2019 Site Investigation Report

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

Prepared for:

Columbia River Carbonates
300 North Pekin Road
Woodland, Washington

December 3, 2019

Prepared by:

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Columbia River Carbonates
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HydroCon Project No: 2015-010

Prepared by:

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1.0 INTRODUCTION

This 2019 Site Investigation Report has been prepared to document remedial action and soil and groundwater sampling results performed in 2019 at the Calder Mine facility on Prince of Wales Island, Alaska. This work was a follow up to the work performed in 2018. 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 (Figure 3).

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, *2019 Soil and Groundwater Sampling and Remedial Action Work Plan*, June 5, 2019.

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 18,000-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 18,000 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 December 18, 2017 opinion letter, several of the soil samples had concentrations of petroleum fuel related contaminants above their respective cleanup level. It should be noted that the 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)[3]. Southeast

[2] PNG. *Soil Sampling at the Calder Limestone Mine*, November 11, 2004.
[3] HydroCon. *Remedial Excavation and Soil Sampling Report*, October 25, 2015.

Road Builders Construction Company (subcontractor for CRC) performed the excavation using a Cat 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[4]. 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,* 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. 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[5] 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.

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

1.4 *Approved Work Plan for 2019 Investigation and Remedial Action*

HydroCon prepared a work plan to perform localized remedial action, compliance soil sampling in the soil stockpiles and install and sample additional monitoring wells at the site. The number of samples and analytical methods for each area investigated was outlined in the work plan. The work plan was reviewed by ADEC and was finalized on June 5, 2019. On June 7, 2019, ADEC prepared a letter to CRC informing them that the 2019 work plan was approved[6].

2.0 SITE VISIT - 2019

On August 6, 2019, HydroCon travelled to the site to perform the work outlined in the approved work plan. A description of the work performed at the site and analytical results is provided below.

2.1 *Pre-Sampling Activities*

2.1.1 Stockpile Management

At HydroCon's direction, CRC performed tilling and supplemental application of soil treatment additives using the following rates: Urea at a rate of 400 pounds per 100 cubic yards of soil; and phosphorus potassium fertilizer (20:20:0 mix) at a rate of 100 pounds per 100 cubic yards of soil.

The calculated volume of fertilizer applied to each stockpile is provided below.

- CRC1 Stockpile: 540 pounds of urea and 135 pounds of phosphorus potassium mix.
- HydroCon Stockpile: 2,320 pounds of urea and 580 pounds of phosphorus potassium mix.

Prior to HydroCon's arrival, CRC removed the plastic sheets covering the CRC1 and HydroCon stockpiles and tilled the soil.

2.1.2 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 Klawock, Alaska. HydroCon retrieved the materials upon arrival and transported them up to Calder Mine.

2.1.3 Search for Underground Utility Locate Service Provider

HydroCon attempted to procure an underground utility locate service provider to do an electromagnetic survey at the Camp area and Fueling Station to locate subsurface utility lines so that exploratory test pits (proposed sample locations S16 through S18) and remedial excavation (sample identification number CS1 located next to the Genset-East) could be safely done. Both areas of the site have buried utilities including power, water, and communication lines. HydroCon performed an online search for service providers and also made several telephone inquiries in Craig and Ketchikan. HydroCon had a conversation with one of the mangers at Alaska Power and Telephone and he informed us that they only send people out to locations that they provide service. Since Calder Mine uses private utilities (i.e. generators and water supply) there wouldn't be anyone who would perform underground utility locates and

[6] ADEC, *Approval of 2019 Soil and Groundwater Sampling and Remedial Action Work Plan*, June 7, 2019

take responsibility for accuracy. Since CRC depends on the Fueling Station and Camp facility to remain active during the mining season, we couldn't take the risk to damage subsurface utilities. In addition, HydroCon's insurance will not allow us to perform subsurface exploration work without the protection of having underground utility locates performed by a firm that will assume liability if utilities get damaged after locates have been completed. Therefore, planned excavation work at these locations was not performed.

It should be noted that hand digging is not practical due to the limestone fill used in this area of the site.

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 on the boring logs (Attachment A) and field notes (Attachment B).

2.3 *Remedial Excavations*

Localized remedial excavations were performed using a tracked backhoe at three locations at the site that had soil samples collected in 2018 that exceeded one of ADEC's Method 2 cleanup levels (CUL). Two sampling locations were located in the Fueling Station area (Figure 4) referred to as their original sample identification number (CS-6 located south of the western-most 20,000 gallon AST and CS-8 located southeast of the SW generator). One sampling location was located at the Camp Area (CS-4 located on the southwestern corner of the Bunkhouse closest to the Mess Hall). Petroleum contaminated soil generated during this investigation was placed in a new stockpile (HydroCon2) constructed next to the Haul Road (see photos). This stockpile measures 30 feet wide by 40 feet long. The bottom of the stockpile is lined with geomembrane and the top is covered with heavy gauge plastic sheeting (same materials used to construct the HydroCon stockpile). A description of each remedial excavation is provided below.

2.3.1 Camp Generator Area

One remedial excavation was performed in this area of the site. Due to the presence of buried power and water lines HydroCon did not attempt to perform exploratory test pits at locations S16 through S18 or the remedial excavation at CS1 near Genset-East location (Figure 3). A discussion of the remedial excavation at CS4 location is provided below.

CS4 – A remedial excavation that measured approximately 10 feet by 12 feet by 2 feet deep was performed on the southwestern corner of the Bunkhouse closest to the Mess Hall. The uppermost soil had a faint petroleum odor but the native soil at approximately 2 feet bgs did not. Excavation was limited

to the east by the Bunkhouse. Soil samples were collected from the sidewalls at a depth of approximately 1.5 foot bgs and the floor at a depth of 2 feet bgs. A duplicate soil sample (CS4-100) was collected from the east sidewall (sample CS4-E1.5). PID readings ranged from 1.2 to 1.5 ppm on the sidewalls except the east which had 6.3 ppm. No further excavation can be performed due to the presence of the Bunkhouse. The floor sample had a PID reading of 0.1 ppm.

2.3.2 Fueling Station Area

Two remedial excavations were performed in this area of the site. Due to the presence of the active fuel dispenser, buried power and fuel lines HydroCon did not attempt to perform an exploratory test pit at the historic CS10 (Fuel Pump) sampling location. A discussion of each remedial excavation is provided below.

CS6 – A remedial excavation that measured 11 feet by 15 feet by 4 feet deep was performed south of the western-most 20,000 gallon AST. Soil with petroleum odor and visible staining was observed immediately south of the AST. The excavation was advanced until field screening indicated a significant improvement in soil quality. Confirmation samples were collected from each sidewall at a depth of approximately 3 feet bgs and the floor at a depth of 4 feet bgs. A duplicate soil sample (CS6-100) was collected from the north sidewall (sample CS6-N3). No further excavation could be done on the north sidewall due to the proximity of the AST. A PID reading of 9.3 ppm was measured in the north sidewall soil. The only other location that had a PID reading above 0.1 ppm was sample CS6-E3 (2.2 ppm).

CS8 – A remedial excavation that measured 9.5 feet by 16 feet by 5 feet deep was performed southeast of the SW generator. The excavation was advanced until field screening indicated all PID readings were below 1 ppm. Confirmation samples were collected from each sidewall at a depth of approximately 3 feet bgs and the floor at a depth of 5 feet bgs. A duplicate soil sample (CS8-100) was collected from the west sidewall (sample CS8-W3).

2.4 *Soil Stockpile Sampling*

HydroCon collected soil samples from the two active biotreatment soil stockpiles (CRC1 and HydroCon stockpiles) to assess remediation progress (Figures 5 and 6). Field screening using a PID was performed to assess potential areas of elevated contamination (i.e., “hot spots”). Each stockpile was potholed at approximate 10 foot intervals using a shovel and PID measurements were taken. Results of the field screening indicated that no hot spots were measured at either stockpile. Results of the screening are documented in the field notes (Attachment B). Soil samples were collected at approximately 1 foot bgs using a clean shovel. A new pair of nitrile gloves were used to place the samples into the laboratory prepared glass sample jars. All soil samples collected from the stockpiles were analyzed for the following laboratory analyses:

- DRO and RRO by Alaska’s Method AK102 and AK103
- One sample per stockpile (plus a duplicate sample at each stockpile) was analyzed for VOCs using EPA Method 8260D and SVOCs using EPA Method 8270E

2.5 *Monitoring Well Installation*

On August 6, 2019 two wells were installed at the site using the air rotary drilling method. Locations to place the monitoring wells were limited due to high traffic and the lack of protection from large dump trucks that travel the haul road and adjacent Fueling Station and Shop areas. Conceptually the wells were to be drilled at relatively shallow depths to the interface of the fill and native soil as was done at monitoring well MW-1. It was discovered that the shop area was constructed on top of a thick sequence of fill down slope of where MW-1 is located. No perched groundwater was encountered as was observed in 2018 at monitoring well MW-1. A discussion of each monitoring well is provided below.

Both borings were drilled in approximate 5 foot intervals with soil samples collected and field screened at each 5 foot interval. A duplicate soil sample was collected from each boring. Duplicate sample MW2-100 was collected at MW2-5 and duplicate sample MW3-100 was collected at MW3-14. Drill cuttings were examined continuously during the drilling process for lithologic identification and moisture observation. Selected soil samples were placed in laboratory-prepared glass jars and placed into a chilled cooler.

Monitoring well MW-2 was drilled near the northwest corner of the shop building. The fill at this area of the site is very thick and bedrock was not encountered until 35 feet bgs. Water was present at the interface of the fill and limestone bedrock. The boring was terminated and a 2-inch diameter monitoring well was constructed. The well is constructed with a 10-foot length of 0.010-inch slotted pre-packed well screen, a 0.33-foot long threaded bottom cap, and 2-inch diameter solid PVC well casing. Graded (10-20) silica sand was used as a supplemental filter pack to the pre-packed well screen (which is constructed with a stainless steel mesh screen filled with graded silica sand over the entire length of the well screen). The mesh screen is attached to the well screen section by stainless steel fittings. The filter pack was placed from the bottom of the borehole to 27 feet bgs. A hydrated bentonite seal was placed from 1 to 27 feet bgs. A flush-grade monument was cemented in place over the top of the well.

Monitoring well MW-3 was placed on the southern end of the shop building closer to the haul road. Drilling and sampling followed similar protocols as MW-2. Limestone bedrock was encountered at 9 feet bgs. The soil at the interface was damp but not saturated like the soil at the interface at MW-1. Since this was similar conditions and lithology as monitoring MW-1 HydroCon instructed the driller to complete the boring at 14.5 feet bgs and install the well. The well is constructed with a 10-foot length of 0.010-inch slotted pre-packed well screen, a 0.33-foot long threaded bottom cap, and 2-inch diameter solid PVC well casing. Graded (10-20) silica sand was used as a supplemental filter pack to the pre-packed well screen. A flush-grade monument was cemented in place over the top of the well.

Photo documentation is provided in Attachment C. A description of the subsurface soil and bedrock, PID readings, soil sampling depths, and well construction details, and survey data is provided in the attached boring log (Attachment A).

2.5.1 Well Development

On August 7, 2019 HydroCon developed MW-2 by surging and pumping techniques using a new length of low-density polyethylene (LDPE) tubing attached to a new submersible pump. The pump was used to surge and pump the well. After surging, the pump was turned on and water was removed from the well. The well pumped dry and was slow to recharge. A total of 5 gallons was removed from the well. Well

development details are provided on the Well Development field form (Attachment D).

After completing well development procedures at MW-2, HydroCon went to MW-3. The well cap was removed and the electronic oil/water indicator probe was lowered down the well. The well was dry therefore the well could not be developed.

2.5.2 Surveying

The elevation of the top of the PVC casing at the scribed reference mark (north side of well) of each monitoring well was measured using an Arrow Gold GPS tracking unit. This unit has a vertical accuracy of 30 to 60 centimeters and is routinely used at the mine to track mining progress. The elevation is noted on the well logs.

2.5.3 Groundwater Sampling

On August 7, 2019 HydroCon collected water samples from monitoring well MW-1. HydroCon didn't sample MW-2 until the following day to allow 24 hours to pass after well development. Prior to sampling the well cap was removed from each well and the water level was allowed to equilibrate before measurement. A clean electronic oil/water interface probe was used to measure water levels. After completing sampling at MW-2 HydroCon attempted to collect a water level measurement from MW-3. The well was dry, same as the day before.

HydroCon collected water samples from monitoring well MW-1 on August 7, 2019 and at MW-2 on August 8, 2019.

HydroCon collected a water sample at each well by placing a new length of LDPE tubing attached to a clean submersible pump down each well. Groundwater parameters (temperature, pH, and conductivity) were measured and recorded on a Groundwater Sample Collection form (Attachment E). Both MW-1 and MW-2 pumped dry during sampling. The water produced from both wells was slightly turbid. The water produced from monitoring well MW-1 exhibited a petroleum hydrocarbon odor.

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-1. 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. The samples were analyzed for one or more of the following analyses:

- DRO and RRO using Alaska Methods AK102 and AK103
- VOCs using EPA Method 8260D
- SVOCs 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 F. 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 *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.

3.1.1 Remedial Excavations

CS4 Remedial Excavation – All of the sidewall samples had DRO concentrations that exceed the CUL. The CS4-E1.5 sample had naphthalene above the CUL as well. Very low concentrations of 2-methylnaphthalene, 1-methylnaphthalene, phenanthrene, and pyrene were detected in the samples submitted for SVOC analysis. Only one VOC (1,2,4-Trimethylbenzene) was detected in the duplicate sample CS4-100 at a concentration slightly above the MRL but well below the CUL. The sample collected from the floor of the excavation had no detection of DRO or RRO above their respective MRL. The results are shown on Figure 3.

CS6 Remedial Excavation – The soil samples collected from the north sidewall (CS6-N-3 and duplicate sample CS6-100) had DRO above the CUL. These samples also had elevated RRO concentrations ranging from 3,400 to 4,000 mg/kg (which are below the CUL). The soil sample collected on the west sidewall (CS6-E-3) also had DRO slightly above the CUL. Low concentrations of pyrene were detected in the samples submitted for SVOC analysis. There were no VOCs detected above their respective MRL in the samples submitted for VOC analysis. The results are shown on Figure 4.

CS8 Remedial Excavation – Two soil samples (CS8-W-3 and CS8-E-3) had DRO ranging from 100 to 270 mg/kg. The concentration of DRO in the CS8-W-3 sample is above the CUL. In addition, one PAH (pyrene) was detected in the CS8-W-3 sample at a concentration below the CUL. RRO was only detected above the MRL in one sample (CS8-W-3) at a concentration well below the CUL. There were no VOCs detected in the sample submitted for VOC analysis. The results are shown on Figure 4.

3.1.2 Soil Stockpiles

CRC1 Stockpile - The soil samples collected from the CRC1 stockpile had DRO ranging from 80 to 290 mg/kg, with two of the samples exceeding the CUL. RRO was detected in each sample ranging from 120 to 460 mg/kg, well below the CUL. Very low concentrations of 2-methylnaphthalene, 1-methylnaphthalene, naphthalene and phenanthrene were detected in the samples submitted for SVOC analysis. All of the SVOC detections are below their respective CULs. Only one VOC (methylene chloride) was detected in sample CRC-SP1. The laboratory flagged the sample result as being laboratory contamination.

HydroCon Stockpile – DRO was detected in each sample ranging from 210 to 440 mg/kg, with six samples exceeding the CUL. RRO was detected in each sample ranging from 130 to 310 mg/kg. All of these concentrations are below the CUL. There were no VOCs or SVOCs detected above the MRL.

3.1.3 Monitoring Wells

MW-2 – Very low concentrations of DRO were detected in the samples collected at 5, 10, 15 and 30 feet bgs. A low concentration of RRO was detected in the 30 foot sample. No SVOCs or VOCs were detected

in the two samples submitted for analysis.

MW-3 – Very low concentrations of DRO were detected in the samples collected at 5 and 14 feet bgs. RRO was not detected in any of the samples. No SVOCs or VOCs were detected in the two samples submitted for analysis.

3.2 *Groundwater Analytical Results*

Groundwater results are reported as micrograms per liter (ug/L) or parts per billion (ppb). The results are summarized on Tables 3 and 4.

3.2.1 Monitoring Well MW-1

DRO (up to an estimated concentration of 7,400 ug/L), RRO (up to 400 ug/L), total xylenes (up to 1.3 ug/L), 1-methylnaphthalene (up to 0.4 ug/L), acenaphthene (up to 0.088 ug/L), fluorene (up to 0.31 ug/L), pyrene (up to 0.073 ug/L), o-xylenes (up to 1.3 ug/L), 1,2,4-trimethylbenzene (up to 1.5 ug/L) and 1,3,5-trimethylbenzene (up to 1.6 ug/L) were detected in the sample. The concentration of DRO exceeds the CUL.

3.2.2 Monitoring Well MW-2

DRO (110 ug/L), diethyl phthalate (estimated at 3.2 ug/L), Di-n-butyl phthalate (estimated at 2.1 ug/L), acetone (180 ug/L) and 2-butanone (19 ug/L) were detected above the MRL in the sample. None of the concentrations exceed their respective CUL. The laboratory flagged the acetone results as being a laboratory contaminant.

3.3 *Data Quality Review*

HydroCon collected duplicate soil samples from each remedial excavation, boring, and soil stockpile. A duplicate water sample was collected from MW-1. Results of those samples are discussed above and summarized on the attached tables. As stated above, the sample receipt temperatures were recorded on the chain of custody forms and sample receipt conditions were noted in the case narrative.

It should be noted that a trip blank (water) was not included in the sample cooler. This was an oversight by HydroCon.

3.3.1 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 G). Data qualifiers were placed on sample results by the laboratory including the following:

- LC – results of analysis due to laboratory contamination
- J – estimated value due to % recovery or RPD out of control limits
- X – the chromatographic pattern does not resemble the fuel standard used for quantitation

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

4.0 DISCUSSION

This section provides a discussion of the remedial excavations, stockpile sampling, and groundwater monitoring at the site along with a summary of recommended future action and sampling.

4.1 *Results of Remedial Excavations*

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). However, further remedial excavation can be performed to remove accessible contamination left in place at each of the three remedial excavations. Doing this additional remediation would remove the remaining accessible contaminated soil above the CUL at the site.

4.2 *Results of Soil Stockpile Sampling*

Tilling and augmentation using fertilizer has been successful in reducing the DRO concentration in the HydroCon and CRC1 stockpiles near or below the CUL. After discussion with Mr. Joshua Barsis (ADEC), the concentrations are low enough that they no longer pose an unacceptable risk to the environment. Mr. Barsis recommended that the soil in the stockpiles be used as road fill at the mine. CRC's representative (Mr. Mike Lehman) indicated that there's an area at the site to place the soil that is away from any drainage or surface water body. The placement of the soil will be documented in a future report.

The new stockpile (HydroCon 2) will require tilling and augmentation to reduce contaminant concentrations.

4.3 *Results of Groundwater Sampling*

The presence of perched groundwater in the Fueling Station area appears to be locally present at the interface of the fill and native limestone bedrock near MW-1. HydroCon attempted to drill additional monitoring wells at the site on the north side of the Haul Road to assess the lateral extent of contamination and determine groundwater flow direction and gradient. However, it appears that the water observed in MW-1 may be localized due to the remedial excavation cavity or blast area created during construction. Monitoring well MW-3 was placed at the interface of the fill and bedrock and is dry. Monitoring well MW-2 was dry until it was advanced to 35 feet bgs. Based on this information it appears that localized perched water is present on top of the bedrock where a depression was created from excavation or blasting and that there's over 30 feet of separation from ground surface to the first water bearing zone (as seen in boring HC-1 and monitoring well MW-2).

