Groundwater Monitoring Report – September 2022

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Hazard ID: 2385
Craig Power Plant
Craig, Alaska

HydroCon Project Number: 2019-054

Prepared for:

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Acronyms

ADEC	Alaska Department of Environmental Conservation
AP&T	Alaska Power and Telephone
BGS	Below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CUL	Cleanup level
DRO	diesel range organics
GAC	Granular activated carbon
GRO	gasoline range organics
HASP	Health and Safety Plan
HydroCon	HydroCon Environmental LLC
KE	Keta Engineering
mg/kg	milligram per kilogram
mg/L	Milligrams per liter
MRL	method reporting limit
mV	millivolts
OSHA	Occupational Safety and Health Administration
PPM	Parts per million
PAHs	Polynuclear aromatic hydrocarbons
PCS	Petroleum contaminated soil
PID	photoionization detector
RRO	Residual range organics
SIM	Selected ion monitoring
TPH	total petroleum hydrocarbons
µg/L	Micrograms per liter
µS/cm	Micro siemens per centimeter
UST	underground storage tank

1.0 INTRODUCTION

HydroCon Environmental, LLC (HydroCon) has prepared this report to document the results of a groundwater monitoring event performed at the Alaska Power and Telephone (AP&T) power generation facility in Craig Alaska (herein referred to as "the Site") on September 22 and 23, 2022.

2.0 BACKGROUND

This section provides a general description of the property and a summary of environmental investigations.

2.1 Site Description

The Site is located in Craig, Alaska on the north side of Water Street, west of the 6th Street intersection (Figure 1). Previous investigations indicate that the adjacent property to the north, the Shaan Seet Property, is also impacted by the Power Plant operations. Land use for the Power Plant property is zoned as commercial (Area 26, Parcels 10, 11, and 12, Figure 2). The zoning for the Shaan Seet property is marine industrial.

Legal Description: Craig Townsite USS 1430 Block 26 lots 10, 11, and 12 (AP&T--Owner), Tract B-3 of USS 1430 according to Plat No. 96-22 (Shaan Seet--Owner).

Latitude and Longitude Datum Lot 11:

55°28'37.58"N
133° 8'54.11"W

The Power Plant property is below the grade of Water Street and the south side of the site is separated from Water Street by a steel sheet metal retaining wall. A retaining wall was installed approximately 6 to 20 feet below the existing grade. Another retaining wall is present along the west boundary of the AP&T property and near the 10,000-gallon above grade storage tank (AST) and separates the Power Plant property from a hotel to the west. The wall is up to 15 feet high and was constructed of treated timbers; the depth of the wall below grade has not been determined.

The surface of the AP&T and adjacent property to the north gently slopes to the northeast toward a marine embayment, Klawock Bay, located approximately 100 feet north of the Power Plant, and adjacent to the property to the north. Other than the power plant buildings and a float house, the land is undeveloped and is covered with grass and shrub with localized pieces of abandoned equipment.

AP&T supplies power to the Craig community from three local hydroelectric projects—Black Bear Lake, South Fork and Hiilangaay. The Craig Power Plant is typically used as a backup power supply to the Prince of Wales Island distribution system when one or more of the hydroelectric projects are not operating or is not generating enough power to supply the energy needs of the community.

The power plant site consists of two main structures: a main power plant and a generator trailer (Figure 2). The main power plant building is located on the western portion of the property and includes a 500-gallon diesel fuel tank for daily operation of the generator. The power plant building has four diesel generators and an electrical substation. A separate generator is located east of the main building and has a 595-gallon day tank. A relic generator, cooling tower, and 10,000 gallon above ground storage tank (AST) is located on the western portion of the property. The 10,000-gallon AST located on the western portion of the property is no longer in use. A new 10,000-gallon AST is located on the eastern portion of the property and has recently been put into service. Photos of the site features was included in the previous report[1]. Prior to 1995, a 300-gallon waste oil tank was used at the site but was removed after the Black Bear Hydro Plant became operational.

The adjacent Shaan Seet property consists of a float house that utilizes a heating oil tank as its source of heat. The property is connected to City-supplied sanitary sewer services.

2.2 Site History

The Craig Power Plant has operated since the 1920's and has been owned and operated by AP&T since 1963. The adjacent property to the north was transferred to Shaan Seet in 2014[2]. Sampling locations from previous studies are shown on Figure 2. A summary of previous investigations is provided below.

1985 Release

A reported diesel release from the day tank inside the Power Plant occurred in 1985[3]. An estimated 900 gallons was released while the tank was being filled and seeped into the ground. A trench and two test pits were excavated in attempts to find and recover the diesel, but were unsuccessful. The day tank has since been modified with a containment bay and automatic shut-off valves.

1993 Phase I

A Phase I Environmental Assessment (ESA) was conducted about 1993 on behalf of the then owner of the adjacent property to the north of the Power Plant, Bill Clapp, which concluded that contamination on the property originated from the Power Plant (Evelyn Brier, 1993).

[1] HydroCon, *Groundwater Monitoring Report - September 2021*, August 10, 2022
[2] https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/2385
[3] Greg Mickelson, *hand written note documenting the release*, 1985

1994 Phase II

Hart Crowser (1994) conducted a Phase II ESA in 1994 that consisted of excavating seven test pits (C-1 through C-7) and three hand dug pits (PL-1, PL-2, and T-1) (Figure 2)[4]. Samples from test pits C-1, C-2, C-3, and C-5 and surficial soil samples PL-1 and PL-2 contained DRO at concentrations exceeding ADEC Level A cleanup standards. DRO concentrations on soil samples collected from test pits C-4, C-6, and C-7 and surficial soil sample T-1 were below Level A cleanup standards.

1995 Release Investigation

Hart Crowser performed an investigation in 1995 that included the installation of 13 soil borings, one temporary well (TW-1), and installing six permanent monitoring wells[5]. Two wells and three borings were installed at the power plant site. Three wells and nine borings were installed on the property to the north. The sixth well was installed approximately 40 feet south and upgradient of the power plant across Water Street in a church parking lot.

Forty–six soil samples were collected from the borings. The samples were field screened by infrared (IR), photoionization detector (PID), moisture content, and a brief soil description. One sample from each of the borings was submitted for laboratory analysis. Samples were collected from 3-6, 6-9, and 9-12 feet bgs in borings SP-1 through SP-10 and SP-13; from the 3-6 and 6-9 feet bgs in borings SP-11, SP12, WP1B, and WP4. A sample was collected from 6-9 feet bgs in borings WP-3 and WP-5, and from 20-23 feet bgs in WP-6. Samples were analyzed for DRO, DRO extended, chloride, Nitrate-N, TOC, pH and sheen screen.

There was not a good correlation between the IR and PID results. PID readings ranged up to 240 ppmv with values over 20 ppmv at SP-1 through SP-4, SP-6, SP-10, SP-11 and SP-12.

DRO concentrations in soil ranged from 39 mg/Kg at WP-6 to 9,300 mg/Kg at SP-12 (located on the property boundary immediately north of the power plant). Samples from WP-1B and WP-2 had DRO concentrations of 2,300 and 2,200 mg/Kg, respectively. Samples from WP-3 through WP-5 had concentrations of 42 to 350 mg/Kg. The soil sample from the upgradient boring, WP-6, had a DRO concentration of 39 mg/Kg. The soil sample from WP1B had DRO extended (indicating heavy oil) concentration of 6,800 mg/Kg. The samples were also analyzed for chloride with the higher concentrations (744, 115, and 470 mg/Kg) found in the nearshore wells WP-1B, WP-3 and WP-5, receptively.

All groundwater samples were analyzed for DRO and benzene, ethylbenzene, toluene, and xylenes (BTEX). Iron, manganese, chloride, nitrate and pH, and sheen screen were analyzed in all wells except WP-4 and WP-6. Benzene was not detected in any of the samples, the highest xylene and total BTEX concentrations were at WP-2 (70 and 97.2 µg/L, respectively). The highest DRO concentration was at WP-3 (37 µg/L). Chloride concentrations at WP-1B and WP-

[4] Hart Crowser, *Phase II Environmental Site Assessment*, October 5, 1994
[5] Hart Crowser, *Release Investigation Report, Craig Power Plant, Craig, Alaska*, August 1995

5 were greater than 1,000 µg/L, indicating the presence of marine water. The upgradient well (WP-6) had no detection of DRO and a detection of xylene of 7.4 µg/L

A temporary well, TW-1, was installed approximately 25 feet south of Klawock Bay. Groundwater levels were measured in the well (relative to a point on the riser) over the course of one tidal cycle. Water levels in TW-1 fluctuated between 8.80 and 9.35 feet bgs during the tidal cycle in the bay. The presence of marine water on the adjacent property to the north is also evidenced by chloride concentrations at WP-1B and WP-5, located near the bay, which were greater than 1,000 µg/L.

Hart Crowser identified four potential sources of contamination:

- A diesel spill from the day tank inside the power plant. A 900-gallon spill was reported in the 1980s
- Small scale diesel spills from the overfilling of tanks or from leaks
- Surface spills occurring at the adjacent northern property
- Spills from ASTs on the adjacent northern property

Hart Crowser also provided information that existing floor drains presumably channeled water (and possibly fuel/waste oil) through floor drains into the bay, which could be transporting contamination to another area of the property that wasn't in the expected down slope path. The existence and location of these floor drains has not been verified.

Shaan Seet Property - 1993 Level I Environmental Site Assessment and Limited Analytical Screening

The previous owner of the upland portion of Tract B north of the AP&T site contracted RZA Agra, Inc. to prepare a level I Environmental Site Assessment, revised August 1993.

For its subsurface exploration, the contractor hand augured five borings to a depth of 18 to 24 inches below ground surface. Soil samples were tested for total hydrocarbons using the Hydrocarbon ID Method, Total Petroleum Hydrocarbon-Diesel, priority pollutant metals and PCBs. HydroCon found no records whether the assessment was reviewed by ADEC.

The assessment documents that a Union Oil Company bulk fuel facility including four bulk tanks and a fuel dock existed on the site of the Haidaway Hotel located directly west of the property. The facility was shut down in the 1960s or 1970s and dissembled in 1975-76.

The Emergency Response Notification System database listing hazardous material spills lists three fuel spill reports in the vicinity of the property. Two spills occurred during ship fueling procedures in 1989 and 1990, with releases of two and one gallons respectively. The third spill of 400 gallons of fuel spilled into the bilge of the VSL Renown when a fuel line broke in 1988. The consultant concluded that it was unlikely that any of these spills impacted the property.

