbon tetrachloride	ug/L (ppb)	10	112	104	70-130	7
Benzene	ug/L (ppb)	10	104	96	70-130	8
Trichloroethene	ug/L (ppb)	10	108	99	70-130	9
1,2-Dichloropropane	ug/L (ppb)	10	104	97	70-130	7
Bromodichloromethane	ug/L (ppb)	10	102	93	70-130	9
Dibromomethane	ug/L (ppb)	10	106	100	70-130	6
4-Methyl-2-pentanone	ug/L (ppb)	50	105	95	70-130	10
cis-1,3-Dichloropropene	ug/L (ppb)	10	103	96	70-130	7
Toluene	ug/L (ppb)	10	99	99	70-130	0
trans-1,3-Dichloropropene	ug/L (ppb)	10	91	90	70-130	1
1,1,2-Trichloroethane	ug/L (ppb)	10	97	97	70-130	0
2-Hexanone	ug/L (ppb)	50	92	92	69-130	0
1,3-Dichloropropane	ug/L (ppb)	10	103	101	70-130	2
Tetrachloroethene	ug/L (ppb)	10	104	102	70-130	2
Dibromochloromethane	ug/L (ppb)	10	97	97	63-142	0
1,2-Dibromoethane (EDB)	ug/L (ppb)	10	97	94	70-130	3
Chlorobenzene	ug/L (ppb)	10	100	99	70-130	1
Ethylbenzene	ug/L (ppb)	10	95	94	70-130	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	10	98	99	70-130	1
m,p-Xylene	ug/L (ppb)	20	103	102	70-130	1
o-Xylene	ug/L (ppb)	10	97	96	70-130	1
Styrene	ug/L (ppb)	10	97	95	70-130	2
Isopropylbenzene	ug/L (ppb)	10	102	100	70-130	2
Bromoform	ug/L (ppb)	10	92	91	50-157	1
n-Propylbenzene	ug/L (ppb)	10	97	97	70-130	0
Bromobenzene	ug/L (ppb)	10	100	100	70-130	0
1,3,5-Trimethylbenzene	ug/L (ppb)	10	98	99	52-150	1
1,1,2,2-Tetrachloroethane	ug/L (ppb)	10	91	95	70-130	4
1,2,3-Trichloropropane	ug/L (ppb)	10	94	92	70-130	2
2-Chlorotoluene	ug/L (ppb)	10	95	98	70-130	3
4-Chlorotoluene	ug/L (ppb)	10	96	96	70-130	0
tert-Butylbenzene	ug/L (ppb)	10	96	97	70-130	1
1,2,4-Trimethylbenzene	ug/L (ppb)	10	95	98	70-130	3
sec-Butylbenzene	ug/L (ppb)	10	96	97	70-130	1
p-Isopropyltoluene	ug/L (ppb)	10	98	98	70-130	0
1,3-Dichlorobenzene	ug/L (ppb)	10	99	100	70-130	1
1,4-Dichlorobenzene	ug/L (ppb)	10	103	104	70-130	1
1,2-Dichlorobenzene	ug/L (ppb)	10	99	100	70-130	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	10	86	86	70-130	0
1,2,4-Trichlorobenzene	ug/L (ppb)	10	97	95	70-130	2
Hexachlorobutadiene	ug/L (ppb)	10	97	94	70-130	3
Naphthalene	ug/L (ppb)	10	91	92	70-130	1
1,2,3-Trichlorobenzene	ug/L (ppb)	10	93	94	69-143	1

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Project: CRC 2015-010, F&BI 209400