4.4 *Recommendations*

HydroCon makes the following recommendations:

- Augment the HydroCon 2 soil stockpile with 532 pounds of urea and 133 pounds of phosphorus potassium fertilizer (20:20:0 mix). Till on a monthly basis to enrich the oxygen content. Keep the stockpile covered in between tilling and fertilizer application events.
- Collect confirmation soil samples at the HydroCon 2 soil stockpile in 2020.

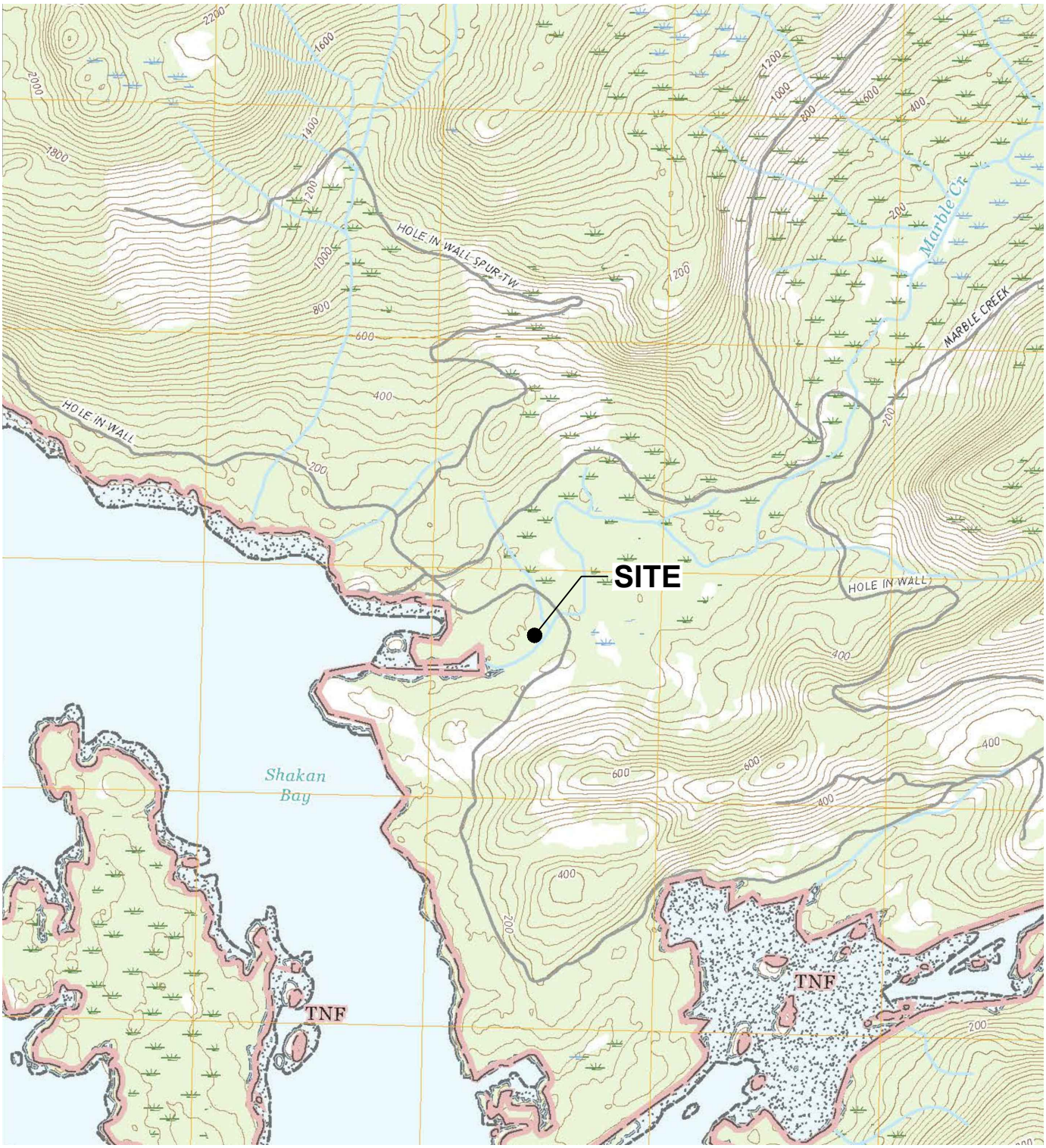
- Terminate the monitoring of groundwater at the wells installed at the Fueling Station. Perched water is locally present and does not appear to pose a threat to the regional aquifers or ecological receptors.
- Perform localized remedial excavation in the three remedial excavation areas in 2020 to remove last remaining accessible DRO contaminated soil at the site. Collect confirmation samples to demonstrate that the extent of contamination has been removed from each area.

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.



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

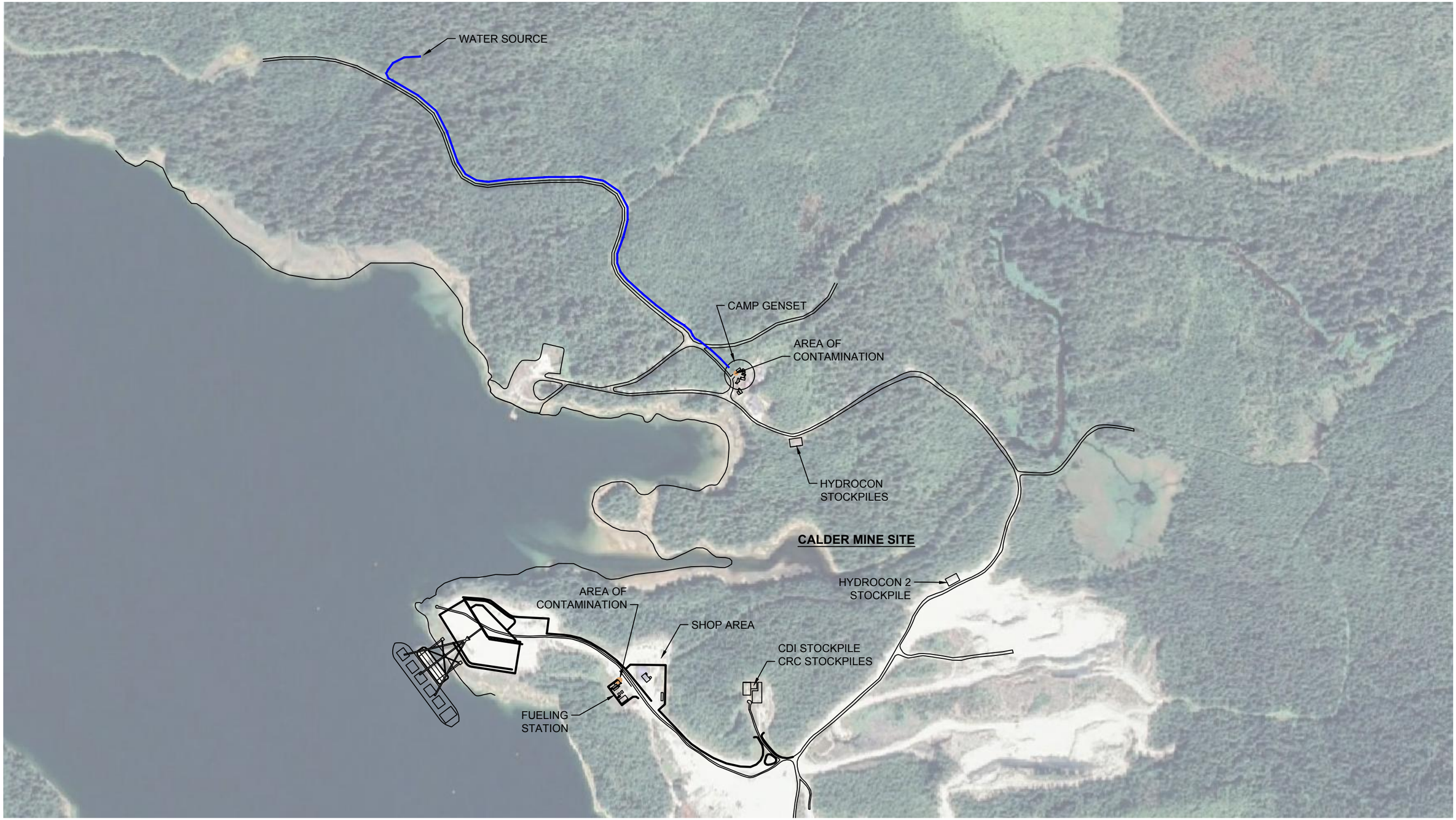
HydroCon
510 Allen St. Suite B Kelso, Wa 98626, Ph(360)-703-6086

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



N
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0 600 1200
SCALE IN FEET
1" = 600'

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

DATE: 12-3-19
DWN: JJT
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PROJECT NO:
2015-010

FIGURE 2
SITE FEATURES

CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg 2.17.2014

Soil Analytical Results (mg/kg)			
		AK 102	AK103
Field ID	Date	Diesel Range Organics	Residual Range Organics
ADEC Method 2 - Over 40" Zone		**230**	**9,700**
Remedial Excavation - Camp Generator Area			
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**
CS4-W-1.5	8/6/2019	**690**	**72 x**
CS4-F-2	8/6/2019	<5	<25
CS4-100	8/6/2019	**1,600**	**180 x**

Notes

[1]Soil was removed by additional remedial excavationmg/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.

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

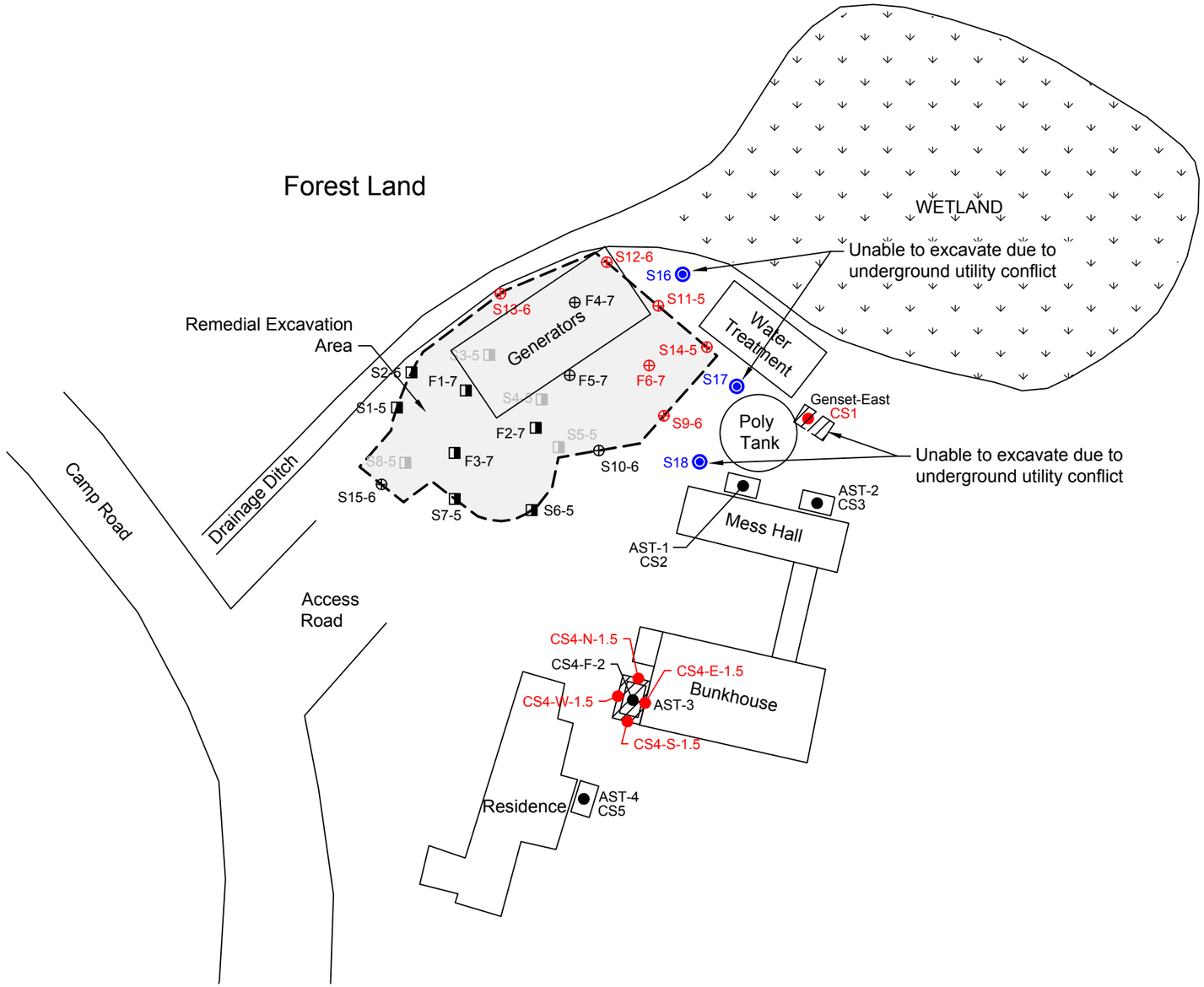
Alaska Department of Environmental Conservation (ADEC) Method 2 Oil Pollution & Hazardous Substances Pollution Control Regulations,Table B2, 18 AAC75, based on >40 inches of rainfall migration to groundwater.

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

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



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

N W E S

0 20 40

SCALE IN FEET
1" = 20'

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

DATE: 10-14-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 3
CAMP AREA REMEDIAL EXCAVATION AND SAMPLE LOCATIONS
CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

Soil Analytical Results (mg/kg)			
		AK 102	AK103
Field ID	Date	Diesel Range Organics	Residual Range Organics
ADEC Method 2 - Over 40" Zone		**230**	**9,700**
Remedial Excavations - Fueling Station Area			
CS6-N-3	8/6/2019	**4,200**	**3,400**
CS6-S-3	8/6/2019	<5	<25
CS6-E-3	8/6/2019	**66**	<25
CS6-W-3	8/6/2019	**260**	<25
CS6-F-4	8/6/2019	**19**	<25
CS6-100	8/6/2019	**4,800**	**4,000**
SW Generator[1]			
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**
CS8-F-5	8/6/2019	<5	<25
CS8-100	8/6/2019	<5	<25
Boring MW-2			
MW2-5	8/6/2019	**5.5 x**	<25
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**
MW2-100	8/6/2019	<5	<25
Boring MW-3			
MW3-5	8/6/2019	**5.7 x**	<25
MW3-10	8/6/2019	<5	<25
MW3-14	8/6/2019	**8 x**	<25
MW3-100	8/6/2019	<5	<25

Notes

[1]Soil was removed by additional remedial excavationmg/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.

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

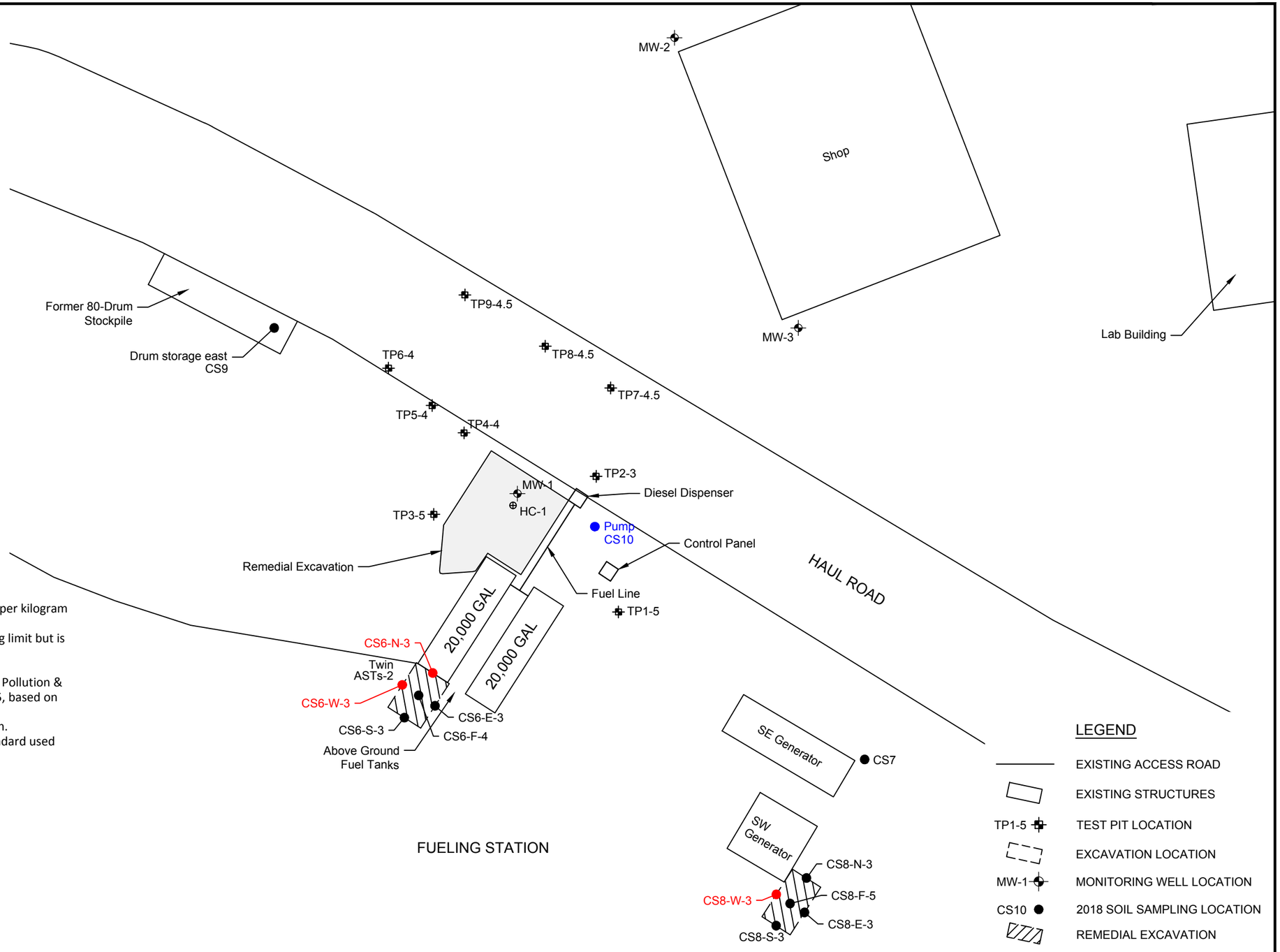
Alaska Department of Environmental Conservation (ADEC) Method 2 Oil Pollution & Hazardous Substances Pollution Control Regulations,Table B2, 18 AAC75, based on >40 inches of rainfall migration to groundwater.