2018 Site Characterization

In December 2018, R&M Engineering – Ketchikan, Inc. (R&M) was contracted to conduct a site characterization investigation[6]. Fifteen test pits were excavated at selected locations to assess the extent of contamination. Test pit locations were generally placed within the area of soil contamination identified by Hart Crowser in 1995. Up to five soil samples were collected in each test pit, described, and screened with a PID. One soil sample was selected for analytical testing from Test Pits TP-1 through TP-12, TP-15, and TP-16. The depth of the analyzed samples was not recorded, but are reported to have been collected from the depth with the highest PID reading. All samples were analyzed for GRO (Alaska Method AK101), DRO/RRO (AK102/103), volatile organic compounds (VOCs, EPA method 8260), and polynuclear aromatic hydrocarbons (EPA Method 8270C). Three samples were tested for polychlorinated bi-phenols (PCBs, EPA Method 8082A) and metals by Toxicity characteristic leaching procedure (TCLP, EPA Method 6020A).

Field screening (PID and odor) indicated the highest hydrocarbon concentrations at test pits 2, 4, 5, and 10 on the northern property and at test pits 11 and 14 on the Power Plant property. DRO concentrations were highest (>10,000 mg/Kg) at test pits 2, 3, 6 (duplicate), 7, and 9. RRO was detected at high concentrations at test pits 7 and 9. PCBs and metals were not detected above default cleanup levels (ADEC Method 2). Default cleanup levels (CUL) were exceeded for some PAHs. R&M noted that the composition of soil was similar by depth and moderate to heavy fuel odor was observed where gray silty sand/gravel was encountered [typically at depths below 10 feet bgs].

R&M collected groundwater samples from the monitoring wells installed by Hart Crowser. R&M labeled the wells as “WS-well number”. Hart Crowser designated the well identification as “WP-well number”. Previous site figures showed WS and WP wells at the site. This error has been corrected on Figure 2.

2.3 Geologic & Hydrogeologic Setting

Previous investigations show that the subsurface soils are fairly consistent with gravelly sand and gravelly sand with silt at depths of 3 to 9 feet bgs and sand or sand with shells below 12 feet bgs. Moderate to heavy fuel odor, where present, was generally encountered in gray sand/gravel. The deepest boring, WP-6 located across Water Street, encountered gravelly sand with silt from 0 to 20 feet bgs and sand containing shells from 20 to 25 feet bgs.

Groundwater is present at depths of 8 to 10 feet bgs in the area of the power plant and northern property and at approximately 20 feet bgs at WP-6 across Water Street. Groundwater elevations measured in 1995 showed a northeast flow direction toward Klawock Bay with a gradient of approximately 0.1 feet/foot. During a low tide, a groundwater seep was observed on the beach, approximately 100 feet northeast of the power plant.

[6] R&M Engineering – Ketchikan, Inc., *Site Characterization Report*, January 2019

Groundwater underlying the city of Craig is not used for drinking or process water purposes according to city public works officials. Drinking water is obtained from a lake located east of the city (Hart Crowser 1995). Craig Municipal Code Section 18.10.006A states "Where the community water system is available within 600 feet of the proposed subdivision, each lot within the subdivision shall be provided with a connection thereto". The site and adjacent properties are located within the 600-foot radius.

Chloride concentrations in groundwater were measured during the Release Investigation by Hart & Crowser (1995). Chloride was detected between 293 and 1,060 mg/L in wells WP-1B, WP-3 and WP-5. The concentration of chloride in WP-2 (nearest the Power Plant) was 11.4 mg/L. Based on the data, Hart & Crowser concluded that the interface of groundwater and marine water is located approximately 40 to 50 feet north of the power plant. The presence of marine water is further supported by groundwater elevations measured by Hart Crowser at TW-1 (located approximately midway between the power plant and the bay) which showed approximately 1 foot of elevation change over a period of one tidal cycle.

2.4 Cleanup Levels and Contaminant Distribution

A discussion of soil and groundwater CULs are provided below. References to tables and figures are from HydroCon's Draft workplan[7].

Alaska has developed soil cleanup levels for sites contaminated by petroleum hydrocarbons (ADEC 2018, 18 AAC 75.345(b) and Table C). By default, all groundwater in the state of Alaska is considered drinking water and must meet the cleanup standards found within 18 AAC 75. 345, Table C Groundwater Cleanup Levels. The only exception is for sites that have received a formal determination under 18 AAC 75.350, that groundwater is not drinking water. This site has not been granted a 350 determination. The proximity of the Site to the Bay and the strong tidal influence to the underlying groundwater will be further studied to potentially support a 350 determination for the site.

At the time of the investigations performed by Hart Crowser and R&M, the Site CULs were believed to be ADEC Method 2. Therefore, the summary of site conditions below is based on their interpretation. An updated assessment of the distribution of contamination relative to Table C CULs will be part of the next phase of site characterization. The distribution of impacted soil has been evaluated during previous investigations. Figure 2 shows both Hart Crower (1995) and R&M (2018) distribution of soil exceeding ADEC Method 2 migration to groundwater pathway soil CULs (230 mg/Kg for DRO). This approximately 8,000 square foot area includes a large portion of the northern property to the tide line and an area north of the 10,000-gallon fuel tank on the power plant property.

[7] HydroCon, *Draft Supplemental Site Characterization Work Plan Craig Power Plant*, May 13, 2020.

Based on the ingestion pathway (8,250 mg/Kg for DRO), Figure 2 shows the extent of DRO in soil from previous investigation based on this CUL and shows an area of approximately 1,000 square feet located immediately north of the power house building and west of the house on the northern property and does not extend to the high tide line. A second small area near the 10,000-gallon tank shut off valve had a shallow soil sample (Hart Crowser 1995, Sample PL-2) exceeding the CUL.

Groundwater analytical results for DRO, collected by Hart Crowser (1995) and R&M (2019) ranged up to 196 mg/L, with no detections in Hart Crowser WP-6 and TW-1. RRO concentrations ranged up to 978 mg/L. All detections exceeded ADEC Table C groundwater CULs.

2.5 Monitoring Well Replacement – 2020

On August 14, 2020, GeoTek abandoned monitoring wells WP-1, WP-3, WP-4, and WP-5 by removal and backfilling the annular spaces with hydrated bentonite[8]. On August 15-16, 2020, GeoTek installed five replacement wells (MW-1 through MW-5) at the site.

Due to travel restrictions related to the Covid-19 pandemic, HydroCon was not in attendance. HydroCon coordinated with GeoTek to work closely when the drilling took place. The driller contacted HydroCon after drilling each borehole to discuss observations and get directions on well installation. Photographs of the soil cores for each well was taken and were included in the 2021 report. It should be noted that the driller indicated that he observed a localized sheen in the soil core collected at MW-3. The driller took a photograph and provided it to HydroCon. The well log made a note of this sheen although it was never verified (anecdotal only and the pictures don't show it). Therefore, HydroCon revised the text in the MW-3 boring log to say "potential" sheen.

Each well was drilled to a depth of 15 feet bgs and completed as a 2-inch diameter monitoring wells. Each well was fitted with a 10-foot length of pre-packed well screen. The wells were developed by surging and pumping techniques until no further improvement in water clarity was observed. The location of the new monitoring wells is shown on Figure 2.

2.6 Groundwater Monitoring – September 2021

HydroCon performed a groundwater sampling event at the Site on September 30, 2021. Static water levels in the monitoring wells ranged from 0.71 to 7.96 feet below the top of the PVC well casing. The direction of groundwater flow was measured to be towards the northeast with a gradient of 0.16 feet/foot. There was no free product measured in any of the site monitoring wells. The water purged from MW-1 exhibited noticeable hydrocarbon odor and a slight sheen.

A groundwater sample was collected from each well and analyzed for the following set of

[8] HydroCon, *Monitoring Well Installation and Abandonment – Craig Power Plant / Craig, Alaska*, September 8, 2020.

parameters:

- DRO by Alaska Method AK102
- RRO by Alaska Method AK103
- BTEX by EPA Method 8260D
- PAHs by EPA Method 8270E SIM

Analytical results indicated that DRO was detected in each sample except MW-5 at a concentration up to 5,000 µg/L. RRO was detected in three samples (MW-1-W, MW-100-W and MW-4-W) at a concentration up to 1,400 µg/L. The CUL for DRO and RRO was exceeded in the samples collected from MW-1. BTEX was not detected in any sample above their respective MRLs. Up to 5 PAHs (1-methylnaphthalene, acenaphthene, fluorene, phenanthrene, and pyrene) were detected in the samples collected from each well except MW-5. The concentration of each detected PAH is well below their respective CUL.

2.7 2022 Groundwater Monitoring Workplan

HydroCon prepared a workplan[9] to perform a round of groundwater monitoring in 2022. The proposed tasks included sampling all five monitoring wells at the Site and two seeps located north of the Site during a low tide. The proposed analytical methods included the following:

- DRO using Method AK102
- RRO using Method AK103
- BTEX by EPA Method 8260D
- PAHs by EPA Method 8270E SIM
- Chloride by EPA Method 300.0

The chloride analysis was included as a tool to assess if saltwater is present in any of the samples. A building survey was also included to gain further understanding of the structure located on the Saan Sheet property. The work plan was approved by ADEC on August 11, 2022[10].

3.0 2022 GROUNDWATER MONITORING

HydroCon performed a groundwater monitoring event at the site on September 22-23, 2022. This sampling event represents the second time the newly installed monitoring wells have been sampled. Groundwater monitoring and sampling methodology and laboratory results are discussed below. Photographs taken during the investigation are included in Appendix A.

[9] HydroCon, *2022 Groundwater Monitoring Work Plan – Craig Power Plant*, August 11, 2022.
[10] ADEC, *ADEC Approves "2022 Groundwater Monitoring Work Plan – Craig Power Plant", dated August 4, 2022, August 11, 2022.*

3.1 Groundwater and Seep Sampling

Groundwater samples were collected from five monitoring wells (MW-1 through MW-5). A duplicate sample (MW-100-W) was collected from monitoring well MW-1. Seep samples were collected from two locations on the beach (Seep 1 and Seep 2) during low tide. A duplicate sample (Seep100-W) was collected from Seep 1.