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	2.5	22	25	10-86	13
Bis(2-chloroethyl) ether	ug/L (ppb)	2.5	52 vo	64	60-108	21 vo
2-Chlorophenol	ug/L (ppb)	2.5	52	62	10-97	18
1,3-Dichlorobenzene	ug/L (ppb)	2.5	50	61	48-96	20
1,4-Dichlorobenzene	ug/L (ppb)	2.5	50	61	48-96	20
1,2-Dichlorobenzene	ug/L (ppb)	2.5	51 vo	63	52-96	21 vo
Benzyl alcohol	ug/L (ppb)	13	49	58	10-76	17
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	2.5	53 vo	64	59-101	19
2-Methylphenol	ug/L (ppb)	2.5	42	45	10-80	7
Hexachloroethane	ug/L (ppb)	2.5	51	61	47-97	18
N-Nitroso-di-n-propylamine	ug/L (ppb)	2.5	60 vo	73	71-106	20
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	2.5	43	46	10-66	7
Nitrobenzene	ug/L (ppb)	2.5	52 vo	62	60-90	18
Isophorone	ug/L (ppb)	2.5	65 vo	72	71-110	10
2-Nitrophenol	ug/L (ppb)	2.5	58	70	27-120	19
2,4-Dimethylphenol	ug/L (ppb)	2.5	12	8 vo	10-106	40 vo
Benzoic acid	ug/L (ppb)	20	19	25	10-102	27 vo
Bis(2-chloroethoxy)methane	ug/L (ppb)	2.5	57	67	55-117	16
2,4-Dichlorophenol	ug/L (ppb)	2.5	60	71	23-116	17
1,2,4-Trichlorobenzene	ug/L (ppb)	2.5	52 vo	63	56-98	19
Naphthalene	ug/L (ppb)	2.5	53 vo	64	62-97	19
Hexachlorobutadiene	ug/L (ppb)	2.5	46 vo	58	48-100	23 vo
4-Chloroaniline	ug/L (ppb)	13	54	64	28-121	17
4-Chloro-3-methylphenol	ug/L (ppb)	2.5	70	75	18-113	7
2-Methylnaphthalene	ug/L (ppb)	2.5	56 vo	67	64-101	18
1-Methylnaphthalene	ug/L (ppb)	2.5	57 vo	67	64-93	16
Hexachlorocyclopentadiene	ug/L (ppb)	2.5	50	60	49-113	18
2,4,6-Trichlorophenol	ug/L (ppb)	2.5	70	75	16-131	7
2,4,5-Trichlorophenol	ug/L (ppb)	2.5	79	85	26-129	7
2-Chloronaphthalene	ug/L (ppb)	2.5	62 vo	71	67-102	14
2-Nitroaniline	ug/L (ppb)	13	86	93	31-168	8
Dimethyl phthalate	ug/L (ppb)	2.5	88	95	70-130	8
Acenaphthylene	ug/L (ppb)	2.5	71	77	70-130	8
2,6-Dinitrotoluene	ug/L (ppb)	2.5	86	94	70-130	9
3-Nitroaniline	ug/L (ppb)	13	85	93	33-128	9
Acenaphthene	ug/L (ppb)	2.5	68 vo	75	70-130	10
2,4-Dinitrophenol	ug/L (ppb)	5	89	100	10-137	12
Dibenzofuran	ug/L (ppb)	2.5	67	73	67-114	9
2,4-Dinitrotoluene	ug/L (ppb)	2.5	76	86	53-132	12
4-Nitrophenol	ug/L (ppb)	5	34	40	10-89	16
Diethyl phthalate	ug/L (ppb)	2.5	86	97	60-128	12
Fluorene	ug/L (ppb)	2.5	76	85	70-130	11
4-Chlorophenyl phenyl ether	ug/L (ppb)	2.5	77	87	70-130	12
N-Nitrosodiphenylamine	ug/L (ppb)	2.5	83	87	70-130	5
4-Nitroaniline	ug/L (ppb)	13	80	86	32-124	7
4,6-Dinitro-2-methylphenol	ug/L (ppb)	2.5	105	110	10-146	5
4-Bromophenyl phenyl ether	ug/L (ppb)	2.5	81	87	70-130	7
Hexachlorobenzene	ug/L (ppb)	2.5	75	80	61-112	6
Pentachlorophenol	ug/L (ppb)	2.5	70	75	10-144	7
Phenanthrene	ug/L (ppb)	2.5	81	86	70-130	6
Anthracene	ug/L (ppb)	2.5	82	87	70-130	6
Carbazole	ug/L (ppb)	2.5	87	93	70-130	7
Di-n-butyl phthalate	ug/L (ppb)	2.5	92	94	28-147	2
Fluoranthene	ug/L (ppb)	2.5	87	94	70-130	8
Pyrene	ug/L (ppb)	2.5	84	87	70-130	4
Benzyl butyl phthalate	ug/L (ppb)	2.5	80	90	34-142	12
Benz(a)anthracene	ug/L (ppb)	2.5	85	91	70-130	7
Chrysene	ug/L (ppb)	2.5	88	94	70-130	7
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	2.5	86	105	44-140	20
Di-n-octyl phthalate	ug/L (ppb)	2.5	92	111	33-147	19
Benzo(a)pyrene	ug/L (ppb)	2.5	84	92	70-130	9
Benzo(b)fluoranthene	ug/L (ppb)	2.5	82	93	70-130	13
Benzo(k)fluoranthene	ug/L (ppb)	2.5	84	93	70-130	10
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	2.5	94	105	70-130	11
Dibenz(a,h)anthracene	ug/L (ppb)	2.5	92	102	70-130	10
Benzo(g,h,i)perylene	ug/L (ppb)	2.5	93	101	70-130	8