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

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



N W E S

0 30 60

SCALE IN FEET
1" = 30'

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

DATE: 12-5-19
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CHK: CH
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PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 4
FUELING STATION AREAS
SAMPLING LOCATIONS
CALDER MINE
PRINCE WALES ISLAND
ALASKA

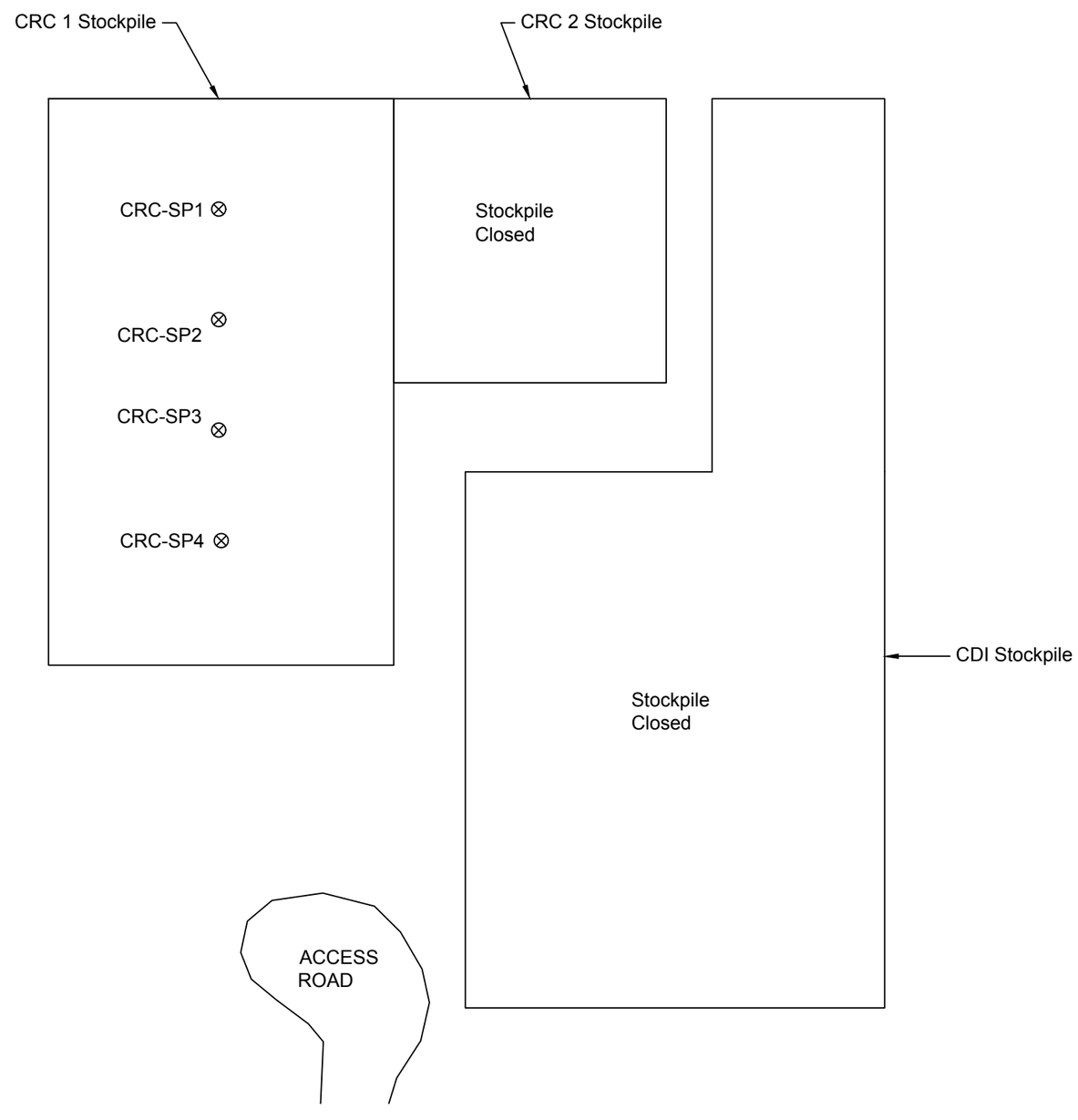
C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Dec 2019\2015-010_BM-CMS-120519.dwg

Soil Analytical Results (mg/kg)			
		AK 102	AK103
Field ID	Date	Diesel Range Organics	Residual Range Organics
ADEC Method 2 - Over 40" Zone		**230**	**9,700**
CRC1 Stockpile			
CRC-SP1	8/5/2019	190	280
CRC-SP2	8/5/2019	170	300
CRC-SP3	8/5/2019	240	220
CRC-SP4	8/5/2019	290	460
CRC-SP100	8/5/2019	80	120

Notes
[1]Soil was removed by additional remedial excavationmg/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.
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.
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

LEGEND

- EXISTING ACCESS ROAD
- STOCKPILE
- CRC-SP1 ⊗ STOCKPILE SOIL SAMPLE LOCATIONS



N W E S

0 20 40
SCALE IN FEET
1" = 20'

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

DATE: 9-18-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 5
CRC 1 STOCKPILE SAMPLE LOCATIONS

CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

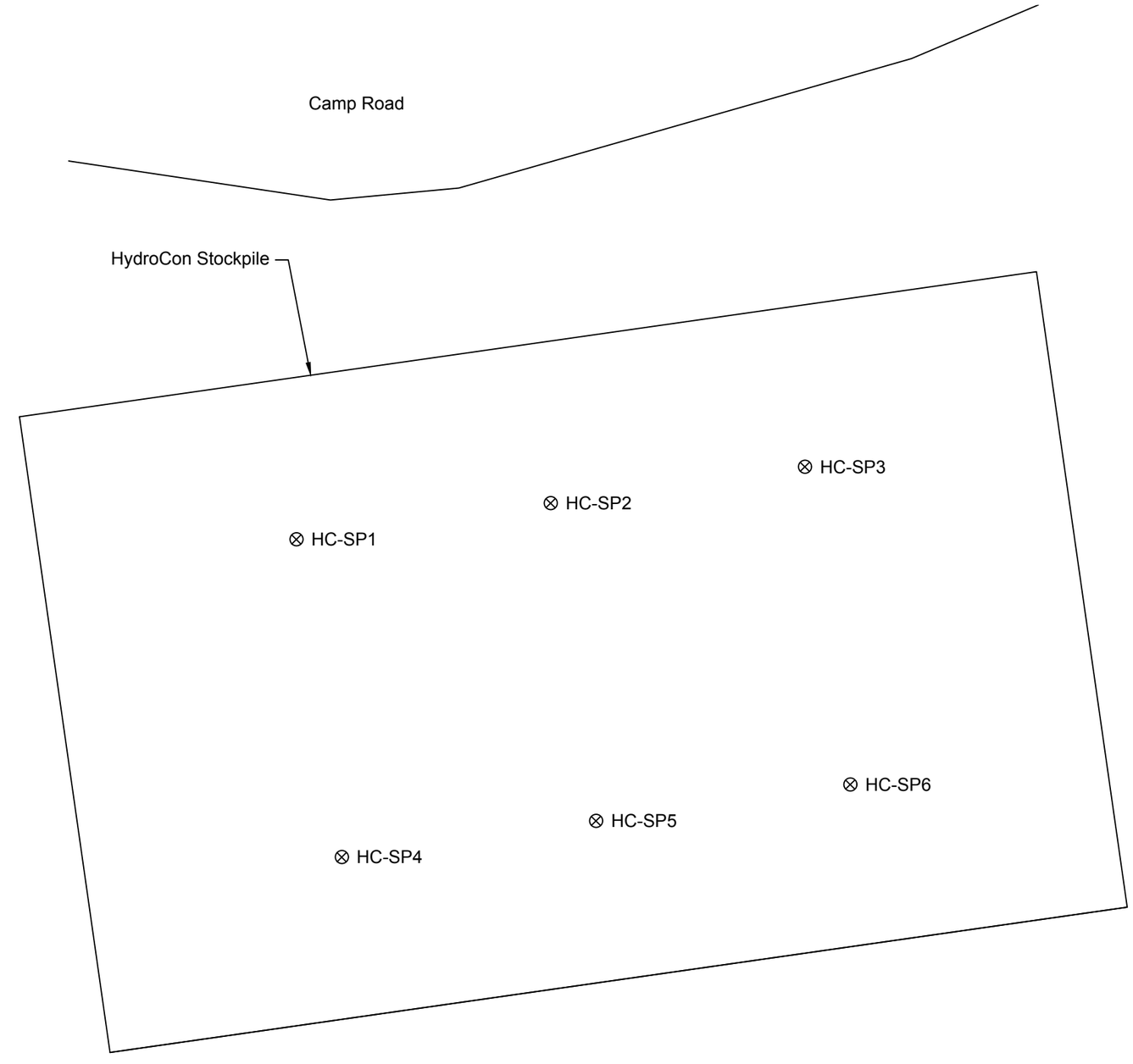
Soil Analytical Results (mg/kg)			
		AK 102	AK103
Field ID	Date	Diesel Range Organics	Residual Range Organics
ADEC Method 2 - Over 40" Zone		**230**	**9,700**
HydroCon Stockpile			
HC-SP1	8/5/2019	**270**	**230**
HC-SP2	8/5/2019	**440**	**160**
HC-SP3	8/5/2019	**210**	**160**
HC-SP4	8/5/2019	**230**	**130**
HC-SP5	8/5/2019	**280**	**140**
HC-SP6	8/5/2019	**360**	**310**
HC-SP100	8/5/2019	**280**	**130**

Notes

[1]Soil was removed by additional remedial excavationmg/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.
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.
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

LEGEND

- Existing Access Road
- Stockpile
- ⊗ Stockpile Soil Sample Locations



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SCALE IN FEET
1" = 20'

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

DATE: 9-18-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

FIGURE 6
PROPOSED HYDROCON STOCKPILE
SAMPLE LOCATIONS
CALDER MINE
PRINCE OF WALES ISLAND
ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

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

		AK 102	AK103	8260D				
		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
ADEC Method 2 - Over 40" Zone		**230**	**9,700**	**0.022**	**6.7**	**0.13**	**1.5**	
Field ID	**Date**							
Remedial Excavation - Camp Generator Area								
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-W-1.5	8/6/2019	**690**	**72 x**	-	-	-	-	-
CS4-F-2	8/6/2019	<5	<25	-	-	-	-	-
CS4-100	8/6/2019	**1,600**	**180 x**	<0.03	<0.05	<0.05	<0.15	**124-TMB**
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-S-3	8/6/2019	<5	<25	-	-	-	-	-
CS6-E-3	8/6/2019	**66**	<25	-	-	-	-	-
CS6-W-3	8/6/2019	**260**	<25	-	-	-	-	-
CS6-F-4	8/6/2019	**19**	<25	-	-	-	-	-
CS6-100	8/6/2019	**4,800**	**4,000**	<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	8/6/2019	<5	<25	-	-	-	-	-
Boring MW-2								
MW2-5	8/6/2019	**5.5 x**	<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**	-	-	-	-	-
MW2-100	8/6/2019	<5	<25	<0.03	<0.05	<0.05	<0.15	ND
Boring MW-3								
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	8/6/2019	<5	<25	<0.03	<0.05	<0.05	<0.15	ND
CRC1 Stockpile								
CRC-SP1	8/5/2019	**190**	**280**	<0.03	<0.05	<0.05	<0.15	**MC LC**
CRC-SP2	8/5/2019	**170**	**300**	---	---	---	---	---
CRC-SP3	8/5/2019	**240**	**220**	---	---	---	---	---
CRC-SP4	8/5/2019	**290**	**460**	---	---	---	---	---
CRC-SP100	8/5/2019	**80**	**120**	<0.03	<0.05	<0.05	<0.15	ND
HydroCon Stockpile								
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	8/5/2019	**280**	**130**	<0.03	<0.05	<0.05	<0.15	ND

Notes

[1]Soil was removed by additional remedial excavation

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

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

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

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

MC = methylene chloride (0.57 mg/kg)

LC = laboratory contamination

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

		8270E				
		2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
ADEC Method 2 - Over 40" Zone		**1.27**	**0.41**	**0.038**	**39**	**87**
Field ID	**Date Sampled**					
Remedial Excavations - Camp Generator Area						
CS4-E-1.5	8/6/2019	**0.25**	**0.1**	**0.067**	**0.086**	**0.11**
CS4-100	8/6/2019	**0.24**	**0.1**	**0.067**	**0.074**	**0.072**
Remedial Excavations - Fueling Station Area						
CS6-N-3	8/6/2019	<0.01	<0.01	<0.01	<0.01	**0.23**
CS6-100	8/6/2019	<0.01	<0.01	<0.01	<0.01	**0.30**
CS8-W-3	8/6/2019	<0.01	<0.01	<0.01	<0.01	**0.055**
Boring MW-2						
MW2-5	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01
MW2-100	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01
Boring MW-3						
MW3-14	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01
MW3-100	8/6/2019	<0.01	<0.01	<0.01	<0.01	<0.01
CRC1 Stockpile						
CRC-SP1	8/5/2019	**0.028**	**0.012**	<0.01	**0.012**	<0.01
CRC-SP100	8/5/2019	**0.033**	**0.016**	**0.01**	**0.013**	<0.01
HydroCon Stockpile						
HC-SP100	8/5/2019	<0.01	<0.01	<0.01	<0.01	<0.01

Notes

[1]Soil was removed by additional remedial excavation

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

Table 3
Groundwater Analytical Results
DRO, RRO, BTEX, and VOCs
Calder Mine
Prince of Wales Island, Alaska

		AK 102	AK103	8260D				
		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
ADEC Method 2		**1,500**	**1,100**	**4.6**	**1,100**	**15**	**190**	
Field ID	**Date**							
Fueling Station Area								
MW-1	9/19/2018	**7,000**	**390 x**	<0.35	<1	<1	**6**	NA
MW-1	8/7/2019	**5,300J**	<250	<0.35	<1	<1	**1.3**	124 TMB 135 TMB
MW100-W	8/7/2019	**7,400J**	**400 x**	<0.35	<1	<1	<3	ND
MW-2	8/8/2019	**110**	<250	<0.35	<1	<1	<3	Acetone MEK
MW-3	8/8/2019	---	---	---	---	---	---	---

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)

Table 4
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		**11.4**	**35.9**	**1.7**	**260**	**530**	**290**	**170**	**120**	**1,480**	**902**
Field ID	**Date Sampled**										
Monitoring Wells - Fueling Station Area											
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	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	---	---	---	---	---	---	---	---	---	---

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

ATTACHMENT A

BORING LOGS

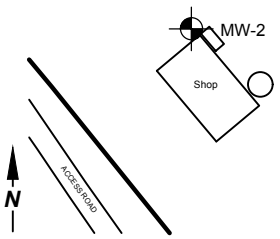
HydroCon

1339 Commerce Ave. Suite 211
Longview, WA. 98632
Phone: 360-703-6079

WELL/BORING NUMBER: MW-2

PROJECT NAME: Calder Mine
PROJECT NUMBER: 2015-010
PROJECT LOCATION: Prince of Whales Island, AK.
LOGGED BY: C. Hultgren
REVIEWED BY: C. Hultgren
DATE: 9/9/18

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
Sandy Gravel with Fines (GP) White to light gray, >50% angular fine to medium gravel, ~40% fine to coarse sand, 10% non plastic fines (limestone crush fill), damp to dry, no odor.	0							
	5			MW2-5	0.5			
	10			MW2-10	0.3			
Silty Sand (SM) Tan, 66% fine sand, 33% non plastic fines, damp, no odor.								
	15			MW2-15	0.2			
Poor sample recovery from 15' to 35' Drilling was relatively easy with no need to use air hammer	20							
	25							
	30			MW2-30	0.3			

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 39.2'
Sump: 38.9 to 39.2
Screen: 28.9 tp 38.9
Casing: 0 to 28.9
Backfill:
Sand Pack: 27 to 39.2
Bentonite: 1 to 27
Concrete: 0 to 1
Stabilizers:

MATERIALS USED

Casing: 6 x 5' 2" PVC
Well Screen: 2 x 5' 0.010" (pre pack)
End Cap: 1 x 0.37
Sand Pack: 1 50lb bag 10-20
Bentonite: 1/2 50lb bag
Concrete: 2 60lb bags
Monument: Flush
Well Cap: Locking
Other:

DRILLING CONTRACTOR:
DRILLING METHOD: Air Rotary
BOREHOLE DIAMETER: 3 Inch
SAMPLING METHOD: Continuous Core
WELL TAG ID: --

CASING ELEVATION: 82.09'
GROUND SURFACE ELEVATION: --
NORTHING: --
EASTING: --

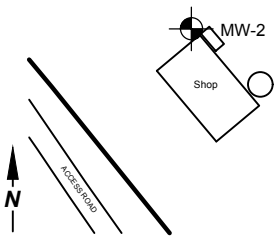
HydroCon

1339 Commerce Ave. Suite 211
Longview, WA. 98632
Phone: 360-703-6079

WELL/BORING NUMBER: MW-2

PROJECT NAME: Calder Mine
PROJECT NUMBER: 2015-010
PROJECT LOCATION: Prince of Whales Island, AK.
LOGGED BY: C. Hultgren
REVIEWED BY: C. Hultgren
DATE: 9/9/18

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
Bedrock (limestone) Tan, hard, massive, wet.	30–35							
BOTTOM OF BORING AT 39.2' B.G.S.	40–60							

DRILLING CONTRACTOR:
DRILLING METHOD: Air Rotary
BOREHOLE DIAMETER: 3 Inch
SAMPLING METHOD: Continuous Core
WELL TAG ID: --

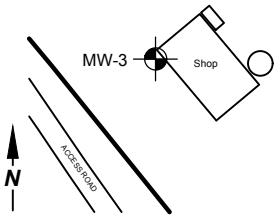
CASING ELEVATION: 82.09'
GROUND SURFACE ELEVATION: --
NORTHING: --
EASTING: --

HydroCon
1339 Commerce Ave. Suite 211
Longview, WA. 98632
Phone: 360-703-6079

WELL/BORING NUMBER: MW-3

PROJECT NAME: Calder Mine
PROJECT NUMBER: 2015-010
PROJECT LOCATION: Prince of Whales Island, AK.
LOGGED BY: C. Hultgren
REVIEWED BY: C. Hultgren
DATE: 9/9/18

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
Sandy Gravel with Fines (GP) White to light gray, >50% angular fine to medium gravel, ~40% fine to coarse sand, 10% non plastic fines (limestone crush fill), dry, no odor.	0							
	5			MW3-5	0.1			
Limestone, Light gray to tan, hard, massive, damp, no odor.	10			MW3-10	0.1			
				MW3-14	0.1			
BOTTOM OF BORING AT 14.4' B.G.S.	15							
	20							
	25							
	30							

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 14.4'
Sump: 14.1 to 14.4
Screen: 4.1 to 14.1
Casing: 0 to 4.1
Backfill:
Sand Pack: 3 to 14.4
Bentonite: 1 to 3
Concrete: 0 to 1
Stabilizers:

MATERIALS USED

Casing: 1 x 5' 2" PVC
Well Screen: 2 x 5' 0.010" (pre-pack)
End Cap: 0.33
Sand Pack: 1/2 50lb bag 10-20
Bentonite: 1/2 50lb bag
Concrete: 2 60lb bags
Monument: Flush
Well Cap: Locking
Other:

DRILLING CONTRACTOR:
DRILLING METHOD: Air Rotary
BOREHOLE DIAMETER: 3 Inch
SAMPLING METHOD: Continuous Core
WELL TAG ID: --

CASING ELEVATION: 83.08'
GROUND SURFACE ELEVATION: --
NORTHING: --
EASTING: --

ATTACHMENT B

FIELD NOTES

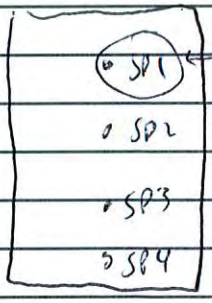
Hydro Con	**DAILY FIELD REPORT**	Hydrocon Job Number: 2015-010
	Project Name: Calder mine	Date: 8/5/19
Phone: 360.998.2902	Client: CRC	Page: 1 Of 1
1339 Commerce Ave., Suite 211; Longview, WA		
Prepared By: C. Hultgren	Location:	Arrival:
		Departure:
Purpose:	Weather:	Permit:

STOCKPILE SAMPLING – PREPARE FOR FIELDWORK

1) CALIBRATE PID with 100 ppm isobutylene test gas
2) LABELS ~~SAMPLE~~ – fill out labels for soil samples
3) COLLECT SOIL SAMPLING SUPPLIES (baggies, sample jars, coolers, shovel, decon equipment). Nitrile gloves

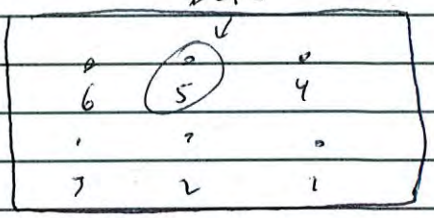
NOTE: CRC crew tilled soil 2x this summer. The last time was 2 weeks ago. They will augment stockpiles with fertilizer after sampling is completed following the dosing rate documented in Approved 2019 Sampling Plan.