The seep samples were collected using a temporary well constructed using an approximate 3-foot length of 2-inch diameter PVC 0.010-inch screen with a threaded PVC conical shaped bottom cap. Each temporary well was placed into the sand approximately 0.5-feet bgs so that water entered the temporary well. New LDPE tubing was placed inside the temporary well and was attached to a peristaltic pump for purging and sampling. During purge, the depth of the tubing was placed approximately 2 inches from the bottom of the bottom of the temporary well screen.

Prior to sample collection at the monitoring wells, the well cap on each well was removed and the water level was allowed to equilibrate prior to measuring the depth to water. The depth to water in each monitoring well was measured using a clean electronic oil/water interface probe. The probe indicated no free product in any of the sampled wells. Water levels were measured at the scribed reference mark (north end of the top of the PVC casing) at each well. The monitoring wells were purged with a low flow peristaltic pump equipped with new length of LDPE tubing attached to a new length of silicone tubing. For sampling, the bottom the sample tubing was placed at the approximate mid-point between the top of the water and the bottom of the well.

Field parameters (temperature, specific conductivity, dissolved oxygen, pH, ORP and turbidity) were measured from the monitoring wells with calibrated water quality meters and recorded on a Groundwater Sample Collection field form along with the depth to water measurements. Purging of the monitoring wells was completed when the field parameters had stabilized. The Groundwater Sample Collection field forms are attached in Appendix B. A copy of the field notes is included in Appendix C.

Samples were collected immediately after purging and placed in labeled laboratory-prepared sample bottles. The samples were shipped in an iced cooler along with chain-of-custody documentation to Friedman & Bruya Laboratory in Seattle, Washington for analysis.

A total of six groundwater samples (including the duplicate sample collected from MW-1) and three seep samples (including the duplicate sample collected from Seep 1) were collected for laboratory analysis. Each sample was analyzed for the following set of parameters:

- DRO by Alaska Method AK102
- RRO by Alaska Method AK103
- BTEX by EPA Method 8260D
- PAHs by EPA Method 8270E SIM

- Chloride by EPA Method 300.0

3.2 Investigation Derived Waste

All purge water generated during the sampling event was placed in a labeled 55-gallon drum which is stored on Site. The contents of the drum will be treated with granular activated carbon (GAC) or other approved treatment and disposal strategies once the drum is full or groundwater sampling is discontinued at the Site. Used sample tubing and other IDW was placed in a plastic garbage bag and disposed in a dumpster at the site.

3.3 Groundwater Conditions and Groundwater Flow Direction

The water purged from the wells during groundwater sampling activities on September 22, 2022 was non-turbid with no noticeable hydrocarbon odor. The water purged from MW-2 and MW-3 exhibited noticeable iron sheen. There was no free product measured in any of the site monitoring wells.

Static water levels in the monitoring wells ranged from 3.11 to 9.55 feet below the top of the PVC well casing on September 22, 2022. This sampling event was performed during seasonal low water conditions. It was raining during the sampling event. Water level, groundwater stabilization parameter measurements and field observations are recorded on the Groundwater Sample Collection forms (Appendix B).

HydroCon prepared a groundwater elevation contour map from the data set to illustrate the direction of groundwater flow at the site (Figure 3). Groundwater flows towards the northeast with an approximate gradient of 0.12 feet/foot between MW-2 and MW-4.

3.4 Groundwater Analytical Results

The groundwater analytical results are reported as micrograms per liter (µg/L) for analytes except chloride [which is reported as milligrams per liter (mg/L)] and are summarized on Tables 1 through 4 and shown on Figure 3. A copy of the laboratory report is included in Appendix D.

3.4.1 Monitoring Wells

There was no detection of DRO, RRO, BTEX or PAHs above their respective laboratory method reporting limit (MRL) in the sample collected from MW-5.

DRO was detected in each of the samples collected from the other wells at a concentration up to 3,600 µg/L. The concentration of DRO exceeds the CUL of 1,500 µg/L in both samples collected from MW-1 and MW-4.

RRO was detected in the samples collected from MW-1, duplicate sample from MW-1 (MW100-

W) and MW-4 at a concentration up to 780 µg/L. None of the concentrations of RRO in the samples exceeded the CUL of 1,100 µg/L.

BTEX was not detected in any sample above their respective MRLs. The sum total of BTEX (TAH) was calculated using ADEC's guidance documents[11]. Half of the MRL was used for each non detect sample result. The calculated TAH for each sample is 2.675 µg/L as shown on Table 1.

Two PAHs (acenaphthene and chrysene) were detected in the sample collected from MW-1. The concentration of the detected PAHs is well below their respective CUL as shown on Table 2. The sum total of all PAHs was calculated using ADEC's guidance documents. Half of the MRL was used for each non detect. The calculated total PAHs ranged from 0.92 µg/L to 0.984 µg/L in the samples.

The sum of TAH and total PAHs (TAqH) was calculated for each sample result (Table 3). The TAqH for each sample ranged from 3.595 µg/L to 3.659 µg/L which is below the maximum allowable TAqH of 15 µg/L.

The concentration of chloride in the samples collected from the monitoring wells ranged from 4.57 mg/L to 11,900 mg/L (Table 4). The samples collected from MW-1 and duplicate sample (MW100-W), MW-4 and MW-5 had chloride concentrations over 500 mg/L.

Field parameter measurements included temperature, specific conductivity, dissolved oxygen, pH, ORP and turbidity. The results are recorded on the Groundwater Sample Collection Forms (Appendix B). Dissolved oxygen concentrations in monitoring wells MW-1 through MW-4 were less than 1 parts per million (ppm). The dissolved oxygen concentration at MW-5 was 8.01 ppm. Oxidation reduction potential (ORP) ranged from -86.7 to -33.9 millivolts (mV) in monitoring wells MW-1 through MW-4 and was 46.7 mV at MW-5. Specific conductivity ranged from 472.3 to 25,563 micro siemens per centimeter (µS/cm - which is equivalent to µmhos/cm) in the wells. Specific conductivity over 1,300 µS/cm was measured at MW-2, MW-4 and MW-5.

3.4.2 Seeps

There was no detection of DRO, RRO or BTEX above their respective MRL in the samples collected from Seep 1 or Seep 2. The sum total of BTEX (TAH) was calculated using ADEC's guidance documents. Half of the MRL was used for each non detect sample result. The calculated TAH for each sample is 2.675 ug/L as shown on Table 1. Nine PAHs were detected in the sample collected from Seep 2. None of the concentrations of detected PAHs exceeded their respective CUL as shown on Table 2. The sum total of all PAHs was calculated using

[11] ADEC, *Guidelines for Treatment of Non-Detect Values, Data Reduction for Multiple-Detections and Comparison of Quantitative Limits to Cleanup Values,* April 2017.

ADEC's guidance documents. Half of the MRL was used for each non detect. The calculated total PAHs ranged from 0.92 µg/L to 1.698 µg/L in the samples.

The sum of TAH and total PAHs (TAqH) was calculated for each sample result (Table 3). The TAqH for each sample ranged from 3.595 µg/L to 4.373 µg/L which is below the maximum allowable TAqH of 15 µg/L.

The concentration of chloride in the samples ranged from 7,080 mg/L to 11,900 mg/L (Table 4). Field parameters were not collected for the seep samples.

3.5 Data Quality Review

HydroCon collected a duplicate water sample (MW-100-W) from monitoring well MW-1 and duplicate Seep sample (Seep100-W) from Seep 1. Results of the samples are discussed above and summarized on the attached tables. As stated above, the sample receipt temperature was recorded on the chain of custody forms and sample receipt conditions were noted in the case narrative.

3.5.1 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 (Appendix E). The checklist provides a review of accuracy, precision, representativeness, comparability, sensitivity and quantitation limits.

A data qualifier was placed on sample results by the laboratory including the following:

- X – the chromatographic pattern does not resemble the fuel standard used for quantitation
- jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits for several compounds in the 8270E analysis. The reported concentration should be considered an estimate
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate

The quality and completeness objectives have been met. The laboratory results are considered to be valid, as reported.

4.0 PRELIMINARY VAPOR INTRUSION ASSESSMENT OF FLOAT HOUSE

With the assistance of Keta Engineering (KE), an initial assessment of the vapor intrusion pathway was performed at the residential property located north of the Power Plant. The house has not been occupied on a full-time basis for several years. Mr. Tom Abel does occupy the house on a part-time basis. Mr. Abel was cooperative with KE on providing access

to perform site monitoring and to answer questions to complete the Building Inventory and Indoor Air Sampling Questionnaire. KE prepared a memorandum that documented their monitoring and inspection of the float house. The memorandum, questionnaire and photo documentation are included in Appendix F.

5.0 DISCUSSION

The results of the September 2022 sampling event indicate that residual petroleum contaminants from historic spills are still present in the subsurface. The concentration of DRO in monitoring wells MW-1 and MW-4 exceeds their respective CUL. Two PAHs were detected in MW-1 and nine PAHs were detected in the Seep 2 sample at very low concentrations and there's no BTEX detected in any sample.

Results of the seep sampling indicate that low concentration of PAHs were present in the Seep 2 sample but none detected at Seep 1 which is located approximately 30 feet upgradient. There was no detection of DRO, RRO or BTEX at either location. The sum of total BTEX and total PAHs (TAqH) at both locations are well below the regulatory limit indicating that the residual contaminants observed in the sample collected from Seep 2 are not a threat to Klawock Bay.

Based on research[12], brackish water is defined as having a chloride content greater than 400 mg/L. Elevated chloride concentrations greater than 500 mg/L were observed in 2 wells (MW-4 and MW-5) and both seep locations. The samples with the highest concentration of chloride (11,900 mg/L) were collected at MW-5 and Seep 1. The Environmental Protection Agency (EPA) has established secondary drinking water standards for nuisance chemicals which includes chloride. The secondary maximum contaminant level (MCL) for chloride is 250 mg/L which is the point where water starts to taste salty.

Elevated specific conductivity measurements (greater than 1,300 µS/cm) were observed in the purge water generated from MW-2, MW-4 and MW-5. The chloride and specific conductivity results indicate that the investigation area is partially under marine influence.

Additional sampling events should be performed to obtain a sufficient volume of groundwater data so that trends in groundwater quality can be assessed to demonstrate the plume is stable and a decreasing trend in contaminant concentrations is observed at the site.