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

209400

SAMPLE CHAIN OF CUSTODY

09-23-22

EDY | VWY

Page # 1 of 1

Report To Craig Hultgren

Company HydroCon

Address 314 W 15th St Suite 300

City, State, ZIP Vancouver WA 98660

Phone _____ Email _____

SAMPLERS (signature)

PROJECT NAME: CRC 2015-010

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	ANALYSES REQUESTED: Full List ~~BTEX~~ EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270E	PCBs EPA 8082	GRO AK101	DRO AK102	RRO AK103	SVOCs EPA 8270E	Notes
MW05-W	01A-H	9-21-22 ~~1500~~	1500	W	8			X					X	X	X	X	Full List VOCs per CH 9/26/22 ME
MW06-W	02	9-21-22 ~~1530~~	1530	W	8			X					X	X	X	X	
MW04-W	03	9-21-22	1600	W	8			X					X	X	X	X	
MW100-W	04	9-21-22	1600	W	8			X					X	X	X	X	
SW-02	05	9-21-22	1630	W	8			X					X	X	X	X	
Purge-W	06A-B	9-22-22	0700	W	2									X	X		
Trip Blank	07			W	2												added at lab 9/26 AMB

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:				
Received by: AMB	AMB	FRB	9/23/22	1930
Relinquished by:				
Received by:				

Samples received at 6 °C

Friedman & Bruya, Inc.
Ph. (206) 285-8282

AMB

ATTACHMENT E

LABORATORY DATA REVIEW CHECKLIST

Laboratory Data Review Checklist

Completed By:

HydroCon Environmental LLC, Craig Hultgren

Title:

Principal Geologist/Vice President

Date:

October 17, 2022

CS Report Name:

CRC 2015-010, F&BI 209400

Report Date:

October 6, 2022

Consultant Firm:

HydroCon Environmental LLC

Laboratory Name:

Friedman & Bruya, Inc.

Laboratory Report Number:

209400

ADEC File Number:

1504.38.009

Hazard Identification Number:

2385

209400

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   ◉ Yes ○ No Comments:

   Friedman & Bruya, Inc. (FB&I)

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   ○ Yes ◉ No Comments:

   Not applicable.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   ◉ Yes ○ No Comments:

   b. Correct Analyses requested?

   ◉ Yes ○ No Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   ◉ Yes ○ No Comments:

   Samples received at 6°C (F&BI).