CRC stockpile	PID	
CRC-SP1	0.4	1330 (SP100) Dupe (1410)
CRC-SP2	0.1	1340
CRC-SP3	0.1	1350
CRC-SP4	0.3	1400



Screen entire stockpile @ ~10' centers = ALL 0.0 ppm on PID except the North and South zones, collect samples with highest PID reading

Hydrocon Stockpile	PID	
HC-SP1	0.0	1450
HC-SP2	0.0	1500
HC-SP3	0.0	1510
HC-SP4	0.0	1520
HC-SP5	0.0	1530 Dupe HC SP100 (1540)
HC-SP6	0.0	1540



Screen entire stockpile with PID @ ~10' centers = ALL 0.0 ppm on PID

Hydro Con	DAILY FIELD REPORT	Hydrocon Job Number: 2015-010
	Project Name: Calder	Date: 8/6/19
Phone: 360.998.2902 1339 Commerce Ave., Suite 211; Longview, WA	Client: CRC	Page: 1 Of 3
Prepared By: C. Hultgren	Location:	Arrival: Departure:
Purpose:	Weather:	Permit:

Prepare for fieldwork

Label bottles, check PID calibration, review work plan, discuss objectives with Equipment operator. Have tailgate health & safety meeting

Go with Mike Lehman to get fabric to lay down new pad for soil stockpile - see photo

CS6 LOCATION — Remedial EXCAVATION - FUEL STATION AREA

Time	Sample #	PID	
0900	CS6-W-3	0.1	
0905	CS6-E-3	2.2	
0910	CS6-N-3	9.3	Dupe collected - split sample of CS6-N-3 (CS6-100) 0925
0915	CS6-S-3	0.1	
0920	CS6-F-4	0.1	

NOTE: EXCAVATE down to bedrock @ ~4' bgs. Collect samples from sidewalls. have EXCAVATOR break out pieces of bedrock floor for sample CS6-F-4

CS8 LOCATION

Time	Sample #	PID	
1015	CS8-N-3	0.1	⊗ Bedrock @ ~5' bgs
1020	CS8-S-3	0.1	
1025	CS8-E-3	0.1	
1030	CS8-W-3	0.4	Dupe sample (CS8-100) collected split sample of CS8-W-3 (1040)
1035	CS8-F-5	0.1	

Note: follow same procedure as CS6.

Move over to Camp Area. Willy (Equipment operator) goes to pick up mini EXCAVATOR. He'll drive it to Camp Area.

Hydro Con	DAILY FIELD REPORT	Hydrocon Job Number: 2015-010
	Project Name: CALDER MINE	Date: 8/6/19
Phone: 360.998.2902 1339 Commerce Ave., Suite 211; Longview, WA	Client: CRC	Page: 2 Of 3
Prepared By: C. Hultgren	Location:	Arrival: Departure:
Purpose:	Weather:	Permit:

Remedial EXCAVATION — CAMP AREA

CS4 LOCATION (former HOT - above ground)

Time	Sample #	PID	
1200	CS4-N-1.5	1.5	
1205	CS4-S-1.5	1.2	
1210	CS4-E-1.5	6.3	Dupe (CS4-100) split sample of CS4-E-1.5) (1225)
1215	CS4-W-1.5	1.3	
1220	CS4-F-2	0.1	

Note: Had to hand dig next to Bunk house. TOP Soil had faint diesel odor. Rock base below had no odor. Stop EXCAVATION AT ~2' bgs.

Will transition to drilling. The driller (Scott) had A dental emergency And just Arrived At Camp. He will get drill rig ready. Prepare for drilling

Drilling

MW-2 LOCATION was selected next to shop. Too much heavy equipment traffic to place in drive AREA. NO well could fit in driving Area

MW-2

TIME	Sample #	PID	
1500	MW2-5	0.5	Collect Dupe (MW2-100) split sample MW2-5 (1600)
1520	MW2-10	0.3	
1540	MW2-15	0.2	
1600	MW2-30	0.3	

Note: Poor sample recovery from Below 15' to 35', Drilling was relatively Easy with NO need for Air hammer until 35'. Let hole sit At 15', 25', 30' And measure for water = Dry. Water observed in 35' sample. Drill to 39' And Set well, See Boring log

DAILY FIELD REPORT

Hydrocon Job Number: 2015-010

Project Name: Calder mine

Date: 8/6/19

Client: CRC

Page: 3 of 3

Phone: 360.998.2902

1339 Commerce Ave., Suite 211; Longview, WA

Prepared By: C Hultgren

Location:

Arrival:

Departure:

Purpose:

Weather:

Permit:

(MW-2 Cont'd)

PVC Bottom CAP 0.37' = 0.37

Pre-Pack Screen (0.010) 2 x 5' = 10.00

2-Inch Diam Blank Riser 6 x 5 = 30.00

40.37'

- 1.10 Cut off

39.27' Top of Casing at or near ground surface (TOC)

2 bags Concrete

1 1/2 bag Sand

1 1/2 bag chips

We used most of well materials at MW-2. Will try drilling at SE corner of Shop Building hoping to encounter shallower bedrock as are observed near ASTs and Haul Road.

MW-3

Time	Sample #	PID	
1715	MW3-5	0.1	Note: hit bedrock at ~9' bgs. Drill to 14' bgs
1720	MW3-10	0.1	And set well. No obvious sign of water.
1730	MW3-14	0.1	
1740	MW3-100	Dupe of MW3-14	

End CAP 0.33 = 0.33

Pre-Pack (0.010) Screen 2 x 5 = 10.00

Blank 2" Diam PVC 1 x 5 = 5.00

15.33

- 0.90 Cut off

14.43' at or near ground surface (TOC)

See well log.

Clean up Area, put equipment away, Stop work for day

HydroCon	**DAILY FIELD REPORT**	Hydrocon Job Number: 2015-010
	Project Name: Calder	Date: 8/7/19
Phone: 360.998.2902 1339 Commerce Ave., Suite 211; Longview, WA	Client: CRC	Page: 1 Of 1
Prepared By: C. Hultgren	Location:	Arrival: Departure:
Purpose:	Weather:	Permit:

Get prepard for field work
Assemble well development material & supplies
Get tubing & buckets At Storage Area

Go to mw-2 See well development form

Note: While waiting for well to recharge, go to mw-3 And check Depth to water.

mw-3 — Dry

Complete well development — Get sample bottles and prepare to sample mw-1

See Groundwater Sample collection form

Note: collect duplicate sample (mw100-w) from mw-1

Hydro Con	DAILY FIELD REPORT	Hydrocon Job Number: 2015-010
	Project Name: Calder	Date: 8/8/19
Phone: 360.998.2902 1339 Commerce Ave., Suite 211; Longview, WA	Client: CRC	Page: 1 Of
Prepared By:	Location:	Arrival: Departure:
Purpose: C. Hultgren	Weather:	Permit:

Get sampling equipment ready / labeled bottles - go to MW-2

Sampling Groundwater (A) MW-2 - see groundwater sample collection form.

ES (MW-2)

NOTE: well pumped dry, let recharge and sample.

(0900) 1 x 1,000 mL
1 x 500 mL w/HCl
3 x 40mL VOA w/HCl

Temp 16.10
pH 6.15
Cond 654

Surveying

MW-1	86.73
MW-2	82.09
MW-3	83.08

INVENTORY STATUS (A) Calder

6 boxes 40z Jars
~150' Tubing
1 Flush monument
1 J-Plug
1 Bottom Cap
3 x 1,000mL Amber
3 x 500 mL Amber
4 coolers
Pump w/50' cord
Alconox

Pack coolers / COC forms / blue ice

ATTACHMENT C

PHOTO DOCUMENTATION

PHOTO 1
CS-4 Remedial e□ca□ation.

PHOTO 2
CS-6 Remedial e□ca□ation.

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

Hydro Con

DATE: 10-17-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 1
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

PHOTO 3
CS-8 Remedial e□ca□ation.

PHOTO 4
MW-2.

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

Hydro Con

DATE: 10-17-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 2
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

PHOTO 5
MW-3.

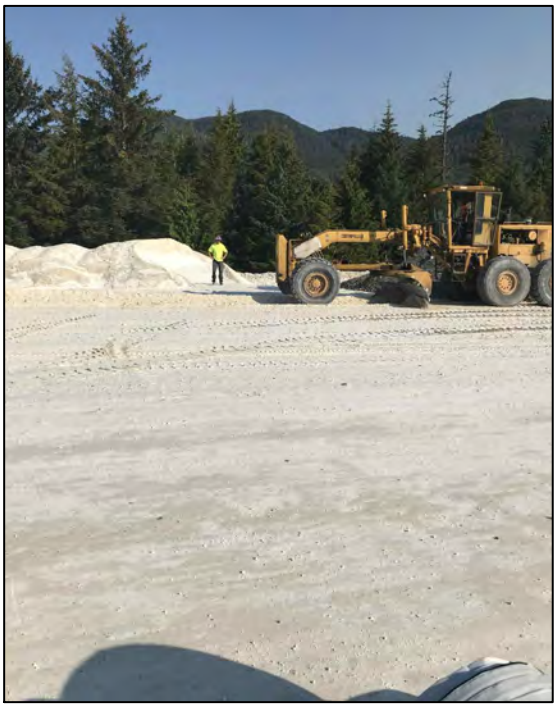


PHOTO 6
Construction of HydroCon 2 Stockpile.

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

HydroCon

DATE: 10-17-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 3
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

PHOTO 7
HydroCon 2 Stockpile construction material.

PHOTO 8
Soil sample stockpiles.

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2015-010 Calder Mine\2019\Sept 2019\2015-010_BM-CMS-091819.dwg

HydroCon	DATE: 10-17-19 DWN: JJT CHK: CH APPROVED: CH PRJ. MGR: CH PROJECT NO: 2015-010	PHOTOPLATE 4 SITE PHOTOGRAPHS CALDER MINE PRINCE WALES ISLAND ALASKA

PHOTO 9
PID screening stockpiles.

HydroCon

DATE: 10-17-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2015-010

PHOTOPLATE 5
SITE PHOTOGRAPHS

CALDER MINE
PRINCE WALES ISLAND
ALASKA

ATTACHMENT D

WELL DEVELOPMENT FORMS

Hydro Con

WELL DEVELOPMENT

Well ID #: MW-2
Date: 8-7-19
Time: _____

Project name: Calder
Project #: 2015-010
Engineer: HULTGREN

WELL INFORMATION

Monument condition [X] Good [ ] Needs repair _____
Well cap condition [X] Good [ ] Locked [ ] Replaced [ ] Needs replacement
Headspace reading [X] Not measured _____ ppm
Elevation mark [X] Yes [ ] Added [ ] Other _____
Well diameter [ ] 1.5-inch [X] 2-inch [ ] 4-inch [ ] Other _____
[ ] Odor _____ [ ] Comments _____

WELL MEASUREMENTS

Total well depth 39.28 ft [ ] Clean bottom [ ] Muddy bottom [ ] Not measured
Depth to product — ft
Depth to water 30.61 ft
Casing volume 8.67 ft (H_2O) X 0.16 gpf = 1.38
Casing volumes 1"=0.04 gpf 1.5"=0.09 gpf 2"=0.16 gpf 4"=0.65 gpf 6"= 1.47 gpf

PURGING INFORMATION

Pump type [ ] Peristaltic [X] Submersible [ ] Centrifugal [ ] Other _____
Purge tubing [X] New LDPE [ ] New HDPE [ ] New Teflon [ ] Other _____
Bailer type [ ] Disposable [ ] Stainless [ ] PVC [ ] Other _____
Bailer cord used [ ] Monofillament [ ] Other _____
Purge start time _____ Purge stop time _____ Purge Rate (GPM) _____
Total Volume Purged (gallons) 5

FIELD PARAMETERS

Meters used [ ] FlowThru Cell [ ] Hach [ ] Hanna [ ] Other _____

Gallons	pH	Temp.	Conductivity	Turbidity	Dissolved Oxygen	ORP
2.5	6.21	16.1	751			
5	6.44	15.9	701			

NOTES/COMMENTS

Water is turbid, no odor, no sheen. Very slow yield.

Engineer's Signature CH Date 8/7/19

WELL DEVELOPMENT

Well ID #: MW3
Date: 8-7-19
Time:

Project name: Calder
Project #: 2015-010
Engineer: Hydrocon

WELL INFORMATION

Monument condition ☒ Good ○ Needs repair
Well cap condition ☒ Good ○ Locked ○ Replaced ○ Needs replacement
Headspace reading ☒ Not measured ____ ppm
Elevation mark ☒ Yes ○ Added ○ Other
Well diameter ○ 1.5-inch ☒ 2-inch ○ 4-inch ○ Other
○ Odor ○ Comments

WELL MEASUREMENTS

Total well depth 14.42 ft (end) ☒ Clean bottom ☐ Muddy bottom (begin) ○ Not measured
Depth to product ____ ft
Depth to water 13.83 ft
Casing volume 0.59 ft (H_2O) X 0.16 gpf = ____
Casing volumes 1"=0.04 gpf 1.5"=0.09 gpf 2"=0.16 gpf 4"=0.65 gpf 6"= 1.47 gpf

PURGING INFORMATION

Pump type ○ Peristaltic ☒ Submersible ○ Centrifugal ○ Other
Purge tubing ☒ New LDPE ○ New HDPE ○ New Teflon ○ Other
Bailer type ○ Disposable ○ Stainless ○ PVC ○ Other
Bailer cord used ○ Monofillament ○ Other
Purge start time ____ Purge stop time ____ Purge Rate (GPM) ____
Total Volume Purged (gallons) 0.0 from formation

FIELD PARAMETERS

Meters used ○ FlowThru Cell ○ Hach ○ Hanna ○ Other ____

Gallons	pH	Temp.	Conductivity	Turbidity	Dissolved Oxygen	ORP

NOTES/COMMENTS

Only water in well is in sump section which includes the thread box of screen

Engineer's Signature [signature] Date 8-7-19

ATTACHMENT E

GROUNDWATER SAMPLE COLLECTION FORMS

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW-1

Project Name: CRC Calder
Hydrocon Project Number: 2015-010
Date: 8-7-19
Sample I.D.: MW1-W Time: 1600
Field Duplicate I.D. MW100-W Time: 1620
Personnel: Hultgren

WELL INFORMATION

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

PURGING INFORMATION

Total well depth: 8.95 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product: Ø ft
Depth to water: 6.55 ft Intake Depth (BTOC): _____ Begin Purging Well: _____
Casing volume: 2.40 ft (H_2O) X 0.16 gal/ft = 0.38 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: faint hydrocarbon

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)
1600			15.9	492		6.8		

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: Well pumped dry, let recharge and collect sample

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
VOA	3x2	HCL	(No) 0.45 0.10	8260
Amber 500	1x2	HCL	(No) 0.45 0.10	8270
Amber 1000	1x2	Ø	(No) 0.45 0.10	AK102 AK103
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW-2

Project Name: CRC Colder
Hydrocon Project Number: 2015-010
Date: 8-8-19
Sample I.D.: MW2-W Time: 0900
Field Duplicate I.D.: Time:
Personnel: Hultgren

WELL INFORMATION

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

PURGING INFORMATION

Total well depth: 39.28 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s):
Depth to product: Ø ft
Depth to water: 31.74 ft Intake Depth (BTOC): Begin Purging Well:
Casing volume: 7.54 ft (H_2O) X 0.16 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)
0900			16.0	654		6.5		

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity and/or Dissolved Oxygen are recorded within their respective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: Well pumped dry - let recharge and sample

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
VOA	3	HCL	No 0.45 0.10	8260
500ml Amber	1	HCL	No 0.45 0.10	8270
1,000ml Amber	1	Ø	No 0.45 0.10	AK 102 AK 103
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments:

ATTACHMENT F

LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

August 23, 2019

Craig Hultgren, Project Manager
HydroCon
510 Allen St, Suite B
Kelso, WA 98626

Dear Mr Hultgren:

Included are the results from the testing of material submitted on August 9, 2019 from the Calder PO 2015-010, F&BI 908206 project. There are 60 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
HDC0823R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 9, 2019 by Friedman & Bruya, Inc. (ADEC laboratory approval number UST-007) from the HydroCon Calder PO 2015-010 project. The samples were received at 4 °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
908206 -01	CRC-SP1	08/05/19
908206 -02	CRC-SP2	08/05/19
908206 -03	CRC-SP3	08/05/19
908206 -04	CRC-SP4	08/05/19
908206 -05	CRC-SP100	08/05/19
908206 -06	HC-SP1	08/05/19
908206 -07	HC-SP2	08/05/19
908206 -08	HC-SP3	08/05/19
908206 -09	HC-SP4	08/05/19
908206 -10	HC-SP5	08/05/19
908206 -11	HC-SP6	08/05/19
908206 -12	HC-SP100	08/05/19
908206 -13	CS6-W-3	08/06/19
908206 -14	CS6-E-3	08/06/19
908206 -15	CS6-N-3	08/06/19
908206 -16	CS6-S-3	08/06/19
908206 -17	CS6-F-4	08/06/19
908206 -18	CS6-100	08/06/19
908206 -19	CS8-N-3	08/06/19
908206 -20	CS8-S-3	08/06/19
908206 -21	CS8-E-3	08/06/19
908206 -22	CS8-W-3	08/06/19
908206 -23	CS8-F-5	08/06/19
908206 -24	CS8-100	08/06/19
908206 -25	CS4-N-1.5	08/06/19
908206 -26	CS4-S-1.5	08/06/19
908206 -27	CS4-E-1.5	08/06/19
908206 -28	CS4-W-1.5	08/06/19
908206 -29	CS4-F-2	08/06/19
908206 -30	CS4-100	08/06/19
908206 -31	MW2-5	08/06/19
908206 -32	MW2-10	08/06/19
908206 -33	MW2-15	08/06/19
908206 -34	MW2-30	08/06/19

CASE NARRATIVE (continued)

Laboratory ID	HydroCon	Date Sampled
908206 -35	MW3-5	08/06/19
908206 -36	MW3-10	08/06/19
908206 -37	MW3-14	08/06/19
908206 -38	MW2-100	08/06/19
908206 -39	MW3-100	08/06/19
908206 -40	MW1-W	08/07/19
908206 -41	MW100-W	08/07/19
908206 -42	MW2-W	08/08/19

DRO/RRO (soil) - Analysis Method AK 102/AK 103, Extraction Method 3550
All quality control requirements were acceptable.