Results of the inspection and ambient air monitoring at the float house indicated that there are no apparent sources (i.e., chemicals, etc.) of VOCs being stored inside the house and that there was no detection of VOCs in the ambient air using a PID at any location monitored during the inspection. The house is unoccupied during most of the year with occasional short-term visits by Mr. Abel. The foundation of the house was constructed to sit on top of floats. The house currently sits on top of concrete blocks which elevates it above the ground surface. Wood siding

[12] Y. Shevah, *Comprehensive Water Quality and Purification*, 2014.

has been constructed around the perimeter of the house and covers the foundation area. Gaps and vents were observed in the siding indicating that there's significant air flow under the house. Based on site inspection and construction of the house, there's a low probability that VOCs from residual contamination on the Power Plant site is affecting indoor air quality at the Abel house.

6.0 RECOMMENDATIONS

HydroCon recommends that the following actions are taken at the site:

- Perform another round of groundwater monitoring in the spring when water levels are at or near their highest levels to assess if there's any pattern to contaminant concentrations during seasonal changes.
- Analysis for chloride should be included at all site monitoring wells in the spring to assess concentrations during high tide. This will help characterize the extent of marine water influence at the site during an entire tidal cycle.
- Install the well monument over MW-2.
- Complete site characterization.
- If warranted, soil gas sampling could be performed near the float house during site characterization activities to asses if the pathway is open or closed.
- Consider remedial action to reduce the concentration of DRO and RRO below CULs.

7.0 QUALIFICATIONS

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This statement is in lieu of other statements either expressed or implied. HydroCon is not responsible for the independent conclusions, opinions or recommendations made by others based on the records review, site observations, field exploration, or laboratory test data presented in this report.

Environmental assessments and evaluations are inherently limited in that conclusions are drawn and recommendations developed from information obtained from limited research and site evaluation. For these types of evaluations, it is often necessary to use information prepared by others and HydroCon cannot be responsible for the accuracy of such information. Additionally, the passage of time may result in a change in the environmental characteristics at this and any other site and surrounding properties. This report does not warrant against future operations or conditions, nor does this report warrant against operations or conditions present of a type or at

a location not investigated. This report is not a regulatory compliance audit and is not intended to satisfy the requirements of any local, state, or federal real estate transfer laws.

This report is intended for the sole use of **Alaska Power and Telephone**. 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 evaluation 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.

The conclusions presented in this report are, in part, based upon subsurface sampling performed at selected locations and depths. There may be conditions between borings or samples that differ significantly from those presented in this report and which cannot be predicted by this study.

Rob Honsberger

Project Geologist/Field Manager

Craig Hultgren

Principal Geologist/Vice President

FIGURES

NOTE(S):

USGS, CRAIG B-4 NE QUADRNGLE
ALASKA-PRINCE OF WALES-HYDER CENSUS AREA
7.5 MINUTE SERIES (TOPOGRAPHIC)

0 4000 8000

SCALE IN FEET
1" = 4000'

N
W E
S

HydroCon

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

DATE: 12-30-19
DWN: JJT
CHK: NV
APPROVED: NV
PRJ. MGR: CH
PROJECT NO: 2019-054

FIGURE 1
SITE LOCATION MAP

ALASKA POWER AND TELEPHONE
CRAIG, ALASKA

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LEGEND

MW = Well, HydroCon 2021
WP = Well, Hart Crowser 1995 (Abandoned)
SP = Soil Boring, Hart Crowser 1995
WS = Hand Dug Soil, Hart Crowser 1994
TP = Test Pit, R&M 2018
C = Test Pit, Hart Crowser 1995
Soil DRO Concentration >8,250 mg/kg
Fence
Retaining Wall

SEEP2
SEEP1
83'
52'
BAY WATER
C-4
MW-3
WP-3
TP-10
TP-5
MW-4
C-7
TP-6
TP-8
C-5
WP-1B
WP-5
MW-5
TP-7
TP-4
TP-1
HEATING OIL TANK
C-2
TP-3
TP-8
SP-12
TP-2
TP-11
MW-2
C-3
TP-9
WP-2
MW-1
C-1
C-6
WP-4
HOUSE
TP-12
OLD BUILDING
TP-16
BOARDWALK ACCESS
TP-13
TP-14
PL-2
POWERHOUSE BUILDING
OLD GENERATOR
NEW 10,000 GAL. AST
FORMER 10,000 GAL, AST
T-1
TRANSFORMER
TP-15
PL-1
GENERATOR BUILDING
Water Street

FIGURE 2
SITE FEATURES
ALASKA POWER & TELEPHONE
CRAIG, ALASKA

DATE: 1-4-23
DWN: JJT
CHK: NV
APPROVED: NV
PRJ. MGR: CH
PROJECT NO: 2019-054

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0 20 40
SCALE IN FEET
1" = 20'

N W E S

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Field ID	Date	Groundwater Analytical Results (ug/L)						
		AK 102	AK103	EPA 8260D				
		DRO	RRO	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TAqH
ADEC Table C CUL		1,500	1,100	4.6	1,100	15	190	15
Monitoring Well Samples								
MW-1-W	9/22/2022	3,600 x	780 x	<0.35	<1	<1	<3	5.888
MW-100-W (Dupe)	9/22/2022	3,000 x	420 x	<0.35	<1	<1	<3	6.442
MW-2-W	9/22/2022	300 x	<250	<0.35	<1	<1	<3	3.887
MW-3-W	9/22/2022	150 x	<250	<0.35	<1	<1	<3	3.628
MW-4-W	9/22/2022	1,700 x	410 x	<0.35	<1	<1	<3	6.160
MW-5-W	9/22/2022	<50	<250	<0.35	<1	<1	<3	3.590
Seep Samples								
Seep 1	9/23/2022	<50	<250	<0.35	<1	<1	<3	3.595
Seep 100 (Dupe)	9/23/2022	<50	<250	<0.35	<1	<1	<3	3.595
Seep 2	9/23/2022	<50	<250	<0.35	<1	<1	<3	4.373

Notes:
Red denotes concentration exceeds ADEC Table C Cleanup Level
Blue denotes concentratin that exceeds the MRL but is below the ADEC Table C cleanup level
< = 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.
TAqH = sum of BTEX and PAHs

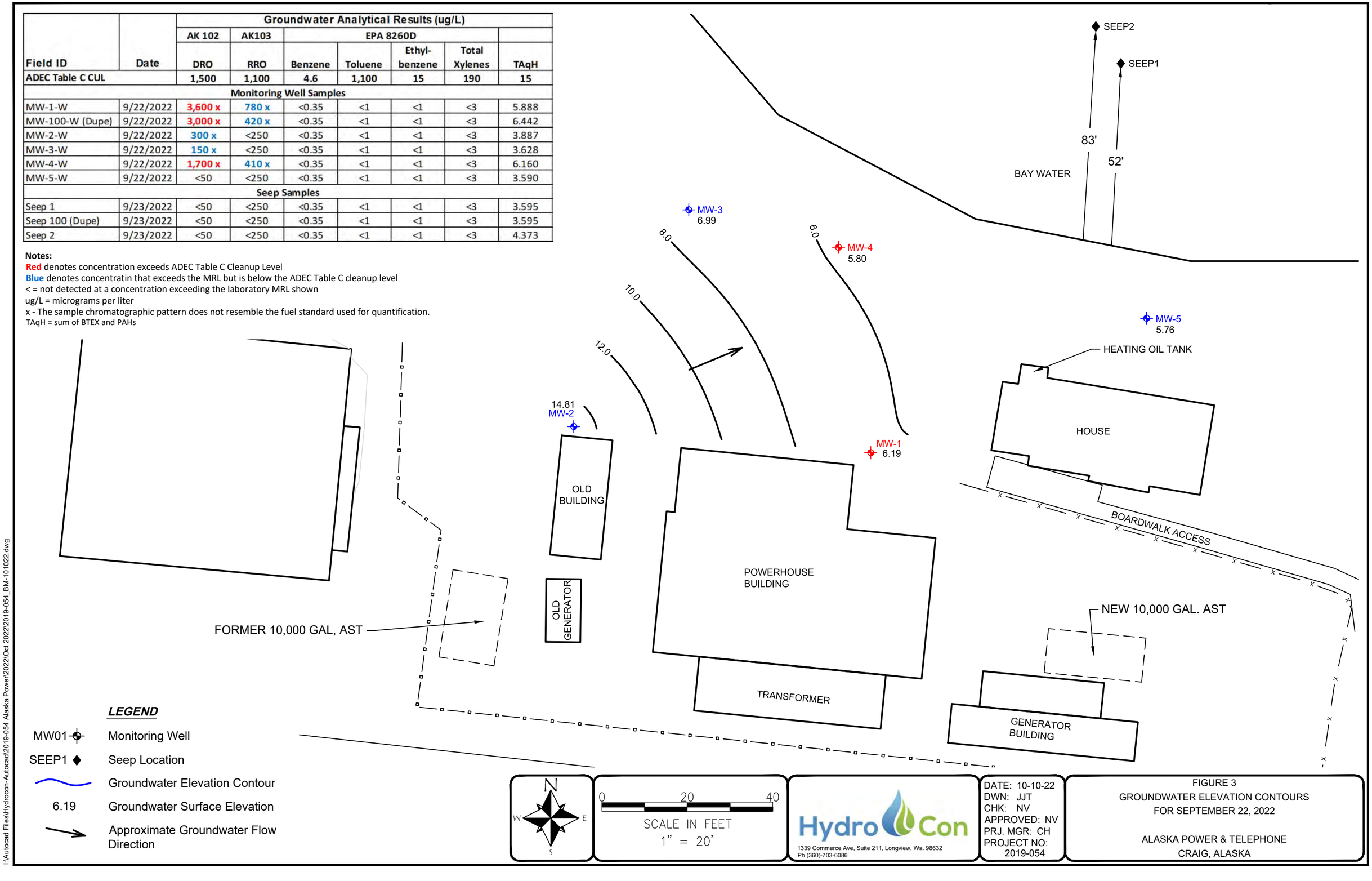

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FIGURE 3
GROUNDWATER ELEVATION CONTOURS
FOR SEPTEMBER 22, 2022

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

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TABLES

Table 1
Groundwater Analytical Results
DRO, RRO and BTEX
Alaska Power Telephone Power Generation Facility
Craig, Alaska