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   ◉ Yes ○ No Comments:

   (FB&I) - No documentation of sample preservation for GRO, DRO and BTEX in case narrative or chain of custody – assumed that sample preservation was acceptable, not noted otherwise.

   c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

   ○ Yes ◉ No Comments:

   (FB&I) - No documentation of sample condition in case narrative or chain of custody – assumed that sample condition was acceptable, not noted otherwise.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

○ Yes ○ No Comments:

Not applicable.

e. Data quality or usability affected?

Comments:

Data quality and usability not affected.

4. Case Narrative

a. Present and understandable?

◉ Yes ○ No Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

○ Yes ◉ No Comments:

c. Were all corrective actions documented?

○ Yes ◉ No Comments:

Not applicable.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

No impact to data quality/usability.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

◉ Yes ○ No Comments:

b. All applicable holding times met?

◉ Yes ○ No Comments:

c. All soils reported on a dry weight basis?

○ Yes ◉ No Comments:

Not applicable – water samples.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

◉ Yes ○ No Comments:

e. Data quality or usability affected?

○ Yes ◉ No Comments:

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

◉ Yes ○ No Comments:

ii. All method blank results less than limit of quantitation (LOQ)?

◉ Yes ○ No Comments:

iii. If above LOQ, what samples are affected?

Comments:

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

○ Yes ○ No Comments:

v. Data quality or usability affected?

Comments:

Data quality/usability not affected.

209400

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

(•) Yes ( ) No Comments:

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

( ) Yes (•) No Comments:

Not applicable.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

( ) Yes (•) No Comments:

The percent recovery for chloroethane in the LCS (8260) was above the upper control limit; all sample results were non-detect for this compound, no qualification required.

The percent recoveries of the following compounds in the LCS or LCSD (8270) were below the lower control limit; all samples were non-detect and should be considered estimated (UJ qualified).

- Bis(2-chloroethyl) ether
- 1,2-Dichlorobenzene
- 2,2'-Oxybis(1-chloropropane)
- N-Nitroso-di-n-propylamine
- Nitrobenzene
- Isophorone
- 2,4-Dimethylphenol
- 1,2,4-Trichlorobenzene
- Naphthalene
- Hexachlorobutadiene
- 2-Methylnaphthalene
- 1-Methylnaphthalene
- 2-Chloronaphthalene
- Acenaphthene

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

(●) Yes ( ) No Comments:

The following LCS/LCSD RPDs (8270) were above the upper control limit; all sample results were non-detect, no qualification required.

- Bis(2-chloroethyl) ether
- 1,2-Dichlorobenzene
- 2,4-Dimethylphenol
- Benzoic acid
- Hexachlorobutadiene

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

None – all results were non-detect.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

(●) Yes ( ) No Comments:

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality/usability not affected.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

(●) Yes ( ) No Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

(●) Yes ( ) No Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

( ) Yes (●) No Comments:

Not applicable.

iv. Data quality or usability affected?

Comments:

Data quality/usability not affected.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?
(If not, enter explanation below.)

○ Yes ◉ No Comments:

A trip blank was included on the chain of custody form and in the case narrative, but the data package does not include results for the trip blank sample.

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

○ Yes ◉ No Comments:

Not applicable.

iii. All results less than LOQ?

○ Yes ◉ No Comments:

Not applicable.

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

Data quality/usability not affected.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

◉ Yes ○ No Comments:

Parent/Field Duplicate Samples:

- MW04-W / MW100-W

ii. Submitted blind to lab?

◉ Yes ○ No Comments:

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

(•) Yes ( ) No Comments:

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

Data quality/usability not affected.

f. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

( ) Yes ( ) No (•) Not Applicable

Dedicated sampling equipment used at each location.

i. All results less than LOQ?

( ) Yes ( ) No Comments:

ii. If above LOQ, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

Data quality/usability not affected.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

(•) Yes ( ) No Comments:

Results for DRO using method AK 102 for samples MW05-W and Purge-W were given the lab qualifier "x" defined as –"The sample chromatographic pattern does not resemble the fuel standard used for quantitation." These results should be considered estimated.