SVOCs (soil) - Analysis Method 8270E, Extraction Method 3550
All quality control requirements were acceptable.

VOCs (soil) - Analysis Method 8260D, Extraction Method 5035
Methylene chloride was detected in sample CRC-SP1. The data were flagged accordingly. All other quality control requirements were acceptable.

DRO/RRO (water) - Analysis Method AK 102/AK 103, Extraction Method 3510
All quality control requirements were acceptable.

SVOCs (water) - Analysis Method 8270E, Extraction Method 3510
Several compounds in the 8270E laboratory control sample and laboratory control sample duplicate failed the acceptance criteria. In addition, the hexachlorocyclopentadiene laboratory control sample did not pass the acceptance criteria. The data were flagged accordingly. All other quality control requirements were acceptable.

VOCs (water) - Analysis Method 8260D, Extraction Method 5030
Acetone was detected in sample MW-2. The data were flagged as due to laboratory contamination. In addition, the acetone calibration standard did not pass the acceptance criteria. The data were flagged accordingly. All other quality control requirements were acceptable.

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 08/16/19

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)
CRC-SP1 908206-01	190	53
CRC-SP2 908206-02	170	65
CRC-SP3 908206-03	240	76
CRC-SP4 908206-04	290	82
CRC-SP100 908206-05	80	74
HC-SP1 908206-06	270	61
HC-SP2 908206-07	440	84
HC-SP3 908206-08	210	73
HC-SP4 908206-09	230	83
HC-SP5 908206-10	280	78
HC-SP6 908206-11	360	71

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 08/16/19

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)
HC-SP100 908206-12	280	80
CS6-W-3 908206-13	260	95
CS6-E-3 908206-14	66	91
CS6-N-3 908206-15	4,200	57
CS6-S-3 908206-16	<5	84
CS6-F-4 908206-17	19	85
CS6-100 908206-18	4,800	59
CS8-N-3 908206-19	<5	87
CS8-S-3 908206-20	100	81
CS8-E-3 908206-21	<5	92
CS8-W-3 908206-22	270	79

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 08/16/19

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)
CS8-F-5 908206-23	<5	90
CS8-100 908206-24	<5	88
CS4-N-1.5 908206-25	1,100	106
CS4-S-1.5 908206-26	570	68
CS4-E-1.5 908206-27	1,800	91
CS4-W-1.5 908206-28	690	70
CS4-F-2 908206-29	<5	83
CS4-100 908206-30	1,600	74
MW2-5 908206-31	5.5 x	91
MW2-10 908206-32	6.2 x	97
MW2-15 908206-33	7.1 x	91

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 08/16/19

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)
MW2-30 908206-34	13 x	88
MW3-5 908206-35	5.7 x	97
MW3-10 908206-36	<5	87
MW3-14 908206-37	8.0 x	95
MW2-100 908206-38	<5	95
MW3-100 908206-39	<5	99
Method Blank 09-1979 MB	<5	99
Method Blank 09-1980 MB	<5	109

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 and 08/16/19

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)
CRC-SP1 908206-01	280	71
CRC-SP2 908206-02	300	68
CRC-SP3 908206-03	220	71
CRC-SP4 908206-04	460	79
CRC-SP100 908206-05	120	70
HC-SP1 908206-06	230	61
HC-SP2 908206-07	160	70
HC-SP3 908206-08	160	58
HC-SP4 908206-09	130	68
HC-SP5 908206-10	140	58
HC-SP6 908206-11	310	57

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 and 08/16/19

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)
HC-SP100 908206-12	130	61
CS6-W-3 908206-13	<25	60
CS6-E-3 908206-14	<25	69
CS6-N-3 908206-15	3,400	53
CS6-S-3 908206-16	<25	67
CS6-F-4 908206-17	<25	69
CS6-100 908206-18	4,000	58
CS8-N-3 908206-19	<25	72
CS8-S-3 908206-20	<25	66
CS8-E-3 908206-21	<25	78
CS8-W-3 908206-22	52	69

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 and 08/16/19

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)
CS8-F-5 908206-23	<25	73
CS8-100 908206-24	<25	73
CS4-N-1.5 908206-25	100 x	72
CS4-S-1.5 908206-26	68 x	66
CS4-E-1.5 908206-27	190 x	67
CS4-W-1.5 908206-28	72 x	65
CS4-F-2 908206-29	<25	70
CS4-100 908206-30	180 x	70
MW2-5 908206-31	<25	75
MW2-10 908206-32	<25	80
MW2-15 908206-33	<25	76

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/12/19
Date Analyzed: 08/14/19 and 08/16/19

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)
MW2-30 908206-34	36	73
MW3-5 908206-35	<25	81
MW3-10 908206-36	<25	77
MW3-14 908206-37	<25	78
MW2-100 908206-38	<25	79
MW3-100 908206-39	<25	83
Method Blank 09-1979 MB	<25	82
Method Blank 09-1980 MB	<25	87

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/13/19
Date Analyzed: 08/14/19

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)
MW1-W 908206-40	5,300	99
MW100-W 908206-41	7,400	96
MW2-W 908206-42	110	97
Method Blank 09-1989 MB	<50	117

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206
Date Extracted: 08/13/19
Date Analyzed: 08/14/19

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)
MW1-W 908206-40	<250	90
MW100-W 908206-41	400 x	94
MW2-W 908206-42	<250	71
Method Blank 09-1989 MB	<250	117

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW1-W	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-40
Date Analyzed:	08/13/19	Data File:	081312.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	94	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	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	<1	o-Xylene	1.3
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	1.6
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	1.5
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	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	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW100-W	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-41
Date Analyzed:	08/13/19	Data File:	081313.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	96	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	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	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
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	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	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	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW2-W	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-42
Date Analyzed:	08/14/19	Data File:	081407.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	180 jl lc	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
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	<1
2-Butanone (MEK)	19	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	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	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	09-1865 mb
Date Analyzed:	08/13/19	Data File:	081311.D
Matrix:	Water	Instrument:	GCMS9
Units:	ug/L (ppb)	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	95	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	99	50	150

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

Analysis For Volatile Compounds By EPA Method 8260D

Client Sample ID:	CRC-SP1	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-01
Date Analyzed:	08/12/19	Data File:	081210.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	97	55	145
4-Bromofluorobenzene	96	65	139

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	<0.5	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	0.57 lc	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)	<0.5	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	<0.5	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:	CRC-SP100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-05
Date Analyzed:	08/12/19	Data File:	081211.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	HC-SP100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-12
Date Analyzed:	08/12/19	Data File:	081212.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	CS6-N-3	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-15
Date Analyzed:	08/12/19	Data File:	081213.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	CS6-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-18
Date Analyzed:	08/12/19	Data File:	081214.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	CS8-W-3	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-22
Date Analyzed:	08/12/19	Data File:	081215.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	CS4-E-1.5	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-27
Date Analyzed:	08/12/19	Data File:	081216.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	CS4-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-30
Date Analyzed:	08/12/19	Data File:	081217.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	102	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	0.051
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	<0.5	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:	MW2-5	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-31
Date Analyzed:	08/12/19	Data File:	081218.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	96	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	MW3-14	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-37
Date Analyzed:	08/12/19	Data File:	081219.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	95	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	MW2-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-38
Date Analyzed:	08/12/19	Data File:	081220.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	96	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	MW3-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/12/19	Lab ID:	908206-39
Date Analyzed:	08/12/19	Data File:	081221.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

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	<0.5	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)	<0.5	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	<0.5	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 PO 2015-010
Date Extracted:	08/12/19	Lab ID:	09-1863 mb
Date Analyzed:	08/12/19	Data File:	081208.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	145
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

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	<0.5	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)	<0.5	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	<0.5	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:	CRC-SP1	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-01 1/5
Date Analyzed:	08/15/19	Data File:	081525.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	50	150
Phenol-d6	78	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	75	50	150
2,4,6-Tribromophenol	80	50	150
Terphenyl-d14	82	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.012
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	0.028	Chrysene	<0.01
1-Methylnaphthalene	0.012	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CRC-SP100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-05 1/5
Date Analyzed:	08/15/19	Data File:	081526.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	75	50	150
Phenol-d6	78	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	81	50	150
Terphenyl-d14	86	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	0.013
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	0.010	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	0.033	Chrysene	<0.01
1-Methylnaphthalene	0.016	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	HC-SP100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-12 1/5
Date Analyzed:	08/15/19	Data File:	081527.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	72	50	150
Phenol-d6	74	50	150
Nitrobenzene-d5	69	50	150
2-Fluorobiphenyl	69	50	150
2,4,6-Tribromophenol	77	50	150
Terphenyl-d14	71	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS6-N-3	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-15 1/25
Date Analyzed:	08/16/19	Data File:	081607.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70 d	50	150
Phenol-d6	70 d	50	150
Nitrobenzene-d5	67 d	50	150
2-Fluorobiphenyl	72 d	50	150
2,4,6-Tribromophenol	70 d	50	150
Terphenyl-d14	68 d	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<2.5	2,6-Dinitrotoluene	<1.2
Bis(2-chloroethyl) ether	<0.25	3-Nitroaniline	<25
2-Chlorophenol	<2.5	Acenaphthene	<0.05
1,3-Dichlorobenzene	<0.25	2,4-Dinitrophenol	<7.5
1,4-Dichlorobenzene	<0.25	Dibenzofuran	<0.25
1,2-Dichlorobenzene	<0.25	2,4-Dinitrotoluene	<1.2
Benzyl alcohol	<2.5	4-Nitrophenol	<7.5
2,2'-Oxybis(1-chloropropane)	<0.25	Diethyl phthalate	<2.5
2-Methylphenol	<2.5	Fluorene	<0.05
Hexachloroethane	<0.25	4-Chlorophenyl phenyl ether	<0.25
N-Nitroso-di-n-propylamine	<0.25	N-Nitrosodiphenylamine	<0.25
3-Methylphenol + 4-Methylphenol	<5	4-Nitroaniline	<25
Nitrobenzene	<0.25	4,6-Dinitro-2-methylphenol	<7.5
Isophorone	<0.25	4-Bromophenyl phenyl ether	<0.25
2-Nitrophenol	<2.5	Hexachlorobenzene	<0.25
2,4-Dimethylphenol	<2.5	Pentachlorophenol	<1.2
Benzoic acid	<12	Phenanthrene	<0.05
Bis(2-chloroethoxy)methane	<0.25	Anthracene	<0.05
2,4-Dichlorophenol	<2.5	Carbazole	<0.25
1,2,4-Trichlorobenzene	<0.25	Di-n-butyl phthalate	<2.5
Naphthalene	<0.05	Fluoranthene	<0.05
Hexachlorobutadiene	<0.25	Pyrene	0.23
4-Chloroaniline	<25	Benzyl butyl phthalate	<2.5
4-Chloro-3-methylphenol	<2.5	Benz(a)anthracene	<0.05
2-Methylnaphthalene	<0.05	Chrysene	<0.05
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<4
Hexachlorocyclopentadiene	<0.75	Di-n-octyl phthalate	<2.5
2,4,6-Trichlorophenol	<2.5	Benzo(a)pyrene	<0.05
2,4,5-Trichlorophenol	<2.5	Benzo(b)fluoranthene	<0.05
2-Chloronaphthalene	<0.25	Benzo(k)fluoranthene	<0.05
2-Nitroaniline	<1.2	Indeno(1,2,3-cd)pyrene	<0.05
Dimethyl phthalate	<2.5	Dibenz(a,h)anthracene	<0.05
Acenaphthylene	<0.05	Benzo(g,h,i)perylene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS6-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-18 1/25
Date Analyzed:	08/16/19	Data File:	081608.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68 d	50	150
Phenol-d6	73 d	50	150
Nitrobenzene-d5	71 d	50	150
2-Fluorobiphenyl	72 d	50	150
2,4,6-Tribromophenol	82 d	50	150
Terphenyl-d14	83 d	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<2.5	2,6-Dinitrotoluene	<1.2
Bis(2-chloroethyl) ether	<0.25	3-Nitroaniline	<25
2-Chlorophenol	<2.5	Acenaphthene	<0.05
1,3-Dichlorobenzene	<0.25	2,4-Dinitrophenol	<7.5
1,4-Dichlorobenzene	<0.25	Dibenzofuran	<0.25
1,2-Dichlorobenzene	<0.25	2,4-Dinitrotoluene	<1.2
Benzyl alcohol	<2.5	4-Nitrophenol	<7.5
2,2'-Oxybis(1-chloropropane)	<0.25	Diethyl phthalate	<2.5
2-Methylphenol	<2.5	Fluorene	<0.05
Hexachloroethane	<0.25	4-Chlorophenyl phenyl ether	<0.25
N-Nitroso-di-n-propylamine	<0.25	N-Nitrosodiphenylamine	<0.25
3-Methylphenol + 4-Methylphenol	<5	4-Nitroaniline	<25
Nitrobenzene	<0.25	4,6-Dinitro-2-methylphenol	<7.5
Isophorone	<0.25	4-Bromophenyl phenyl ether	<0.25
2-Nitrophenol	<2.5	Hexachlorobenzene	<0.25
2,4-Dimethylphenol	<2.5	Pentachlorophenol	<1.2
Benzoic acid	<12	Phenanthrene	<0.05
Bis(2-chloroethoxy)methane	<0.25	Anthracene	<0.05
2,4-Dichlorophenol	<2.5	Carbazole	<0.25
1,2,4-Trichlorobenzene	<0.25	Di-n-butyl phthalate	<2.5
Naphthalene	<0.05	Fluoranthene	<0.05
Hexachlorobutadiene	<0.25	Pyrene	0.30
4-Chloroaniline	<25	Benzyl butyl phthalate	<2.5
4-Chloro-3-methylphenol	<2.5	Benz(a)anthracene	<0.05
2-Methylnaphthalene	<0.05	Chrysene	<0.05
1-Methylnaphthalene	<0.05	Bis(2-ethylhexyl) phthalate	<4
Hexachlorocyclopentadiene	<0.75	Di-n-octyl phthalate	<2.5
2,4,6-Trichlorophenol	<2.5	Benzo(a)pyrene	<0.05
2,4,5-Trichlorophenol	<2.5	Benzo(b)fluoranthene	<0.05
2-Chloronaphthalene	<0.25	Benzo(k)fluoranthene	<0.05
2-Nitroaniline	<1.2	Indeno(1,2,3-cd)pyrene	<0.05
Dimethyl phthalate	<2.5	Dibenz(a,h)anthracene	<0.05
Acenaphthylene	<0.05	Benzo(g,h,i)perylene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS8-W-3	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-22 1/5
Date Analyzed:	08/16/19	Data File:	081530.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	76	50	150
Phenol-d6	79	50	150
Nitrobenzene-d5	74	50	150
2-Fluorobiphenyl	77	50	150
2,4,6-Tribromophenol	79	50	150
Terphenyl-d14	75	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	0.055
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4-E-1.5	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-27 1/25
Date Analyzed:	08/16/19	Data File:	081609.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	74 d	50	150
Phenol-d6	76 d	50	150
Nitrobenzene-d5	73 d	50	150
2-Fluorobiphenyl	74 d	50	150
2,4,6-Tribromophenol	80 d	50	150
Terphenyl-d14	83 d	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<2.5	2,6-Dinitrotoluene	<1.2
Bis(2-chloroethyl) ether	<0.25	3-Nitroaniline	<25
2-Chlorophenol	<2.5	Acenaphthene	<0.05
1,3-Dichlorobenzene	<0.25	2,4-Dinitrophenol	<7.5
1,4-Dichlorobenzene	<0.25	Dibenzofuran	<0.25
1,2-Dichlorobenzene	<0.25	2,4-Dinitrotoluene	<1.2
Benzyl alcohol	<2.5	4-Nitrophenol	<7.5
2,2'-Oxybis(1-chloropropane)	<0.25	Diethyl phthalate	<2.5
2-Methylphenol	<2.5	Fluorene	<0.05
Hexachloroethane	<0.25	4-Chlorophenyl phenyl ether	<0.25
N-Nitroso-di-n-propylamine	<0.25	N-Nitrosodiphenylamine	<0.25
3-Methylphenol + 4-Methylphenol	<5	4-Nitroaniline	<25
Nitrobenzene	<0.25	4,6-Dinitro-2-methylphenol	<7.5
Isophorone	<0.25	4-Bromophenyl phenyl ether	<0.25
2-Nitrophenol	<2.5	Hexachlorobenzene	<0.25
2,4-Dimethylphenol	<2.5	Pentachlorophenol	<1.2
Benzoic acid	<12	Phenanthrene	0.086
Bis(2-chloroethoxy)methane	<0.25	Anthracene	<0.05
2,4-Dichlorophenol	<2.5	Carbazole	<0.25
1,2,4-Trichlorobenzene	<0.25	Di-n-butyl phthalate	<2.5
Naphthalene	0.067	Fluoranthene	<0.05
Hexachlorobutadiene	<0.25	Pyrene	0.11
4-Chloroaniline	<25	Benzyl butyl phthalate	<2.5
4-Chloro-3-methylphenol	<2.5	Benz(a)anthracene	<0.05
2-Methylnaphthalene	0.25	Chrysene	<0.05
1-Methylnaphthalene	0.10	Bis(2-ethylhexyl) phthalate	<4
Hexachlorocyclopentadiene	<0.75	Di-n-octyl phthalate	<2.5
2,4,6-Trichlorophenol	<2.5	Benzo(a)pyrene	<0.05
2,4,5-Trichlorophenol	<2.5	Benzo(b)fluoranthene	<0.05
2-Chloronaphthalene	<0.25	Benzo(k)fluoranthene	<0.05
2-Nitroaniline	<1.2	Indeno(1,2,3-cd)pyrene	<0.05
Dimethyl phthalate	<2.5	Dibenz(a,h)anthracene	<0.05
Acenaphthylene	<0.05	Benzo(g,h,i)perylene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	CS4-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-30 1/25
Date Analyzed:	08/16/19	Data File:	081610.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	72 d	50	150
Phenol-d6	77 d	50	150
Nitrobenzene-d5	71 d	50	150
2-Fluorobiphenyl	77 d	50	150
2,4,6-Tribromophenol	81 d	50	150
Terphenyl-d14	79 d	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<2.5	2,6-Dinitrotoluene	<1.2
Bis(2-chloroethyl) ether	<0.25	3-Nitroaniline	<25
2-Chlorophenol	<2.5	Acenaphthene	<0.05
1,3-Dichlorobenzene	<0.25	2,4-Dinitrophenol	<7.5
1,4-Dichlorobenzene	<0.25	Dibenzofuran	<0.25
1,2-Dichlorobenzene	<0.25	2,4-Dinitrotoluene	<1.2
Benzyl alcohol	<2.5	4-Nitrophenol	<7.5
2,2'-Oxybis(1-chloropropane)	<0.25	Diethyl phthalate	<2.5
2-Methylphenol	<2.5	Fluorene	<0.05
Hexachloroethane	<0.25	4-Chlorophenyl phenyl ether	<0.25
N-Nitroso-di-n-propylamine	<0.25	N-Nitrosodiphenylamine	<0.25
3-Methylphenol + 4-Methylphenol	<5	4-Nitroaniline	<25
Nitrobenzene	<0.25	4,6-Dinitro-2-methylphenol	<7.5
Isophorone	<0.25	4-Bromophenyl phenyl ether	<0.25
2-Nitrophenol	<2.5	Hexachlorobenzene	<0.25
2,4-Dimethylphenol	<2.5	Pentachlorophenol	<1.2
Benzoic acid	<12	Phenanthrene	0.074
Bis(2-chloroethoxy)methane	<0.25	Anthracene	<0.05
2,4-Dichlorophenol	<2.5	Carbazole	<0.25
1,2,4-Trichlorobenzene	<0.25	Di-n-butyl phthalate	<2.5
Naphthalene	0.067	Fluoranthene	<0.05
Hexachlorobutadiene	<0.25	Pyrene	0.072
4-Chloroaniline	<25	Benzyl butyl phthalate	<2.5
4-Chloro-3-methylphenol	<2.5	Benz(a)anthracene	<0.05
2-Methylnaphthalene	0.24	Chrysene	<0.05
1-Methylnaphthalene	0.10	Bis(2-ethylhexyl) phthalate	<4
Hexachlorocyclopentadiene	<0.75	Di-n-octyl phthalate	<2.5
2,4,6-Trichlorophenol	<2.5	Benzo(a)pyrene	<0.05
2,4,5-Trichlorophenol	<2.5	Benzo(b)fluoranthene	<0.05
2-Chloronaphthalene	<0.25	Benzo(k)fluoranthene	<0.05
2-Nitroaniline	<1.2	Indeno(1,2,3-cd)pyrene	<0.05
Dimethyl phthalate	<2.5	Dibenz(a,h)anthracene	<0.05
Acenaphthylene	<0.05	Benzo(g,h,i)perylene	<0.05