		Water and Product Level Measurements & Elevation				AK 102	AK103	EPA 8260D				
		Elevation Top of PVC Casing (feet AMSL)	Depth to Water below top of PVC Casing (feet)	Depth to Product (feet)	Groundwater Elevation (feet AMSL)	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes	TAH
						ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ADEC Table C Cleanup Levels						1,500	1,100	4.6	1,100	15	190	10
Field ID	Date											
Monitoring Well Samples												
MW-1-W	9/30/2021	15.74	7.96	---	7.78	4,000	1,100 x	<0.35	<1	<1	<3	2.675
MW-100-W (Dupe)	9/30/2021		---	---	---	5,000	1,400 x	<0.35	<1	<1	<3	2.675
MW01-W	9/22/2022		9.55	---	6.19	3,600 x	780 x	<0.35	<1	<1	<3	2.675
MW100-W (Dupe)	9/22/2022		---	---	---	3,000 x	420 x	<0.35	<1	<1	<3	2.675
MW-2-W	9/30/2021	17.92	0.71	---	17.21	1,100	<250	<0.35	<1	<1	<3	2.675
MW02-W	9/22/2022		3.11	---	14.81	300 x	<250	<0.35	<1	<1	<3	2.675
MW-3-W	9/30/2021	13.78	2.71	---	11.07	120 x	<250	<0.35	<1	<1	<3	2.675
MW03-W	9/22/2022		6.79	---	6.99	150 x	<250	<0.35	<1	<1	<3	2.675
MW-4-W	9/30/2021	13.70	6.00	---	7.70	1,300	680 x	<0.35	<1	<1	<3	2.675
MW04-W	9/22/2022		7.90	---	5.80	1,700 x	410 x	<0.35	<1	<1	<3	2.675
MW-5-W	9/30/2021	12.57	5.97	---	6.60	<50	<250	<0.35	<1	<1	<3	2.675
MW05-W	9/22/2022		6.81	---	5.76	<50	<250	<0.35	<1	<1	<3	2.675

Table 1
Groundwater Analytical Results
DRO, RRO and BTEX
Alaska Power Telephone Power Generation Facility
Craig, Alaska

		Water and Product Level Measurements & Elevation				AK 102	AK103	EPA 8260D				
		Elevation Top of PVC Casing (feet AMSL)	Depth to Water below top of PVC Casing (feet)	Depth to Product (feet)	Groundwater Elevation (feet AMSL)	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethylbenzene	Total Xylenes	TAH
						ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ADEC Table C Cleanup Levels						1,500	1,100	4.6	1,100	15	190	10
Field ID	**Date**											
Seep Samples												
Seep 1	9/23/2022	---	---	---	---	<50	<250	<0.35	<1	<1	<3	2.675
Seep 100 (Dupe)	9/23/2022	---	---	---	---	<50	<250	<0.35	<1	<1	<3	2.675
Seep 2	9/23/2022	---	---	---	---	<50	<250	<0.35	<1	<1	<3	2.675

Notes
TAH = sum of BTEX
Summation of BTEX includes using 1/2 of laboratory method reporing limit (MRL) for non detects
Red denotes concentration exceeds ADEC Table C Cleanup Level
Blue denotes concentratin that exceeds the MRL but is below the ADEC Table C cleanup level
Alaska Department of Environmental Conservation (ADEC) Oil Pollution & Hazardous Substances, Pollution Control Regulations, 18 AAC75
< = not detected at a concentration exceeding the laboratory MRL shown
--- = not applicable/not present
ug/L = micrograms per liter
x - The sample chromatographic pattern does not resemble the fuel standard used for quantification.
AMSL = above mean sea level

Table 2
Groundwater Analytical Results
Polynuclear Aromatic Hydrocarbons
Alaska Power and Telephone Power Generation Facility
Craig, Alaska

		EPA 8270E																		
		2-Methylnaphthalene	1-Methylnaphthalene	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	Sum of PAHs
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
ADEC Table C Cleanup Levels		**36**	**11**	**1.70**	**260**	**530**	**290**	**170**	**43**	**260**	**120**	**0.12**	**2**	**0.25**	**0.343**	**2.5**	**0.19**	**0.25**	**0.26**	
Field ID	**Date Sampled**																			
Monitoring Well Samples																				
MW-1-W	9/30/2021	<0.4	**0.66**	<0.4	<0.04	**0.45**	**1.3**	**0.13**	<0.04	<0.04	**0.058**	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.08	3.233
MW-100-W (Dupe)	9/30/2021	<0.4	**0.83**	<0.4	<0.04	**0.59**	**1.5**	**0.14**	<0.04	<0.04	**0.072**	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.08	3.767
MW01-W	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	**0.052 J**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	**0.052**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.984
MW100-W (Dupe)	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
MW-2-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	**0.086**	**0.23**	<0.04	<0.04	<0.04	**0.041**	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.08	1.212
MW02-W	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
MW-3-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	<0.04	<0.04	**0.058**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.08	0.953
MW03-W	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
MW-4-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	**0.81**	**1.8**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.08	3.485
MW04-W	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
MW-5-W	9/30/2021	<0.4	<0.4	<0.4	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.03	<0.04	<0.04	<0.04	<0.04	<0.08	0.915
MW05-W	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
Seep Samples																				
Seep 1	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04 J	<0.04 J	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
Seep 100 (duplicate Seep 1)	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.08	0.92
Seep 2	9/23/2022	<0.4 J	<0.4 J	<0.4 J	<0.04	<0.04 J	<0.04	**0.090**	<0.04	**0.210**	**0.170**	**0.061**	**0.170**	**0.069**	**0.098**	**0.041**	**0.049**	<0.04	<0.08	1.698

Notes

Summation of PAHs includes using 1/2 of laboratory method reporing limit (MRL) for non detects
Red denotes concentration exceeds ADEC Table C Cleanup Level
Blue denotes concentratin that exceeds the MRL but is below the ADEC Table C cleanup level
Samples analyzed by Friedman & Bruya, Inc., of Seattle, Washington.
Alaska Department of Environmental Conservation (ADEC) Oil Pollution & Hazardous Substances, Pollution Control Regulations, 18 AAC75
Pollution Control Regulations,Table C, 18 AAC75.
< = not detected at a concentration exceeding the laboratory MRL shown
J = The result is an estimated quantity.
ug/L = micrograms per liter

Table 3
TAH and TAqH Calculations
Alaska Power and Telephone Power Generation Facility
Craig, Alaska

		TAH	Sum of PAHs	TAqH
Cleanup Level (ug/L)		10		15
Field ID	**Date Sampled**			
Monitoring Well Samples				
MW-1-W	9/30/2021	2.675	3.213	5.888
MW-100-W (Dupe)	9/30/2021	2.675	3.767	6.442
MW01-W	9/22/2022	2.675	0.984	3.659
MW100-W (Dupe)	9/22/2022	2.675	0.92	3.595
MW-2-W	9/30/2021	2.675	1.212	3.887
MW02-W	9/22/2022	2.675	0.92	3.595
MW-3-W	9/30/2021	2.675	0.953	3.628
MW03-W	9/22/2022	2.675	0.92	3.595
MW-4-W	9/30/2021	2.675	3.485	6.160
MW04-W	9/22/2022	2.675	0.92	3.595
MW-5-W	9/30/2021	2.675	0.915	3.59
MW05-W	9/22/2022	2.675	0.92	3.595
Seep Samples				
Seep 1	9/23/2022	2.675	0.92	3.595
Seep 100 (Dupe)	9/23/2022	2.675	0.92	3.595
Seep 2	9/23/2022	2.675	1.698	4.373

Notes:

MRL - Method Reporting Limit (equivalent of limit of quantitation)

TAH = sum of BTEX

TAqH = sum of BTEX and PAHs

Summation of BTEX and PAHs includes using 1/2 of MRL for non detects

ug/L = micrograms per liter

APPENDIX A

PHOTO DOCUMENTATION

PHOTO 1
Sample MW-1

PHOTO 2
Geotech electronic oil/water interface probe.

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PHOTOPLATE 1
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

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PHOTO 3
Sample MW-2

PHOTO 4
Sample MW-4

HydroCon
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APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE 2
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

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PHOTO 5
Sample MW-5

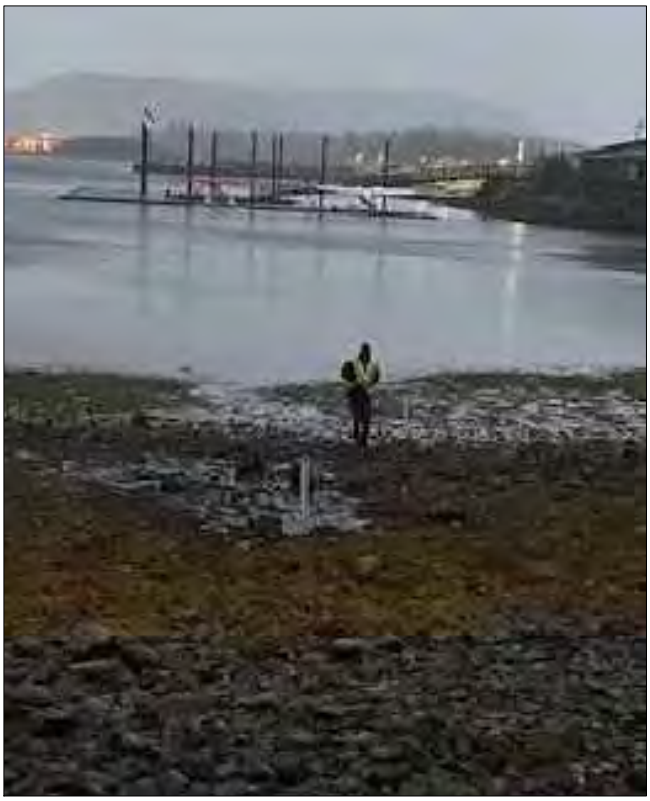

PHOTO 6
Seep sampling

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

DATE: 10-4-22
DWN: JJT
CHK: CH
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PROJECT NO: 2019-054

PHOTOPLATE 3
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

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APPENDIX B

GROUNDWATER SAMPLE COLLECTION FORMS

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW01

Project Name: HH
Hydrocon Project #: 2019-054
Date 9-22-22

Sample I.D. MW01-W Time: 1130
Field Duplicate I.D. MW100-W Time: 1130
Personnel: RM

WELL INFORMATION

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

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 9.55 ft Intake Depth (BTOC) _____ Begin Purging Well: 1102
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