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW2-5	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-31 1/5
Date Analyzed:	08/16/19	Data File:	081533.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	79	50	150
Phenol-d6	85	50	150
Nitrobenzene-d5	78	50	150
2-Fluorobiphenyl	81	50	150
2,4,6-Tribromophenol	77	50	150
Terphenyl-d14	90	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW3-14	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-37 1/5
Date Analyzed:	08/16/19	Data File:	081534.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70	50	150
Phenol-d6	76	50	150
Nitrobenzene-d5	70	50	150
2-Fluorobiphenyl	72	50	150
2,4,6-Tribromophenol	67	50	150
Terphenyl-d14	83	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW2-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-38 1/5
Date Analyzed:	08/16/19	Data File:	081535.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	78	50	150
Phenol-d6	83	50	150
Nitrobenzene-d5	76	50	150
2-Fluorobiphenyl	80	50	150
2,4,6-Tribromophenol	78	50	150
Terphenyl-d14	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<0.01	Benzo(g,h,i)perylene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW3-100	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/13/19	Lab ID:	908206-39 1/5
Date Analyzed:	08/16/19	Data File:	081536.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	71	50	150
Phenol-d6	76	50	150
Nitrobenzene-d5	71	50	150
2-Fluorobiphenyl	74	50	150
2,4,6-Tribromophenol	57	50	150
Terphenyl-d14	82	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.5	2,6-Dinitrotoluene	<0.25
Bis(2-chloroethyl) ether	<0.05	3-Nitroaniline	<5
2-Chlorophenol	<0.5	Acenaphthene	<0.01
1,3-Dichlorobenzene	<0.05	2,4-Dinitrophenol	<1.5
1,4-Dichlorobenzene	<0.05	Dibenzofuran	<0.05
1,2-Dichlorobenzene	<0.05	2,4-Dinitrotoluene	<0.25
Benzyl alcohol	<0.5	4-Nitrophenol	<1.5
2,2'-Oxybis(1-chloropropane)	<0.05	Diethyl phthalate	<0.5
2-Methylphenol	<0.5	Fluorene	<0.01
Hexachloroethane	<0.05	4-Chlorophenyl phenyl ether	<0.05
N-Nitroso-di-n-propylamine	<0.05	N-Nitrosodiphenylamine	<0.05
3-Methylphenol + 4-Methylphenol	<1	4-Nitroaniline	<5
Nitrobenzene	<0.05	4,6-Dinitro-2-methylphenol	<1.5
Isophorone	<0.05	4-Bromophenyl phenyl ether	<0.05
2-Nitrophenol	<0.5	Hexachlorobenzene	<0.05
2,4-Dimethylphenol	<0.5	Pentachlorophenol	<0.25
Benzoic acid	<2.5	Phenanthrene	<0.01
Bis(2-chloroethoxy)methane	<0.05	Anthracene	<0.01
2,4-Dichlorophenol	<0.5	Carbazole	<0.05
1,2,4-Trichlorobenzene	<0.05	Di-n-butyl phthalate	<0.5
Naphthalene	<0.01	Fluoranthene	<0.01
Hexachlorobutadiene	<0.05	Pyrene	<0.01
4-Chloroaniline	<5	Benzyl butyl phthalate	<0.5
4-Chloro-3-methylphenol	<0.5	Benz(a)anthracene	<0.01
2-Methylnaphthalene	<0.01	Chrysene	<0.01
1-Methylnaphthalene	<0.01	Bis(2-ethylhexyl) phthalate	<0.8
Hexachlorocyclopentadiene	<0.15	Di-n-octyl phthalate	<0.5
2,4,6-Trichlorophenol	<0.5	Benzo(a)pyrene	<0.01
2,4,5-Trichlorophenol	<0.5	Benzo(b)fluoranthene	<0.01
2-Chloronaphthalene	<0.05	Benzo(k)fluoranthene	<0.01
2-Nitroaniline	<0.25	Indeno(1,2,3-cd)pyrene	<0.01
Dimethyl phthalate	<0.5	Dibenz(a,h)anthracene	<0.01
Acenaphthylene	<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 PO 2015-010
Date Extracted:	08/13/19	Lab ID:	09-1978 mb
Date Analyzed:	08/15/19	Data File:	081431.D
Matrix:	Soil	Instrument:	GCMS8
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	88	50	150
Phenol-d6	93	50	150
Nitrobenzene-d5	85	50	150
2-Fluorobiphenyl	91	50	150
2,4,6-Tribromophenol	80	50	150
Terphenyl-d14	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Phenol	<0.1	2,6-Dinitrotoluene	<0.05
Bis(2-chloroethyl) ether	<0.01	3-Nitroaniline	<1
2-Chlorophenol	<0.1	Acenaphthene	<0.002
1,3-Dichlorobenzene	<0.01	2,4-Dinitrophenol	<0.3
1,4-Dichlorobenzene	<0.01	Dibenzofuran	<0.01
1,2-Dichlorobenzene	<0.01	2,4-Dinitrotoluene	<0.05
Benzyl alcohol	<0.1	4-Nitrophenol	<0.3
2,2'-Oxybis(1-chloropropane)	<0.01	Diethyl phthalate	<0.1
2-Methylphenol	<0.1	Fluorene	<0.002
Hexachloroethane	<0.01	4-Chlorophenyl phenyl ether	<0.01
N-Nitroso-di-n-propylamine	<0.01	N-Nitrosodiphenylamine	<0.01
3-Methylphenol + 4-Methylphenol	<0.2	4-Nitroaniline	<1
Nitrobenzene	<0.01	4,6-Dinitro-2-methylphenol	<0.3
Isophorone	<0.01	4-Bromophenyl phenyl ether	<0.01
2-Nitrophenol	<0.1	Hexachlorobenzene	<0.01
2,4-Dimethylphenol	<0.1	Pentachlorophenol	<0.05
Benzoic acid	<0.5	Phenanthrene	<0.002
Bis(2-chloroethoxy)methane	<0.01	Anthracene	<0.002
2,4-Dichlorophenol	<0.1	Carbazole	<0.01
1,2,4-Trichlorobenzene	<0.01	Di-n-butyl phthalate	<0.1
Naphthalene	<0.002	Fluoranthene	<0.002
Hexachlorobutadiene	<0.01	Pyrene	<0.002
4-Chloroaniline	<1	Benzyl butyl phthalate	<0.1
4-Chloro-3-methylphenol	<0.1	Benz(a)anthracene	<0.002
2-Methylnaphthalene	<0.002	Chrysene	<0.002
1-Methylnaphthalene	<0.002	Bis(2-ethylhexyl) phthalate	<0.16
Hexachlorocyclopentadiene	<0.03	Di-n-octyl phthalate	<0.1
2,4,6-Trichlorophenol	<0.1	Benzo(a)pyrene	<0.002
2,4,5-Trichlorophenol	<0.1	Benzo(b)fluoranthene	<0.002
2-Chloronaphthalene	<0.01	Benzo(k)fluoranthene	<0.002
2-Nitroaniline	<0.05	Indeno(1,2,3-cd)pyrene	<0.002
Dimethyl phthalate	<0.1	Dibenz(a,h)anthracene	<0.002
Acenaphthylene	<0.002	Benzo(g,h,i)perylene	<0.002

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW1-W	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/14/19	Lab ID:	908206-40
Date Analyzed:	08/15/19	Data File:	081522.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	32	15	99
Phenol-d6	19	11	65
Nitrobenzene-d5	80	50	150
2-Fluorobiphenyl	74	50	150
2,4,6-Tribromophenol	88	50	150
Terphenyl-d14	86	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<2	2,6-Dinitrotoluene	<1
Bis(2-chloroethyl) ether	<0.2	3-Nitroaniline	<20
2-Chlorophenol	<2	Acenaphthene	0.072
1,3-Dichlorobenzene	<0.2 jl	2,4-Dinitrophenol	<6
1,4-Dichlorobenzene	<0.2 jl	Dibenzofuran	<0.2
1,2-Dichlorobenzene	<0.2 jl	2,4-Dinitrotoluene	<1
Benzyl alcohol	<2	4-Nitrophenol	<6
2,2'-Oxybis(1-chloropropane)	<0.2	Diethyl phthalate	<2
2-Methylphenol	<2	Fluorene	0.056
Hexachloroethane	<0.2 jl	4-Chlorophenyl phenyl ether	<0.2
N-Nitroso-di-n-propylamine	<0.2	N-Nitrosodiphenylamine	<0.2
3-Methylphenol + 4-Methylphenol	<4 jl	4-Nitroaniline	<20
Nitrobenzene	<0.2	4,6-Dinitro-2-methylphenol	<6
Isophorone	<0.2	4-Bromophenyl phenyl ether	<0.2
2-Nitrophenol	<2	Hexachlorobenzene	<0.2
2,4-Dimethylphenol	<2	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	Fluoranthene	<0.02
Hexachlorobutadiene	<0.2	Pyrene	0.073
4-Chloroaniline	<20	Benzyl butyl phthalate	<2
4-Chloro-3-methylphenol	<2	Benz(a)anthracene	<0.02
2-Methylnaphthalene	<0.2	Chrysene	<0.02
1-Methylnaphthalene	<0.2	Bis(2-ethylhexyl) phthalate	<3.2
Hexachlorocyclopentadiene	<0.6 ca	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	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

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW100-W	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/14/19	Lab ID:	908206-41
Date Analyzed:	08/15/19	Data File:	081523.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	15	15	99
Phenol-d6	14	11	65
Nitrobenzene-d5	65	50	150
2-Fluorobiphenyl	65	50	150
2,4,6-Tribromophenol	91	50	150
Terphenyl-d14	89	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<2	2,6-Dinitrotoluene	<1
Bis(2-chloroethyl) ether	<0.2	3-Nitroaniline	<20
2-Chlorophenol	<2	Acenaphthene	0.088
1,3-Dichlorobenzene	<0.2 jl	2,4-Dinitrophenol	<6
1,4-Dichlorobenzene	<0.2 jl	Dibenzofuran	<0.2
1,2-Dichlorobenzene	<0.2 jl	2,4-Dinitrotoluene	<1
Benzyl alcohol	<2	4-Nitrophenol	<6
2,2'-Oxybis(1-chloropropane)	<0.2	Diethyl phthalate	<2
2-Methylphenol	<2	Fluorene	0.31
Hexachloroethane	<0.2 jl	4-Chlorophenyl phenyl ether	<0.2
N-Nitroso-di-n-propylamine	<0.2	N-Nitrosodiphenylamine	<0.2
3-Methylphenol + 4-Methylphenol	<4 jl	4-Nitroaniline	<20
Nitrobenzene	<0.2	4,6-Dinitro-2-methylphenol	<6
Isophorone	<0.2	4-Bromophenyl phenyl ether	<0.2
2-Nitrophenol	<2	Hexachlorobenzene	<0.2
2,4-Dimethylphenol	<2	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	Fluoranthene	<0.02
Hexachlorobutadiene	<0.2	Pyrene	0.049
4-Chloroaniline	<20	Benzyl butyl phthalate	<2
4-Chloro-3-methylphenol	<2	Benz(a)anthracene	<0.02
2-Methylnaphthalene	<0.2	Chrysene	<0.02
1-Methylnaphthalene	0.40	Bis(2-ethylhexyl) phthalate	<3.2
Hexachlorocyclopentadiene	<0.6 ca	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	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

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW2-W	Client:	HydroCon
Date Received:	08/09/19	Project:	Calder PO 2015-010
Date Extracted:	08/14/19	Lab ID:	908206-42
Date Analyzed:	08/15/19	Data File:	081524.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	ya

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	7 ip	15	99
Phenol-d6	8 ip	11	65
Nitrobenzene-d5	73	50	150
2-Fluorobiphenyl	75	50	150
2,4,6-Tribromophenol	28 ip	50	150
Terphenyl-d14	89	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<2	2,6-Dinitrotoluene	<1
Bis(2-chloroethyl) ether	<0.2	3-Nitroaniline	<20
2-Chlorophenol	<2	Acenaphthene	<0.02
1,3-Dichlorobenzene	<0.2 jl	2,4-Dinitrophenol	<6
1,4-Dichlorobenzene	<0.2 jl	Dibenzofuran	<0.2
1,2-Dichlorobenzene	<0.2 jl	2,4-Dinitrotoluene	<1
Benzyl alcohol	<2	4-Nitrophenol	<6
2,2'-Oxybis(1-chloropropane)	<0.2	Diethyl phthalate	3.2
2-Methylphenol	<2	Fluorene	<0.02
Hexachloroethane	<0.2 jl	4-Chlorophenyl phenyl ether	<0.2
N-Nitroso-di-n-propylamine	<0.2	N-Nitrosodiphenylamine	<0.2
3-Methylphenol + 4-Methylphenol	<4 jl	4-Nitroaniline	<20
Nitrobenzene	<0.2	4,6-Dinitro-2-methylphenol	<6
Isophorone	<0.2	4-Bromophenyl phenyl ether	<0.2
2-Nitrophenol	<2	Hexachlorobenzene	<0.2
2,4-Dimethylphenol	<2	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	2.1
Naphthalene	<0.2	Fluoranthene	<0.02
Hexachlorobutadiene	<0.2	Pyrene	<0.02
4-Chloroaniline	<20	Benzyl butyl phthalate	<2
4-Chloro-3-methylphenol	<2	Benz(a)anthracene	<0.02
2-Methylnaphthalene	<0.2	Chrysene	<0.02
1-Methylnaphthalene	<0.2	Bis(2-ethylhexyl) phthalate	<3.2
Hexachlorocyclopentadiene	<0.6 ca	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	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

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	Calder PO 2015-010
Date Extracted:	08/14/19	Lab ID:	09-1986 mb
Date Analyzed:	08/15/19	Data File:	081432.D
Matrix:	Water	Instrument:	GCMS8
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	41	15	99
Phenol-d6	29	11	65
Nitrobenzene-d5	69	50	150
2-Fluorobiphenyl	71	50	150
2,4,6-Tribromophenol	75	50	150
Terphenyl-d14	99	50	150

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Phenol	<2	2,6-Dinitrotoluene	<1
Bis(2-chloroethyl) ether	<0.2	3-Nitroaniline	<20
2-Chlorophenol	<2	Acenaphthene	<0.02
1,3-Dichlorobenzene	<0.2 jl	2,4-Dinitrophenol	<6
1,4-Dichlorobenzene	<0.2 jl	Dibenzofuran	<0.2
1,2-Dichlorobenzene	<0.2 jl	2,4-Dinitrotoluene	<1
Benzyl alcohol	<2	4-Nitrophenol	<6
2,2'-Oxybis(1-chloropropane)	<0.2	Diethyl phthalate	<2
2-Methylphenol	<2	Fluorene	<0.02
Hexachloroethane	<0.2 jl	4-Chlorophenyl phenyl ether	<0.2
N-Nitroso-di-n-propylamine	<0.2	N-Nitrosodiphenylamine	<0.2
3-Methylphenol + 4-Methylphenol	<4 jl	4-Nitroaniline	<20
Nitrobenzene	<0.2	4,6-Dinitro-2-methylphenol	<6
Isophorone	<0.2	4-Bromophenyl phenyl ether	<0.2
2-Nitrophenol	<2	Hexachlorobenzene	<0.2
2,4-Dimethylphenol	<2	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	Fluoranthene	<0.02
Hexachlorobutadiene	<0.2	Pyrene	<0.02
4-Chloroaniline	<20	Benzyl butyl phthalate	<2
4-Chloro-3-methylphenol	<2	Benz(a)anthracene	<0.02
2-Methylnaphthalene	<0.2	Chrysene	<0.02
1-Methylnaphthalene	<0.2	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	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: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908206-21 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Diesel	mg/kg (ppm)	<50	<50	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel	mg/kg (ppm)	500	99	93	75-125	6

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908206-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Diesel	mg/kg (ppm)	166	187	12

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel	mg/kg (ppm)	500	98	88	75-125	11

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908206-21 (Duplicate)

Analyte	Reporting Units	(Wet wt) Sample Result	(Wet wt) Duplicate Result	Relative Percent Difference	Acceptance Criteria
Motor Oil	mg/kg (ppm)	<50	<50	nm	0-20

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)	500	104	111	60-120	7

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908206-01 (Duplicate)

Analyte	Reporting Units	(Wet wt) Sample Result	(Wet wt) Duplicate Result	Relative Percent Difference	Acceptance Criteria
Motor Oil	mg/kg (ppm)	240	280	15	0-20

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)	500	104	112	60-120	7

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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	75	85	75-125	13

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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)	5,000	92	98	60-120	6