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

FIELD PARAMETERS

Odor and/or Sheen: None

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (µS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1105	9.61	20.1	11.8	591	0.83	6.96	-83.6	9.44
1108			12.1	593	0.48	6.90	-79.1	9.00
1111			12.2	589	0.42	6.91	-79.5	9.21
1114			12.2	677	0.38	6.82	-72.3	7.76
1117			12.2	677	0.36	6.80	-70.1	8.17
1120			12.2	677	0.35	6.80	-70.4	7.72

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

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	6	HCl	(No) 0.45 0.10	
500 mL Amber	4	—	(No) 0.45 0.10	
250 Poly	2	—	(No) 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW02

Project Name: AT&T
Hydrocon Project #: 2019-054
Date 9-22-22

Sample I.D. MW02-W Time: 1205
Field Duplicate I.D. _____ Time: _____
Personnel: EAM

WELL INFORMATION

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

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 3.11 ft Intake Depth (BTOC) _____ Begin Purging Well: 1144
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

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

FIELD PARAMETERS

Odor and/or Sheen: Iron 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)
1147	3.12	20.1	11.0	1780	0.63	7.60	-89.1	36.97
1150			11.1	1660	0.56	7.60	-87.1	39.54
1153			11.1	1359	0.44	7.54	-91.2	44.54
1156			11.1	1333	0.39	7.44	-90.4	55.20
1159			11.1	1333	0.34	7.49	-85.2	58.66
1202			11.1	1333	0.31	7.45	-86.7	57.41

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

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW03

Project Name: ATT
Hydrocon Project #: 2019-054
Date 9-22-22

Sample I.D. MW03-W Time: 1240
Field Duplicate I.D. _____ Time: _____
Personnel: PAH

WELL INFORMATION

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

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 6.79 ft Intake Depth (BTOC) _____ Begin Purging Well: 1218
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

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

FIELD PARAMETERS

Odor and/or Sheen: Iron sheen.

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (µS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1221	6.83	20.1	11.1	476.3	0.65	6.63	-27.3	102.74
1224			11.2	475.7	0.42	6.62	-29.0	70.35
1227			11.2	473.7	0.35	6.61	-30.6	58.12
1230			11.2	472.1	0.31	6.61	-32.1	57.61
1233			11.2	472.3	0.28	6.61	-33.6	54.72
1236			11.2	472.3	0.28	6.61	-33.9	52.11

Stabilization achieved if three successive measurements for pH, Conductivity and Turbidity or Dissolved Oxygen are recorded within their perspective stabilization criteria. A minimum of six measurements should be recorded.
Purging Comments: orange water Lots of Iron Changed to clear at Time of Sample.

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCl	(No) 0.45 0.10	
500 mL Amber	2	—	(No) 0.45 0.10	
250 mL poly	1	—	(No) 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW-4

Project Name: AT3T
Hydrocon Project #: 2019.054
Date 9-22-22

Sample I.D. MW-4-W Time: 1315
Field Duplicate I.D. _____ Time: _____
Personnel: RM

WELL INFORMATION

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

PURGING INFORMATION

Total well depth _____ ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 7.90 ft Intake Depth (BTOC) _____ Begin Purging Well: 1250
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft 2"=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

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

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (µS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1253	7.92	≈0.1	10.3	8730	0.63	6.69	-32.8	9.32
1256			10.7	6737	0.41	6.76	-49.0	5.88
1259			10.9	5237	0.33	6.79	-47.8	7.01
1302			11.0	4432	0.30	6.80	-50.0	5.66
1305			11.0	4379	0.29	6.80	-53.9	5.32
1308			11.0	4362	0.26	6.80	-54.4	5.37

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

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
40 mL VOA	3	HCL	No 0.45 0.10	
500 mL Amb	2	—	No 0.45 0.10	
250 mL Poly	1	—	No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW05

Project Name: ATT
Hydrocon Project #: 2019-054
Date 9-22-22

Sample I.D. MW05-W Time: 1350
Field Duplicate I.D. _____ Time: _____
Personnel: _____

WELL INFORMATION

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

PURGING INFORMATION

Total well depth — ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 6.81 ft Intake Depth (BTOC) _____ Begin Purging Well: 1325
Casing volume _____ ft (H_2O) X _____ gal/ft = _____ gal. X 3 = _____ gal.
Volume Conversion Factors: 3/4"=0.02 gal/ft 1"=0.04 gal/ft (2")=0.16 gal/ft 4"=0.65 gal/ft 6"= 1.47 gal/ft

PURGING/DISPOSAL METHOD

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

FIELD PARAMETERS

Odor and/or Sheen: _____

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	Sp. Cond. (µS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	Turbidity (NTU) (± 10% or ≤10)
1328	6.83	0.1	9.7	24,836	8.65	6.95	43.9	9.14
1331			9.7	24,972	8.67	6.99	43.3	9.08
1334			9.7	25,252	8.68	7.00	42.3	3.75
1337			9.7	25,524	8.65	7.00	44.2	3.65
1340			9.7	25,525	8.64	7.00	45.5	3.57
1343			9.7	25.543	8.61	7.00	46.7	3.55

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

SAMPLE INFORMATION

Container Type	Bottle Count	Preservative	Field Filtered?	Analysis
	3	HCL	(No) 0.45 0.10	
	2	—	(No) 0.45 0.10	
	1	—	(No) 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

APPENDIX C

FIELD NOTES

Hydro Con	DAILY FIELD REPORT	Hydrocon Job Number:
	Project Name: Craig Power PLANT	Date: 9/22/21
Phone: 360.998.2902	Client: APEI	Page: 1 Of 1
1339 Commerce Ave., Suite 211; Longview, WA		
Prepared By: C. Hultgren	Location: Craig, AK	Arrival:
		Departure:
Purpose:	Weather: Overcast / Rain	Permit:

1020) Arrive at site - Talked with Cody and Kasey. They left marine battery on site and dummy-locked gate for us.

Go around site and open lids to wells to allow water levels to equilibrate

Time	well #	DTW	DTP	Sample collection Time
1	mw-1	9.55	∅	1130 ⊛ Dupe mw100 collected from mw-1
	mw-2	3.11	∅	
	mw-3	6.79	∅	
	mw-4	7.90	∅	
	mw-5	6.81	∅	

NOTE: NO free product in any well - use electronic oil/water indicator probe

Label sample jars / Prepare for sampling

Rob Horsberger is doing the groundwater sampling - See Groundwater Sample Collection forms for water measurements and sampling details.

Sample collection Time

mw-1	1130
mw-2	1205
mw-3	1240
mw-4	1315
mw-5	1350

HydroCon	DAILY FIELD REPORT	Hydrocon Job Number:
	Project Name: Craig Power Plant	Date: 9/23/22
Phone: 360.998.2902 1339 Commerce Ave., Suite 211; Longview, WA	Client: APT	Page: 1 Of 1
Prepared By: Craig Hultgren	Location: APT/Pow Plant	Arrival: Departure:
Purpose:	Weather:	Permit:

(0552) Arrive At site – setup for sampling – dark outside

set both (2) seep temporary sampling points – use 2-inch diameter Sched 40 PVC slotted casing with cone shaped end cap.

Seep 1 – 52' from high tide line
Seep 2 – 83' from high tide line

Seep 1 0635
Seep 100 (from seep 1) 0640
Seep 2 0655

See sample collection forms for sampling info

(0715) Complete sampling

APPENDIX D

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.
Vineta Mills, M.S.
Eric Young, B.S.

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

October 6, 2022

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

Dear Mr Hultgren:

Included are the results from the testing of material submitted on September 23, 2022 from the AT&T 2019-054, F&BI 209399 project. There are 28 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rob Honsberger
HDC1006R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 23, 2022 by Friedman & Bruya, Inc. (ADEC laboratory approval number UST-007) from the HydroCon AT&T 2019-054, F&BI 209399 project. The samples were received at 6 °C in good condition and were refrigerated upon receipt. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon	Date Sampled
209399 -01	MW01-W	09/22/22
209399 -02	MW100-W	09/22/22
209399 -03	MW02-W	09/22/22
209399 -04	MW03-W	09/22/22
209399 -05	MW04-W	09/22/22
209399 -06	MW05-W	09/22/22
209399 -07	Seep 1	09/23/22
209399 -08	Seep 2	09/23/22
209399 -09	Seep 100	09/23/22

The samples were analyzed as follows.

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

All quality control requirements were acceptable.

BTEX (water) - Analysis Method 8260

All quality control requirements were acceptable.

PAHs (water) - Analysis Method 8270 SIM

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

Chloride (water) - Analysis Method 300.0

The samples were sent to Fremont Analytical for chloride analysis. The report is enclosed.

Date of Report: 10/06/22
Date Received: 09/23/22
Project: AT&T 2019-054, F&BI 209399
Date Extracted: 0928/22
Date Analyzed: 09/28/22

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW01-W 209399-01	780 x	110
MW100-W 209399-02	420 x	114
MW02-W 209399-03	<250	98
MW03-W 209399-04	<250	93
MW04-W 209399-05	410 x	111
MW05-W 209399-06	<250	90
Seep 1 209399-07	<250	95
Seep 2 209399-08	<250	102
Seep 100 209399-09	<250	91
Method Blank 02-2366 MB	<250	76

Date of Report: 10/06/22
Date Received: 09/23/22
Project: AT&T 2019-054, F&BI 209399
Date Extracted: 09/28/22
Date Analyzed: 09/28/22

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Surrogate (% Recovery) (Limit 50-150)
MW01-W 209399-01	3,600 x	114
MW100-W 209399-02	3,000 x	96
MW02-W 209399-03	300 x	111
MW03-W 209399-04	150 x	117
MW04-W 209399-05	1,700 x	122
MW05-W 209399-06	<50	119
Seep 1 209399-07	<50	125
Seep 2 209399-08	<50	124
Seep 100 209399-09	<50	124
Method Blank 02-2366 MB	<50	115