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908215-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<10	84	55-137
Chloromethane	ug/L (ppb)	50	<100	93	57-129
Vinyl chloride	ug/L (ppb)	50	<2	93	61-139
Bromomethane	ug/L (ppb)	50	<10	112	20-265
Chloroethane	ug/L (ppb)	50	<10	103	55-149
Trichlorofluoromethane	ug/L (ppb)	50	<10	110	65-137
Acetone	ug/L (ppb)	250	<500	60	48-149
1,1-Dichloroethene	ug/L (ppb)	50	<10	101	71-123
Hexane	ug/L (ppb)	50	<10	77	44-139
Methylene chloride	ug/L (ppb)	50	<50	80	61-126
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<10	87	68-125
trans-1,2-Dichloroethene	ug/L (ppb)	50	<10	90	72-122
1,1-Dichloroethane	ug/L (ppb)	50	<10	91	79-113
2,2-Dichloropropane	ug/L (ppb)	50	<10	70	48-157
cis-1,2-Dichloroethene	ug/L (ppb)	50	<10	89	63-126
Chloroform	ug/L (ppb)	50	<10	97	77-117
2-Butanone (MEK)	ug/L (ppb)	250	<100	72	70-135
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<10	97	70-119
1,1,1-Trichloroethane	ug/L (ppb)	50	<10	99	75-121
1,1-Dichloropropene	ug/L (ppb)	50	<10	93	67-121
Carbon tetrachloride	ug/L (ppb)	50	<10	105	70-132
Benzene	ug/L (ppb)	50	<3.5	90	75-114
Trichloroethene	ug/L (ppb)	50	<10	93	73-122
1,2-Dichloropropane	ug/L (ppb)	50	<10	93	80-111
Bromodichloromethane	ug/L (ppb)	50	<10	107	78-117
Dibromomethane	ug/L (ppb)	50	<10	100	73-125
4-Methyl-2-pentanone	ug/L (ppb)	250	<100	102	79-140
cis-1,3-Dichloropropene	ug/L (ppb)	50	<10	98	76-120
Toluene	ug/L (ppb)	50	<10	98	73-117
trans-1,3-Dichloropropene	ug/L (ppb)	50	<10	100	75-122
1,1,2-Trichloroethane	ug/L (ppb)	50	<10	98	81-116
2-Hexanone	ug/L (ppb)	250	<100	95	74-127
1,3-Dichloropropane	ug/L (ppb)	50	<10	100	80-113
Tetrachloroethene	ug/L (ppb)	50	<10	96	40-155
Dibromochloromethane	ug/L (ppb)	50	<10	121	69-129
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<10	104	79-120
Chlorobenzene	ug/L (ppb)	50	<10	99	75-115
Ethylbenzene	ug/L (ppb)	50	<10	98	66-124
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<10	114	76-130
m,p-Xylene	ug/L (ppb)	100	<20	101	63-128
o-Xylene	ug/L (ppb)	50	<10	98	64-129
Styrene	ug/L (ppb)	50	<10	102	56-142
Isopropylbenzene	ug/L (ppb)	50	<10	100	74-122
Bromoform	ug/L (ppb)	50	<10	110	49-138
n-Propylbenzene	ug/L (ppb)	50	<10	100	65-129
Bromobenzene	ug/L (ppb)	50	<10	100	70-121
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<10	103	60-138
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<10	107	77-120
1,2,3-Trichloropropane	ug/L (ppb)	50	<10	98	62-125
2-Chlorotoluene	ug/L (ppb)	50	<10	99	40-159
4-Chlorotoluene	ug/L (ppb)	50	<10	100	76-122
tert-Butylbenzene	ug/L (ppb)	50	<10	104	74-125
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<10	101	59-136
sec-Butylbenzene	ug/L (ppb)	50	<10	103	69-127
p-Isopropyltoluene	ug/L (ppb)	50	<10	103	64-132
1,3-Dichlorobenzene	ug/L (ppb)	50	<10	102	77-113
1,4-Dichlorobenzene	ug/L (ppb)	50	<10	97	75-110
1,2-Dichlorobenzene	ug/L (ppb)	50	<10	102	70-120
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<100	113	69-129
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<10	96	66-123
Hexachlorobutadiene	ug/L (ppb)	50	<10	91	53-136
Naphthalene	ug/L (ppb)	50	<10	99	60-145
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<10	99	59-130

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

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)	50	115	120	25-158	4
Chloromethane	ug/L (ppb)	50	115	116	45-156	1
Vinyl chloride	ug/L (ppb)	50	116	123	50-154	6
Bromomethane	ug/L (ppb)	50	119	126	55-143	6
Chloroethane	ug/L (ppb)	50	109	117	58-146	7
Trichlorofluoromethane	ug/L (ppb)	50	120	126	50-150	5
Acetone	ug/L (ppb)	250	54	52 vo	53-131	4
1,1-Dichloroethene	ug/L (ppb)	50	116	122	67-136	5
Hexane	ug/L (ppb)	50	99	100	57-137	1
Methylene chloride	ug/L (ppb)	50	113	116	39-148	3
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	118	125	64-147	6
trans-1,2-Dichloroethene	ug/L (ppb)	50	115	122	68-128	6
1,1-Dichloroethane	ug/L (ppb)	50	110	117	79-121	6
2,2-Dichloropropane	ug/L (ppb)	50	115	121	55-143	5
cis-1,2-Dichloroethene	ug/L (ppb)	50	116	120	80-123	3
Chloroform	ug/L (ppb)	50	110	114	80-121	4
2-Butanone (MEK)	ug/L (ppb)	250	66	58	57-149	13
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	102	98	73-132	4
1,1,1-Trichloroethane	ug/L (ppb)	50	112	119	81-125	6
1,1-Dichloropropene	ug/L (ppb)	50	109	109	77-129	0
Carbon tetrachloride	ug/L (ppb)	50	115	121	75-158	5
Benzene	ug/L (ppb)	50	103	102	69-134	1
Trichloroethene	ug/L (ppb)	50	107	106	79-113	1
1,2-Dichloropropane	ug/L (ppb)	50	102	97	77-123	5
Bromodichloromethane	ug/L (ppb)	50	107	101	81-133	6
Dibromomethane	ug/L (ppb)	50	105	99	82-125	6
4-Methyl-2-pentanone	ug/L (ppb)	250	101	94	65-138	7
cis-1,3-Dichloropropene	ug/L (ppb)	50	103	92	82-132	11
Toluene	ug/L (ppb)	50	99	99	72-122	0
trans-1,3-Dichloropropene	ug/L (ppb)	50	98	90	80-136	9
1,1,2-Trichloroethane	ug/L (ppb)	50	99	96	75-124	3
2-Hexanone	ug/L (ppb)	250	72	64	60-136	12
1,3-Dichloropropane	ug/L (ppb)	50	96	89	76-126	8
Tetrachloroethene	ug/L (ppb)	50	104	105	76-121	1
Dibromochloromethane	ug/L (ppb)	50	105	102	84-133	3
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	95	88	82-115	8
Chlorobenzene	ug/L (ppb)	50	101	100	83-114	1
Ethylbenzene	ug/L (ppb)	50	102	102	77-124	0
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	112	119	84-127	6
m,p-Xylene	ug/L (ppb)	100	102	102	81-112	0
o-Xylene	ug/L (ppb)	50	104	108	81-121	4
Styrene	ug/L (ppb)	50	103	102	84-119	1
Isopropylbenzene	ug/L (ppb)	50	106	110	80-117	4
Bromoform	ug/L (ppb)	50	104	104	74-136	0
n-Propylbenzene	ug/L (ppb)	50	104	103	74-126	1
Bromobenzene	ug/L (ppb)	50	101	98	80-121	3
1,3,5-Trimethylbenzene	ug/L (ppb)	50	106	106	78-123	0
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	101	98	66-126	3
1,2,3-Trichloropropane	ug/L (ppb)	50	95	92	67-124	3
2-Chlorotoluene	ug/L (ppb)	50	103	103	77-127	0
4-Chlorotoluene	ug/L (ppb)	50	103	99	78-128	4
tert-Butylbenzene	ug/L (ppb)	50	105	104	80-123	1
1,2,4-Trimethylbenzene	ug/L (ppb)	50	105	104	79-122	1
sec-Butylbenzene	ug/L (ppb)	50	107	105	80-116	2
p-Isopropyltoluene	ug/L (ppb)	50	106	105	81-123	1
1,3-Dichlorobenzene	ug/L (ppb)	50	106	105	83-113	1
1,4-Dichlorobenzene	ug/L (ppb)	50	102	101	83-107	1
1,2-Dichlorobenzene	ug/L (ppb)	50	107	108	84-112	1
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	105	107	57-141	2
1,2,4-Trichlorobenzene	ug/L (ppb)	50	125	135 vo	72-130	8
Hexachlorobutadiene	ug/L (ppb)	50	111	111	53-141	0
Naphthalene	ug/L (ppb)	50	120	130	64-133	8
1,2,3-Trichlorobenzene	ug/L (ppb)	50	126	140 vo	65-136	11

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908206-05 (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)	2.5	<0.5	20	21	10-142	5
Chloromethane	mg/kg (ppm)	2.5	<0.5	48	48	10-126	0
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	52	53	10-138	2
Bromomethane	mg/kg (ppm)	2.5	<0.5	66	63	10-163	5
Chloroethane	mg/kg (ppm)	2.5	<0.5	62	61	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	60	60	10-176	0
Acetone	mg/kg (ppm)	12.5	<0.5	98	107	10-163	9
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	74	75	10-160	1
Hexane	mg/kg (ppm)	2.5	<0.25	55	51	10-137	8
Methylene chloride	mg/kg (ppm)	2.5	<0.5	73	76	10-156	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	88	93	21-145	6
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	83	14-137	4
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	84	86	19-140	2
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	69	69	10-158	0
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	88	92	25-135	4
Chloroform	mg/kg (ppm)	2.5	<0.05	86	90	21-145	5
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	86	94	19-147	9
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	85	89	12-160	5
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	84	85	10-156	1
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	84	86	17-140	2
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	85	88	9-164	3
Benzene	mg/kg (ppm)	2.5	<0.03	83	85	29-129	2
Trichloroethene	mg/kg (ppm)	2.5	<0.02	105	148 vo	21-139	34 vo
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	86	89	30-135	3
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	88	92	23-155	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	87	92	23-145	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	93	102	24-155	9
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	87	91	28-144	4
Toluene	mg/kg (ppm)	2.5	<0.05	82	85	35-130	4
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	88	26-149	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	88	91	10-205	3
2-Hexanone	mg/kg (ppm)	12.5	<0.5	87	93	15-166	7
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	87	91	31-137	4
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	85	86	20-133	1
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	88	92	28-150	4
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	84	88	28-142	5
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	87	90	32-129	3
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	86	89	32-137	3
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	91	94	31-143	3
m,p-Xylene	mg/kg (ppm)	5	<0.1	87	89	34-136	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	88	90	33-134	2
Styrene	mg/kg (ppm)	2.5	<0.05	91	93	35-137	2
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	88	90	31-142	2
Bromoform	mg/kg (ppm)	2.5	<0.05	91	96	21-156	5
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	87	89	23-146	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	87	89	34-130	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	86	88	18-149	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	66	25 vo	28-140	90 vo
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	83	89	25-144	7
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	85	88	31-134	3
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	87	89	31-136	2
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	85	87	30-137	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	86	88	10-182	2
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	86	89	23-145	3
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	87	88	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	90	92	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	88	91	29-129	3
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	89	93	31-132	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	85	90	11-161	6
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	96	97	22-142	1
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	87	88	10-142	1
Naphthalene	mg/kg (ppm)	2.5	<0.05	92	96	14-157	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	96	97	20-144	1

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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)	2.5	52	10-146
Chloromethane	mg/kg (ppm)	2.5	77	27-133
Vinyl chloride	mg/kg (ppm)	2.5	86	22-139
Bromomethane	mg/kg (ppm)	2.5	86	38-114
Chloroethane	mg/kg (ppm)	2.5	89	9-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	96	10-196
Acetone	mg/kg (ppm)	12.5	121	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	100	47-128
Hexane	mg/kg (ppm)	2.5	91	43-142
Methylene chloride	mg/kg (ppm)	2.5	89	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	106	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	67-129
1,1-Dichloroethane	mg/kg (ppm)	2.5	103	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	108	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	108	72-127
Chloroform	mg/kg (ppm)	2.5	104	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	106	72-127
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	101	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	105	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	103	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	108	60-139
Benzene	mg/kg (ppm)	2.5	98	68-114
Trichloroethene	mg/kg (ppm)	2.5	104	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	100	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	105	72-130
Dibromomethane	mg/kg (ppm)	2.5	102	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	106	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	103	75-136
Toluene	mg/kg (ppm)	2.5	97	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	101	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	102	75-113
2-Hexanone	mg/kg (ppm)	12.5	105	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	99	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	104	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	105	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	97	74-132
Chlorobenzene	mg/kg (ppm)	2.5	100	76-111
Ethylbenzene	mg/kg (ppm)	2.5	100	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	109	69-135
m,p-Xylene	mg/kg (ppm)	5	101	78-122
o-Xylene	mg/kg (ppm)	2.5	103	77-124
Styrene	mg/kg (ppm)	2.5	102	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	105	76-127
Bromoform	mg/kg (ppm)	2.5	109	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	103	74-124
Bromobenzene	mg/kg (ppm)	2.5	101	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	104	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	97	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	101	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	102	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	105	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	105	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	104	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	106	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	102	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	105	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	107	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	117	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	112	50-153
Naphthalene	mg/kg (ppm)	2.5	114	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	118	63-138

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: 908193-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Phenol	mg/kg (ppm)	0.33	<0.1	66	50-150
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	<0.01	52	50-150
2-Chlorophenol	mg/kg (ppm)	0.33	<0.1	57	50-150
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	48 vo	50-150
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	49 vo	50-150
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	<0.01	50	50-150
Benzyl alcohol	mg/kg (ppm)	0.33	<0.1	64	50-150
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	<0.01	56	50-150
2-Methylphenol	mg/kg (ppm)	0.33	<0.1	66	50-150
Hexachloroethane	mg/kg (ppm)	0.33	<0.01	51	50-150
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	<0.01	68	50-150
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	<0.2	68	50-150
Nitrobenzene	mg/kg (ppm)	0.33	<0.01	60	50-150
Isophorone	mg/kg (ppm)	0.33	<0.01	71	50-150
2-Nitrophenol	mg/kg (ppm)	0.33	<0.1	67	50-150
2,4-Dimethylphenol	mg/kg (ppm)	0.33	<0.1	66	50-150
Benzoic acid	mg/kg (ppm)	0.5	<0.5	11 vo	50-150
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	<0.01	63	50-150
2,4-Dichlorophenol	mg/kg (ppm)	0.33	<0.1	69	50-150
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	<0.01	56	50-150
Naphthalene	mg/kg (ppm)	0.33	<0.002	59	50-150
Hexachlorobutadiene	mg/kg (ppm)	0.33	<0.01	53	50-150
4-Chloroaniline	mg/kg (ppm)	0.66	<1	61	50-150
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	<0.1	85	50-150
2-Methylnaphthalene	mg/kg (ppm)	0.33	<0.002	67	50-150
1-Methylnaphthalene	mg/kg (ppm)	0.33	<0.002	67	50-150
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	<0.03	62	50-150
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	78	50-150
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	<0.1	85	50-150
2-Chloronaphthalene	mg/kg (ppm)	0.33	<0.01	70	50-150
2-Nitroaniline	mg/kg (ppm)	0.33	<0.05	79	50-150
Dimethyl phthalate	mg/kg (ppm)	0.33	<0.1	86	50-150
Acenaphthylene	mg/kg (ppm)	0.33	<0.002	80	50-150
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	84	50-150
3-Nitroaniline	mg/kg (ppm)	0.66	<1	75	50-150
Acenaphthene	mg/kg (ppm)	0.33	<0.002	77	50-150
2,4-Dinitrophenol	mg/kg (ppm)	0.33	<0.3	40 vo	50-150
Dibenzofuran	mg/kg (ppm)	0.33	<0.01	81	50-150
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	<0.05	88	50-150
4-Nitrophenol	mg/kg (ppm)	0.33	<0.3	86	50-150
Diethyl phthalate	mg/kg (ppm)	0.33	<0.1	84	50-150
Fluorene	mg/kg (ppm)	0.33	<0.002	84	50-150
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	82	50-150
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	<0.01	79	50-150
4-Nitroaniline	mg/kg (ppm)	0.66	<1	77	50-150
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	<0.3	76	50-150
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	<0.01	85	50-150
Hexachlorobenzene	mg/kg (ppm)	0.33	<0.01	85	50-150
Pentachlorophenol	mg/kg (ppm)	0.33	<0.05	74	50-150
Phenanthrene	mg/kg (ppm)	0.33	<0.002	86	50-150
Anthracene	mg/kg (ppm)	0.33	<0.002	86	50-150
Carbazole	mg/kg (ppm)	0.33	<0.01	98	50-150
Di-n-butyl phthalate	mg/kg (ppm)	0.33	<0.1	91	50-150
Fluoranthene	mg/kg (ppm)	0.33	<0.002	97	50-150
Pyrene	mg/kg (ppm)	0.33	<0.002	83	50-150
Benzyl butyl phthalate	mg/kg (ppm)	0.33	<0.1	86	50-150
Benz(a)anthracene	mg/kg (ppm)	0.33	<0.002	90	50-150
Chrysene	mg/kg (ppm)	0.33	<0.002	90	50-150
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	<0.16	92	50-150
Di-n-octyl phthalate	mg/kg (ppm)	0.33	<0.1	98	50-150
Benzo(a)pyrene	mg/kg (ppm)	0.33	<0.002	88	50-150
Benzo(b)fluoranthene	mg/kg (ppm)	0.33	<0.002	87	50-150
Benzo(k)fluoranthene	mg/kg (ppm)	0.33	<0.002	89	50-150
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.33	<0.002	88	50-150
Dibenz(a,h)anthracene	mg/kg (ppm)	0.33	<0.002	84	50-150
Benzo(g,h,i)perylene	mg/kg (ppm)	0.33	<0.002	80	50-150

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	mg/kg (ppm)	0.33	88	87	70-130	1
Bis(2-chloroethyl) ether	mg/kg (ppm)	0.33	76	77	70-130	1
2-Chlorophenol	mg/kg (ppm)	0.33	80	81	70-130	1
1,3-Dichlorobenzene	mg/kg (ppm)	0.33	72	73	62-115	1
1,4-Dichlorobenzene	mg/kg (ppm)	0.33	71	72	63-114	1
1,2-Dichlorobenzene	mg/kg (ppm)	0.33	74	74	68-113	0
Benzyl alcohol	mg/kg (ppm)	0.33	87	88	70-130	1
2,2'-Oxybis(1-chloropropane)	mg/kg (ppm)	0.33	79	78	70-130	1
2-Methylphenol	mg/kg (ppm)	0.33	87	86	70-130	1
Hexachloroethane	mg/kg (ppm)	0.33	76	78	70-130	3
N-Nitroso-di-n-propylamine	mg/kg (ppm)	0.33	91	90	70-130	1
3-Methylphenol + 4-Methylphenol	mg/kg (ppm)	0.33	90	89	70-130	1
Nitrobenzene	mg/kg (ppm)	0.33	84	85	70-130	1
Isophorone	mg/kg (ppm)	0.33	93	94	70-130	1
2-Nitrophenol	mg/kg (ppm)	0.33	89	90	70-130	1
2,4-Dimethylphenol	mg/kg (ppm)	0.33	83	84	58-118	1
Benzoic acid	mg/kg (ppm)	0.5	112	109	61-153	3
Bis(2-chloroethoxy)methane	mg/kg (ppm)	0.33	85	87	70-130	2
2,4-Dichlorophenol	mg/kg (ppm)	0.33	91	91	70-130	0
1,2,4-Trichlorobenzene	mg/kg (ppm)	0.33	77	80	70-130	4
Naphthalene	mg/kg (ppm)	0.33	77	79	70-130	3
Hexachlorobutadiene	mg/kg (ppm)	0.33	77	80	70-130	4
4-Chloroaniline	mg/kg (ppm)	0.66	58	69	10-90	17
4-Chloro-3-methylphenol	mg/kg (ppm)	0.33	97	100	70-130	3
2-Methylnaphthalene	mg/kg (ppm)	0.33	82	84	70-130	2
1-Methylnaphthalene	mg/kg (ppm)	0.33	82	85	70-130	4
Hexachlorocyclopentadiene	mg/kg (ppm)	0.33	88	88	48-154	0
2,4,6-Trichlorophenol	mg/kg (ppm)	0.33	94	95	70-130	1
2,4,5-Trichlorophenol	mg/kg (ppm)	0.33	95	96	70-130	1
2-Chloronaphthalene	mg/kg (ppm)	0.33	87	88	70-130	1
2-Nitroaniline	mg/kg (ppm)	0.33	96	96	70-130	0
Dimethyl phthalate	mg/kg (ppm)	0.33	95	96	70-130	1
Acenaphthylene	mg/kg (ppm)	0.33	93	93	70-130	0
2,6-Dinitrotoluene	mg/kg (ppm)	0.33	99	96	70-130	3
3-Nitroaniline	mg/kg (ppm)	0.66	86	88	54-104	2
Acenaphthene	mg/kg (ppm)	0.33	89	88	70-130	1
2,4-Dinitrophenol	mg/kg (ppm)	0.33	107	100	51-159	7
Dibenzofuran	mg/kg (ppm)	0.33	90	90	70-130	0
2,4-Dinitrotoluene	mg/kg (ppm)	0.33	96	93	70-130	3
4-Nitrophenol	mg/kg (ppm)	0.33	101	98	60-146	3
Diethyl phthalate	mg/kg (ppm)	0.33	91	91	63-133	0
Fluorene	mg/kg (ppm)	0.33	91	91	70-130	0
4-Chlorophenyl phenyl ether	mg/kg (ppm)	0.33	91	92	70-130	1
N-Nitrosodiphenylamine	mg/kg (ppm)	0.33	94	96	70-130	2
4-Nitroaniline	mg/kg (ppm)	0.66	90	92	50-124	2
4,6-Dinitro-2-methylphenol	mg/kg (ppm)	0.33	109	105	68-139	4
4-Bromophenyl phenyl ether	mg/kg (ppm)	0.33	101	101	43-167	0
Hexachlorobenzene	mg/kg (ppm)	0.33	94	98	70-130	4
Pentachlorophenol	mg/kg (ppm)	0.33	101	99	61-136	2
Phenanthrene	mg/kg (ppm)	0.33	93	94	70-130	1
Anthracene	mg/kg (ppm)	0.33	93	94	70-130	1
Carbazole	mg/kg (ppm)	0.33	104	103	70-130	1
Di-n-butyl phthalate	mg/kg (ppm)	0.33	99	100	70-130	1
Fluoranthene	mg/kg (ppm)	0.33	98	99	70-130	1
Pyrene	mg/kg (ppm)	0.33	95	93	70-130	2
Benzyl butyl phthalate	mg/kg (ppm)	0.33	104	103	70-130	1
Benz(a)anthracene	mg/kg (ppm)	0.33	96	94	70-130	2
Chrysene	mg/kg (ppm)	0.33	98	96	70-130	2
Bis(2-ethylhexyl) phthalate	mg/kg (ppm)	0.33	101	98	70-130	3
Di-n-octyl phthalate	mg/kg (ppm)	0.33	100	101	57-156	1
Benzo(a)pyrene	mg/kg (ppm)	0.33	93	93	70-130	0
Benzo(b)fluoranthene	mg/kg (ppm)	0.33	94	92	70-130	2
Benzo(k)fluoranthene	mg/kg (ppm)	0.33	93	92	70-130	1
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.33	100	104	63-145	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.33	96	100	60-150	4
Benzo(g,h,i)perylene	mg/kg (ppm)	0.33	94	98	57-144	4

Date of Report: 08/23/19
Date Received: 08/09/19
Project: Calder PO 2015-010, F&BI 908206

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Phenol	ug/L (ppb)	5	19	16	10-86	17
Bis(2-chloroethyl) ether	ug/L (ppb)	5	83	69	65-121	18
2-Chlorophenol	ug/L (ppb)	5	62	60	58-123	3
1,3-Dichlorobenzene	ug/L (ppb)	5	78	59 vo	66-113	28 vo
1,4-Dichlorobenzene	ug/L (ppb)	5	76	58 vo	62-114	27 vo
1,2-Dichlorobenzene	ug/L (ppb)	5	78	60 vo	63-115	26 vo
Benzyl alcohol	ug/L (ppb)	5	48	45	37-125	6
2,2'-Oxybis(1-chloropropane)	ug/L (ppb)	5	86	71	70-130	19
2-Methylphenol	ug/L (ppb)	5	53	50	38-119	6
Hexachloroethane	ug/L (ppb)	5	77	62 vo	64-117	22 vo
N-Nitroso-di-n-propylamine	ug/L (ppb)	5	91	82	70-130	10
3-Methylphenol + 4-Methylphenol	ug/L (ppb)	5	43 vo	43 vo	44-110	0
Nitrobenzene	ug/L (ppb)	5	85	75	70-130	12
Isophorone	ug/L (ppb)	5	90	84	70-130	7
2-Nitrophenol	ug/L (ppb)	5	83	76	61-141	9
2,4-Dimethylphenol	ug/L (ppb)	5	79	76	12-127	4
Benzoic acid	ug/L (ppb)	32.5	17	11	10-102	43 vo
Bis(2-chloroethoxy)methane	ug/L (ppb)	5	85	78	70-130	9
2,4-Dichlorophenol	ug/L (ppb)	5	78	79	70-130	1
1,2,4-Trichlorobenzene	ug/L (ppb)	5	79	66 vo	70-130	18
Naphthalene	ug/L (ppb)	5	81	70	65-111	15
Hexachlorobutadiene	ug/L (ppb)	5	75	65	65-115	14
4-Chloroaniline	ug/L (ppb)	10	78	78	24-146	0
4-Chloro-3-methylphenol	ug/L (ppb)	5	76	81	58-133	6
2-Methylnaphthalene	ug/L (ppb)	5	86	75	70-130	14
1-Methylnaphthalene	ug/L (ppb)	5	87	76	70-130	13
Hexachlorocyclopentadiene	ug/L (ppb)	5	66	61	36-112	8
2,4,6-Trichlorophenol	ug/L (ppb)	5	85	83	70-130	2
2,4,5-Trichlorophenol	ug/L (ppb)	5	89	86	70-130	3
2-Chloronaphthalene	ug/L (ppb)	5	86	80	70-130	7
2-Nitroaniline	ug/L (ppb)	5	86	83	64-143	4
Dimethyl phthalate	ug/L (ppb)	5	94	93	64-140	1
Acenaphthylene	ug/L (ppb)	5	92	85	70-130	8
2,6-Dinitrotoluene	ug/L (ppb)	5	93	87	70-130	7
3-Nitroaniline	ug/L (ppb)	10	80	80	53-134	0
Acenaphthene	ug/L (ppb)	5	88	81	65-122	8
2,4-Dinitrophenol	ug/L (ppb)	5	90	80	58-139	12
Dibenzofuran	ug/L (ppb)	5	91	84	70-130	8
2,4-Dinitrotoluene	ug/L (ppb)	5	93	85	70-130	9
4-Nitrophenol	ug/L (ppb)	5	27	25	10-89	8
Diethyl phthalate	ug/L (ppb)	5	91	85	56-141	7
Fluorene	ug/L (ppb)	5	94	85	70-130	10
4-Chlorophenyl phenyl ether	ug/L (ppb)	5	90	81	70-130	11
N-Nitrosodiphenylamine	ug/L (ppb)	5	79	84	70-130	6
4-Nitroaniline	ug/L (ppb)	10	75	76	66-134	1
4,6-Dinitro-2-methylphenol	ug/L (ppb)	5	89	84	69-138	6
4-Bromophenyl phenyl ether	ug/L (ppb)	5	87	87	70-130	0
Hexachlorobenzene	ug/L (ppb)	5	87	87	70-130	0
Pentachlorophenol	ug/L (ppb)	5	83	80	70-130	4
Phenanthrene	ug/L (ppb)	5	90	88	70-130	2
Anthracene	ug/L (ppb)	5	90	88	70-130	2
Carbazole	ug/L (ppb)	5	98	93	70-130	5
Di-n-butyl phthalate	ug/L (ppb)	5	89	86	70-130	3
Fluoranthene	ug/L (ppb)	5	97	91	70-130	6
Pyrene	ug/L (ppb)	5	101	94	70-130	7
Benzyl butyl phthalate	ug/L (ppb)	5	98	94	70-130	4
Benz(a)anthracene	ug/L (ppb)	5	94	91	70-130	3
Chrysene	ug/L (ppb)	5	95	92	70-130	3
Bis(2-ethylhexyl) phthalate	ug/L (ppb)	5	198 vo	78	63-139	87 vo
Di-n-octyl phthalate	ug/L (ppb)	5	113	103	67-147	9
Benzo(a)pyrene	ug/L (ppb)	5	95	92	70-130	3
Benzo(b)fluoranthene	ug/L (ppb)	5	101	96	70-130	5
Benzo(k)fluoranthene	ug/L (ppb)	5	102	97	70-130	5
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	84	86	57-141	2
Dibenz(a,h)anthracene	ug/L (ppb)	5	82	84	57-137	2
Benzo(g,h,i)perylene	ug/L (ppb)	5	79	82	50-143	4

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.

908206

SAMPLE CHAIN OF CUSTODY ME 08/09/19

vw1/cd3/c04

Page # 1 of 5

Send Report To Craig Hultgren
Company HYDROCON
Address 1339 Commerce Ave, #211
City, State, ZIP Longview, WA 98632
Phone #(360) 998-2902 Fax #

SAMPLERS (signature)

PROJECT NAME/NO. 2015-010 Calder

PO#

REMARKS

TURNAROUND TIME
☒ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260D	SVOCs by 8270E	HFS	AK 102	AK 103					Notes
CRC-SP1	01A-B	8/5/19	1330	Soil	2				X	X		X	X					
CRC-SP2	02		1340		1							X	X					
CRC-SP3	03		1350		1							X	X					
CRC-SP4	04		1400		1							X	X					
CRC-SP100	05A-B		1410		2				X	X		X	X					
HC-SP1	06		1450		1							X	X					
HC-SP2	07		1500		1							X	X					
HC-SP3	08		1510		1							X	X					
HC-SP4	09		1520		1							X	X					
HC-SP5	10		1530		1							X	X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Craig Hultgren	Hydrocon	8/8/19	1300
Received by:		Nhan Phan	FEBI	8/9/19	1600
Relinquished by:					
Received by:			Samples received at 4 °C		

908206

SAMPLE CHAIN OF CUSTODY

ME 08/09/19

VW1/CI3/C04

Page # 2 of 3

Send Report To Craig Hultgren

Company Hydrocon

Address

City, State, ZIP

Phone # Fax #

SAMPLERS (signature) CH

PROJECT NAME/NO. Calder

PO# 2015-010

REMARKS

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260D	SVOCs by 8270E	HFS	AK 101	AK 103					Notes
						ANALYSES REQUESTED												
HC-SP6	11	8/5/19	1540	Soil	1							X	X					
HC-SP100	12 A B	↓	1550	↓	2				X	X		X	X					
CS6-W-3	13	8/6/19	0900	Soil	1							X	X					
CS6-E-3	14		0905		1							X	X					
CS6-N-3	15 A B		0910		2				X	X		X	X					
CS6-S-3	16		0915		1							X	X					
CS6-F-4	17		0920		1							X	X					
CS6-100	18 A B		0925		2				X	X		X	X					
CS8-N-3	19 A B		1015		(2) X (NP)							X	X					
CS8-S-3	20	↓	1020	↓	1							X	X					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: CH	Craig Hultgren	Hydrocon	8/8/19	1300
Received by:	Nhan Phan	FCBI	8/9/19	1600
Relinquished by:			4	
Received by:		Samples received at ___ °C		

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Seattle, WA 98119-2029
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908206

SAMPLE CHAIN OF CUSTODY

ME 08/09/19

VW1/CI3/E04

Page # 3 of 5

Send Report To Craig Hultgren

Company HydroCon

Address

City, State, ZIP

Phone # Fax #

SAMPLERS (signature) CH

PROJECT NAME/NO. Calder

PO# 2015-010

REMARKS

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260D	SVOCs by 8270E	HFS	AK102	AK103					Notes
						ANALYSES REQUESTED												
CS8-E-3	21	8/6/19	1025	Soil	1							X	X					
CS8-W-3	22	"	1030	"	(1) 2 (NP)				X	X		X	X					
CS8-F-5	23	"	1035	"	1							X	X					
CS8-100	24 A-B	"	1040	"	(2) + (NP)							X	X					
CS4-N-1.5	25	"	1200	"	1							X	X					
CS4-S-1.5	26	"	1205	"	1							X	X					
CS4-E-1.5	27 A-B	"	1210	"	2				X	X		X	X					
CS4-W-1.5	28	"	1215	"	1							X	X					
CS4-F-2	29	"	1220	"	1							X	X					
CS4-100	30 A-B	↓	1225	↓	2				X	X		X	X					

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3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Craig Hultgren	HydroCon	8/8/19	1300
Received by:	Nhan Phan	FEBI	8/9/19	1400
Relinquished by:			4	
Received by:		Samples received at ___°C		

FORMS\COC\COC.DOC

908206

SAMPLE CHAIN OF CUSTODY

ME 08/09/19

VW1/CI3/CO4

Page # 4 of 5

Send Report To Craig Holtgren

Company Hydrocon

Address

City, State, ZIP

Phone # Fax #

SAMPLERS *(signature)*

PROJECT NAME/NO.: Calder

PO#: 2015-010

REMARKS

TURNAROUND TIME
- ☒ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260D	SVOCs by 8270E	HFS	AK 102	AK 103					Notes
						ANALYSES REQUESTED												
MW2-5	31 A B	8/6/19	1500	soil	2				X	X		X	X					
MW2-10	32	"	1520	"	1							X	X					
MW2-15	33		1540		1							X	X					
MW2-30	34		1600		1							X	X					
MW3-5	35		1715		1							X	X					
MW3-10	36		1720		1							X	X					
MW3-14	37 A B		1730		2				X	X		X	X					
MW2-100	38 A B		1610		2				X	X		X	X					
MW3-100	39 A B	↓	1740	↓	2				X	X		X	X					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Craig Holtgren	Hydrocon	8/8/19	1300
Received by:	Nhan Phan	FLBI	8/9/19	1600
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

206
908205 (NP)

SAMPLE CHAIN OF CUSTODY ME 08/09/19 VAI/GJ/CO4

Page # 5 of 5

Report To Craig Hultgren

Company HydroCon

Address

City, State, ZIP

Phone Email

SAMPLERS (signature) CH

PROJECT NAME: CALder

PO #: 2015-010

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260 C	SVOCs by 8270 D	PAHs 8270D SIM	AK 102	AK 103		Lab ID	Notes
	ANALYSES REQUESTED																
MW1-W (NP)	01 A-E	1600 CH	8/7/19	1600	water	5					X	X		X	X		40 A-E
MW100-W	02	1620 CH	↓	1620	↓	5					X	X		X	X		41 A-E
MW2-W	03	0900 CH	8/8/19	0900	↓	5					X	X		X	X		42 A-E

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: CH	Craig Hultgren	HydroCon	8/8/19	1300
Received by:	Nhan Phan	FEBI	8/9/19	1600
Relinquished by:				
Received by:		Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

ATTACHMENT G

LAB DATA REVIEW CHECKLIST

Laboratory Data Review Checklist

Completed By:

HydroCon Environmental LLC, Brian Pletcher

Title:

Senior Geologist

Date:

10/04/2019

CS Report Name:

Calder Mine Alaska 2015-10

Report Date:

August 23, 2019

Consultant Firm:

HydroCon Environmental LLC

Laboratory Name:

Friedman & Bruya, Inc

Laboratory Report Number:

908206

ADEC File Number:

1532.38.001

Hazard Identification Number:

4069

908206

1. Laboratory

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

   (•) Yes ( ) No Comments:

   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:

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 4°C

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

   (•) Yes ( ) No Comments:

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

   ( ) Yes (•) No Comments:

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:

e. Data quality or usability affected?

Comments:

Data quality 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:

Data were flagged by the lab accordingly.

c. Were all corrective actions documented?

◉ Yes ○ No Comments:

Case narrative documented corrective actions.

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:

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:

"jl" flags on select compounds for the VOC (water) and SVOC (water) method blanks. "jl" flag indicates the laboratory control sample(s) percent recovery and/or RPD were out of control limits; the reported concentration should be considered an estimate.

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:

No.

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:

No metals/inorganics analyzed.

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:

LCS - VOCs (water):

- Select percent recoveries for acetone, 1,2,4-trichlorobenzene, and 1,2,3-trichlorobenzene were outside of their respective acceptance criteria. Since none of these compounds were constituents of concern for this project, no qualifiers were applied to the results.

MS – VOCs (soil):

- Parent sample = 908206-05. Select percent recoveries for trichloroethene and 1,1,2,2-tetrachloroethane were outside of their respective acceptance criteria. Since none of these compounds were constituents of concern for this project, no qualifiers were applied to the results.

MS – SVOCs (soil):

- Parent sample = 908193-02. Batch QC sample; no qualifiers applied due to %R outside of acceptance criteria.

LCS – SVOCs (water):

- Select percent recoveries for 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, hexachloroethane, 3&4-methylphenol, 1,2,4-trichlorobenzene, and bis(2-ethylhexyl)phthalate were outside of their respective acceptance criteria. Since none of these compounds were constituents of concern for this project, no qualifiers were applied to the results.

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:

MS – VOCs (soil):

- Parent sample = 908206-05. Select RPDs for trichloroethene and 1,1,2,2-tetrachloroethane were above the acceptance criteria (20%). Since none of these compounds were constituents of concern for this project, no qualifiers were applied to the results.

LCS – SVOCs (water):

- RPDs for 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, hexachloroethane, benzoic acid, and bis(2-ethylhexyl)phthalate were above the acceptance criteria (20%). Since none of these compounds were constituents of concern for this project, no qualifiers were applied to the results.

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

Comments:

None; see comments above.

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:

No.

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:

Select SVOC surrogate recoveries for sample MW2-W were below their respective control limits due to matrix effects; results were qualified as estimated (J/UJ).

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

(•) Yes ( ) No Comments:

iv. Data quality or usability affected?

Comments:

No.

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:

No trip blanks listed in report.

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 indicated on COC.

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:

No.

e. Field Duplicate

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

◉ Yes ○ No Comments:

The following parent/field duplicate pairs were collected:

- CRC-SP1/CRC-SP100 (soil)
- HC-SP5/HC-SP100 (soil)
- CS6-N-3/CS6-100 (soil)
- CS8-W-3/CS8-100 (soil)
- CS4-E1.5/CS4-100 (soil)
- MW2-5/MW2-100 (soil)
- MW3-14/MW3-100 (soil)
- MW1-W/MW100-W (water)

ii. Submitted blind to lab?

◉ Yes ○ No Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

○ Yes ◉ No Comments:

- Field duplicate from parent soil sample CRC-SP1 has an RPD of 81% for DRO and 80% for RRO; results qualified as estimated (J) during validation.
- Field duplicate from parent groundwater sample MW-1 has an RPD of 33% for DRO; results qualified as estimated (J) during validation.

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

Comments:

Field duplicates were outside of acceptance criteria.

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

○ Yes ◉ No ○ Not Applicable

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:

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 MW2-5, MW2-10, MW2-15, MW2-30, MW3-5, MW3-14, and results for RRO using method AK 103 for samples CS4-N-1.5, CS4-S-1.5, CS4-E-1.5, CS4-W-1.5, CS4-100, and MW100-W were given the lab qualifier "X" defined as –"The sample chromatographic pattern does not resemble the fuel standard used for quantitation."