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW01-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-01
Date Analyzed:	09/27/22	Data File:	092716.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	71	132
Toluene-d8	102	68	139
4-Bromofluorobenzene	92	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW100-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-02
Date Analyzed:	09/27/22	Data File:	092717.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	71	132
Toluene-d8	94	68	139
4-Bromofluorobenzene	94	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW02-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-03
Date Analyzed:	09/27/22	Data File:	092718.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	71	132
Toluene-d8	104	68	139
4-Bromofluorobenzene	93	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW03-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-04
Date Analyzed:	09/27/22	Data File:	092719.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	71	132
Toluene-d8	93	68	139
4-Bromofluorobenzene	97	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW04-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-05
Date Analyzed:	09/27/22	Data File:	092720.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	90	71	132
Toluene-d8	92	68	139
4-Bromofluorobenzene	94	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW05-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-06
Date Analyzed:	09/27/22	Data File:	092721.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	71	132
Toluene-d8	103	68	139
4-Bromofluorobenzene	92	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Seep 1	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-07
Date Analyzed:	09/27/22	Data File:	092722.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	97	71	132
Toluene-d8	105	68	139
4-Bromofluorobenzene	96	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Seep 2	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-08
Date Analyzed:	09/27/22	Data File:	092723.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	71	132
Toluene-d8	101	68	139
4-Bromofluorobenzene	93	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Seep 100	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	209399-09
Date Analyzed:	09/27/22	Data File:	092724.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

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

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/27/22	Lab ID:	02-2290 mb
Date Analyzed:	09/27/22	Data File:	092707.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	LM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	71	132
Toluene-d8	93	68	139
4-Bromofluorobenzene	95	62	136

Compounds:	Concentration ug/L (ppb)
Benzene	<0.35
Toluene	<1
Ethylbenzene	<1
m,p-Xylene	<2
o-Xylene	<1

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW01-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-01 1/2
Date Analyzed:	09/29/22	Data File:	092920.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	68	11	173
2-Fluorobiphenyl	74	44	108
2,4,6-Tribromophenol	19	10	140
Terphenyl-d14	95	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	0.052 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	0.052
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW100-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-02 1/2
Date Analyzed:	09/29/22	Data File:	092921.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	79	11	173
2-Fluorobiphenyl	76	44	108
2,4,6-Tribromophenol	20	10	140
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW02-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-03 1/2
Date Analyzed:	09/29/22	Data File:	092922.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	55	11	173
2-Fluorobiphenyl	80	44	108
2,4,6-Tribromophenol	70	10	140
Terphenyl-d14	95	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW03-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-04 1/2
Date Analyzed:	09/29/22	Data File:	092923.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	84	11	173
2-Fluorobiphenyl	79	44	108
2,4,6-Tribromophenol	69	10	140
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW04-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-05 1/2
Date Analyzed:	09/29/22	Data File:	092924.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	65	11	173
2-Fluorobiphenyl	72	44	108
2,4,6-Tribromophenol	12	10	140
Terphenyl-d14	98	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	MW05-W	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-06 1/2
Date Analyzed:	09/29/22	Data File:	092925.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	79	11	173
2-Fluorobiphenyl	71	44	108
2,4,6-Tribromophenol	15	10	140
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Seep 1	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-07 1/2
Date Analyzed:	09/29/22	Data File:	092926.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	65	11	173
2-Fluorobiphenyl	59	44	108
2,4,6-Tribromophenol	8 ip	10	140
Terphenyl-d14	96	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04 J
Benz(a)anthracene	<0.04 J
Chrysene	<0.04 J
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Seep 2	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-08 1/2
Date Analyzed:	09/29/22	Data File:	092927.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	87	11	173
2-Fluorobiphenyl	71	44	108
2,4,6-Tribromophenol	53	10	140
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	0.090
Anthracene	<0.04
Fluoranthene	0.21
Pyrene	0.17
Benz(a)anthracene	0.061
Chrysene	0.17
Benzo(a)pyrene	0.069
Benzo(b)fluoranthene	0.098
Benzo(k)fluoranthene	0.041
Indeno(1,2,3-cd)pyrene	0.049
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Seep 100	Client:	HydroCon
Date Received:	09/23/22	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	209399-09 1/2
Date Analyzed:	09/30/22	Data File:	092928.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
Nitrobenzene-d5	87	11	173
2-Fluorobiphenyl	76	44	108
2,4,6-Tribromophenol	43	10	140
Terphenyl-d14	102	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4 jl
2-Methylnaphthalene	<0.4 jl
1-Methylnaphthalene	<0.4 jl
Acenaphthylene	<0.04
Acenaphthene	<0.04 jl
Fluorene	<0.04
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.04
Benzo(b)fluoranthene	<0.04
Benzo(k)fluoranthene	<0.04
Indeno(1,2,3-cd)pyrene	<0.04
Dibenz(a,h)anthracene	<0.04
Benzo(g,h,i)perylene	<0.08

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	HydroCon
Date Received:	Not Applicable	Project:	AT&T 2019-054, F&BI 209399
Date Extracted:	09/28/22	Lab ID:	02-2375 mb2
Date Analyzed:	09/29/22	Data File:	092913.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	JCM

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

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2 jl
2-Methylnaphthalene	<0.2 jl
1-Methylnaphthalene	<0.2 jl
Acenaphthylene	<0.02
Acenaphthene	<0.02 jl
Fluorene	<0.02
Phenanthrene	<0.02
Anthracene	<0.02
Fluoranthene	<0.02
Pyrene	<0.02
Benz(a)anthracene	<0.02
Chrysene	<0.02
Benzo(a)pyrene	<0.02
Benzo(b)fluoranthene	<0.02
Benzo(k)fluoranthene	<0.02
Indeno(1,2,3-cd)pyrene	<0.02
Dibenz(a,h)anthracene	<0.02
Benzo(g,h,i)perylene	<0.04

Date of Report: 10/06/22
Date Received: 09/23/22
Project: AT&T 2019-054, F&BI 209399

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 10/06/22
Date Received: 09/23/22
Project: AT&T 2019-054, F&BI 209399

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

Laboratory Code: Laboratory Control Sample

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

Date of Report: 10/06/22
Date Received: 09/23/22
Project: AT&T 2019-054, F&BI 209399

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

Laboratory Code: 209010-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	10	<0.35	104	50-150
Toluene	ug/L (ppb)	10	<1	98	50-150
Ethylbenzene	ug/L (ppb)	10	<1	92	50-150
m,p-Xylene	ug/L (ppb)	20	<2	100	50-150
o-Xylene	ug/L (ppb)	10	<1	93	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	ug/L (ppb)	10	105	108	70-130	3
Toluene	ug/L (ppb)	10	100	103	70-130	3
Ethylbenzene	ug/L (ppb)	10	94	97	70-130	3
m,p-Xylene	ug/L (ppb)	20	103	106	70-130	3
o-Xylene	ug/L (ppb)	10	96	99	70-130	3

Date of Report: 10/06/22
Date Received: 09/23/22
Project: AT&T 2019-054, F&BI 209399

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)
Naphthalene	ug/L (ppb)	5	53 vo	64	62-97	19
2-Methylnaphthalene	ug/L (ppb)	5	56 vo	67	64-101	18
1-Methylnaphthalene	ug/L (ppb)	5	57 vo	67	64-93	16
Acenaphthylene	ug/L (ppb)	5	71	77	70-130	8
Acenaphthene	ug/L (ppb)	5	68 vo	75	70-130	10
Fluorene	ug/L (ppb)	5	76	85	70-130	11
Phenanthrene	ug/L (ppb)	5	81	86	70-130	6
Anthracene	ug/L (ppb)	5	82	87	70-130	6
Fluoranthene	ug/L (ppb)	5	87	94	70-130	8
Pyrene	ug/L (ppb)	5	84	87	70-130	4
Benz(a)anthracene	ug/L (ppb)	5	85	91	70-130	7
Chrysene	ug/L (ppb)	5	88	94	70-130	7
Benzo(a)pyrene	ug/L (ppb)	5	84	92	70-130	9
Benzo(b)fluoranthene	ug/L (ppb)	5	82	93	70-130	13
Benzo(k)fluoranthene	ug/L (ppb)	5	84	93	70-130	10
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	94	105	70-130	11
Dibenz(a,h)anthracene	ug/L (ppb)	5	92	102	70-130	10
Benzo(g,h,i)perylene	ug/L (ppb)	5	93	101	70-130	8

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

2093999

SAMPLE CHAIN OF CUSTODY

09-23-22

E04 | VW3 | AT3

Page # 1 of

Report To Craig Haltgren

Company HydroCon

Address 314 W 15th St Suite 300

City, State, ZIP Vancouver WA 98660

Phone Email

SAMPLERS (signature)

PROJECT NAME
ATT
2019-054

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

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

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

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8260D	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270 SIM	PCBs EPA 8082	DRO AK102	RRO AK103	Chloride		Notes
MW01-W	01 A-F	9-22-22	1130	W	6			X			X		X	X	X		
MW000-W	02	9-22-22	1130 1205	W	6			X			X		X	X	X		
MW02-W	03	9-22-22	1205 1240	W	6			X			X		X	X	X		
MW03-W	04	9-22-22	1240	W	6			X			X		X	X	X		
MW04-W	05	9-22-22	1315	W	6			X			X		X	X	X		
MW05-W	06	9-22-22	1350	W	6			X			X		X	X	X		
Seep 1	07	9-23-22	0635		6			X			X		X	X	X		
Seep 2	08		0655		6			X			X		X	X	X		
Seep 100	09		0640		6			X			X		X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Craig Haltgren	Hydrocon	9/23/22	
Received by:	AMMB	FXB	9/23/22	1930
Relinquished by:				
Received by:				

Samples received at 6°C

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

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Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 209399
Work Order Number: 2209346

October 04, 2022

Attention Michael Erdahl:

Fremont Analytical, Inc. received 9 sample(s) on 9/26/2022 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes
Project Manager

Date: *10/04/2022*

CLIENT: Friedman & Bruya
Project: 209399
Work Order: 2209346

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2209346-001	MW01-W	09/22/2022 11:30 AM	09/26/2022 2:35 PM
2209346-002	MW100-W	09/22/2022 11:30 AM	09/26/2022 2:35 PM
2209346-003	MW02-W	09/22/2022 12:05 PM	09/26/2022 2:35 PM
2209346-004	MW03-W	09/22/2022 12:40 PM	09/26/2022 2:35 PM
2209346-005	MW04-W	09/22/2022 1:15 PM	09/26/2022 2:35 PM
2209346-006	MW05-W	09/22/2022 1:50 PM	09/26/2022 2:35 PM
2209346-007	Seep 1	09/23/2022 6:35 AM	09/26/2022 2:35 PM
2209346-008	Seep 2	09/23/2022 6:55 AM	09/26/2022 2:35 PM
2209346-009	Seep 100	09/23/2022 6:40 AM	09/26/2022 2:35 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **2209346**
Date: **10/4/2022**

CLIENT: Friedman & Bruya
Project: 209399

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
DUP - Sample Duplicate
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MCL - Maximum Contaminant Level
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
REP - Sample Replicate
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

CLIENT: Friedman & Bruya
Project: 209399

Lab ID: 2209346-001 **Collection Date:** 9/22/2022 11:30:00 AM
Client Sample ID: **MW01-W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	85.4	5.00	D	mg/L	50	10/3/2022 9:23:00 PM

Lab ID: 2209346-002 **Collection Date:** 9/22/2022 11:30:00 AM
Client Sample ID: **MW100-W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	86.4	5.00	D	mg/L	50	10/3/2022 9:46:00 PM

Lab ID: 2209346-003 **Collection Date:** 9/22/2022 12:05:00 PM
Client Sample ID: **MW02-W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	9.30	1.00	D	mg/L	10	9/30/2022 8:31:00 PM

Lab ID: 2209346-004 **Collection Date:** 9/22/2022 12:40:00 PM
Client Sample ID: **MW03-W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	4.57	1.00	D	mg/L	10	9/30/2022 8:54:00 PM

CLIENT: Friedman & Bruya
Project: 209399

Lab ID: 2209346-005 **Collection Date:** 9/22/2022 1:15:00 PM
Client Sample ID: **MW04-W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	557	100	D	mg/L	1000	10/4/2022 10:07:00 AM

Lab ID: 2209346-006 **Collection Date:** 9/22/2022 1:50:00 PM
Client Sample ID: **MW05-W** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	11,900	1,000	D	mg/L	10000	10/4/2022 10:30:00 AM

Lab ID: 2209346-007 **Collection Date:** 9/23/2022 6:35:00 AM
Client Sample ID: **Seep 1** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	11,900	1,000	D	mg/L	10000	10/4/2022 10:53:00 AM

Lab ID: 2209346-008 **Collection Date:** 9/23/2022 6:55:00 AM
Client Sample ID: **Seep 2** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	7,080	500	D	mg/L	5000	10/4/2022 11:17:00 AM

Analytical Report

Work Order: **2209346**
Date Reported: **10/4/2022**

CLIENT: Friedman & Bruya
Project: 209399

Lab ID: 2209346-009
Client Sample ID: **Seep 100**
Collection Date: 9/23/2022 6:40:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 38003		Analyst: ALT
Chloride	8,990	1,000	D	mg/L	10000	10/4/2022 11:40:00 AM

Work Order: 2209346
CLIENT: Friedman & Bruya
Project: 209399

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID: **MB-38003**	SampType: **MBLK**			Units: **mg/L**		Prep Date: **9/30/2022**		RunNo: **78747**		
Client ID: **MBLKW**	Batch ID: **38003**					Analysis Date: **9/30/2022**		SeqNo: **1620239**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.100									

Sample ID: **LCS-38003**	SampType: **LCS**			Units: **mg/L**		Prep Date: **9/30/2022**		RunNo: **78747**		
Client ID: **LCSW**	Batch ID: **38003**					Analysis Date: **9/30/2022**		SeqNo: **1620240**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.754	0.100	0.7500	0	101	90	110				

Sample ID: **2209346-006ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **9/30/2022**		RunNo: **78747**		
Client ID: **MW05-W**	Batch ID: **38003**					Analysis Date: **9/30/2022**		SeqNo: **1620247**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	1.00						0		20	D

Sample ID: **2209474-001ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **9/30/2022**		RunNo: **78747**		
Client ID: **BATCH**	Batch ID: **38003**					Analysis Date: **10/1/2022**		SeqNo: **1620193**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	17.1	1.00						17.09	0.292	20	D

Sample ID: **2209474-001AMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **9/30/2022**		RunNo: **78747**		
Client ID: **BATCH**	Batch ID: **38003**					Analysis Date: **10/1/2022**		SeqNo: **1620194**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	24.9	1.00	7.500	17.09	105	80	120				D

Sample Log-In Check List

Client Name:	FB	Work Order Number:	2209346
Logged by:	Gabrielle Coeuille	Date Received:	9/26/2022 2:35:00 PM

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No	☐	Not Present ☐
2.	How was the sample delivered?	Client				

Log In

3.	Coolers are present?	Yes	☑	No	☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes	☑	No	☐	
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No	☐	Not Present ☑
6.	Was an attempt made to cool the samples?	Yes	☑	No	☐	NA ☐
7.	Were all items received at a temperature of >2°C to 6°C *	Yes	☑	No	☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes	☑	No	☐	
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No	☐	
10.	Are samples properly preserved?	Yes	☑	No	☐	
11.	Was preservative added to bottles?	Yes	☐	No	☑	NA ☐
12.	Is there headspace in the VOA vials?	Yes	☐	No	☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No	☐	
14.	Does paperwork match bottle labels?	Yes	☑	No	☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No	☐	
16.	Is it clear what analyses were requested?	Yes	☑	No	☐	
17.	Were all holding times able to be met?	Yes	☑	No	☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No	☐	NA ☑

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample 1	5.3

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

2209346

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 merdahl@friedmanandbruya.com

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
209399	C-375

REMARKS

TURNAROUND TIME
- ☒ Standard TAT
- ☐ 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	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	Chloride							Notes
MW01-W		9/22/22	1130	W	1				x							
MW100-W			1130		1				x							
MW02-W			1205		1				x							
MW03-W			1240		1				x							
MW04-W			1315		1				x							
MW05-W			1350		1				x							
Seep 1		9/23/22	0635		1				x							
Seep 2			0655		1				x							
Seep 100			0640		1				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:		Michael Erdahl	Friedman & Bruya	9/26/22	0828
Received by:	Katherine Porter	Katherine Porter	Fremont Analytical	9/26	14:35
Relinquished by:					
Received by:					

APPENDIX E

LAB DATA REVIEW CHECKLIST

Laboratory Data Review Checklist

Completed By:

HydroCon Environmental LLC, Craig Hultgren

Title:

Principal Geologist/Vice President

Date:

October 13, 2022

CS Report Name:

AP&T 2019-54, F&BI 209399

Report Date:

October 6, 2022

Consultant Firm:

HydroCon Environmental LLC

Laboratory Name:

Friedman & Bruya, Inc.

Laboratory Report Number:

209399

ADEC File Number:

1504.38.009

Hazard Identification Number:

2385

209399

1. Laboratory

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

   ◉ Yes ○ No Comments:

Friedman & Bruya, Inc. (FB&I)

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

   ◉ Yes ○ No Comments:

Chloride samples were sent to Fremont Analytical (Fremont; Seattle, WA) for analysis.

2. Chain of Custody (CoC)

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

   ◉ Yes ○ No Comments:

   b. Correct Analyses requested?

   ◉ Yes ○ No Comments:

3. Laboratory Sample Receipt Documentation

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

   ◉ Yes ○ No Comments:

Samples received at 6°C (F&BI) and 5.3°C (Fremont).

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

   ◉ Yes ○ No Comments:

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

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

   ○ Yes ◉ No Comments:

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

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

○ Yes ○ No Comments:

Not applicable.

e. Data quality or usability affected?

Comments:

Data quality and usability not affected.

4. Case Narrative

a. Present and understandable?

◉ Yes ○ No Comments:

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

◉ Yes ○ No Comments:

(FB&I) – The case narrative noted that several compounds in the 8270E laboratory control sample failed the acceptance criteria; data were flagged accordingly.

c. Were all corrective actions documented?

○ Yes ◉ No Comments:

Not applicable.

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

Comments:

No impact to data quality/usability.

5. Samples Results

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

◉ Yes ○ No Comments:

b. All applicable holding times met?

◉ Yes ○ No Comments:

c. All soils reported on a dry weight basis?

○ Yes ◉ No Comments:

Not applicable – water samples.

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

◉ Yes ○ No Comments:

e. Data quality or usability affected?

○ Yes ◉ No Comments:

6. QC Samples

a. Method Blank

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

◉ Yes ○ No Comments:

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

◉ Yes ○ No Comments:

iii. If above LOQ, what samples are affected?

Comments:

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

○ Yes ○ No Comments:

v. Data quality or usability affected?

Comments:

Data quality/usability not affected.

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:

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:

Several compounds in the 8270E laboratory control sample failed the acceptance criteria. Percent recoveries for naphthalene, 2-methylnaphthalene, 1-methylnaphthalene, and acenaphthene were below their respective lower control limts.

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:

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

Comments:

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

(●) Yes ( ) No Comments:

Affected sample results were flagged accordingly in the lab report.

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

Comments:

Data quality/usability not affected. All sample results for naphthalene, 2-methylnaphthalene, 1-methylnaphthalene, and acenaphthene should be considered estimated (J/UJ qualified) based on low percent recoveries in the laboratory control sample.

c. Surrogates – Organics Only

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

(●) Yes ( ) No Comments:

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

(●) Yes ( ) No Comments:

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

( ) Yes (●) No Comments:

Not applicable.

iv. Data quality or usability affected?

Comments:

Data quality/usability not affected.

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

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

( ) Yes (●) No Comments:

No trip blank submitted for analysis.

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

( ) Yes (●) No Comments:

Not applicable.

iii. All results less than LOQ?

( ) Yes (●) No Comments:

Not applicable.

iv. If above LOQ, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

Data quality/usability not affected.

e. Field Duplicate

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

◉ Yes ○ No Comments:

Parent/Field Duplicate Samples:

- MW01-W / MW100-W
- Seep 1 / Seep 100

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:

The RRO RPD for MW01-W/MW100-W was 60%.

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

Comments:

Data quality/usability not affected. The RRO results for MW01-W and MW100-W should be estimated based on relative percent difference exceedances.

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

○ Yes ○ No ◉ Not Applicable

Dedicated sampling equipment used at each location.

209399

i. All results less than LOQ?

○ Yes ○ No Comments:

ii. If above LOQ, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

Data quality/usability not affected.

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

a. Defined and appropriate?

◉ Yes ○ No Comments:

Results for RRO using method AK 103 for samples MW01-W, MW100-W, and MW-4-W, and results for DRO using method AK 102 for samples MW01-W, MW100-W, MW02-W, MW03-W, and MW04-W were given the lab qualifier "x" defined as –"The sample chromatographic pattern does not resemble the fuel standard used for quantitation." These results should be considered estimated.

ATTACHMENT F

ABEL HOUSE INSPECTION, INVENTORY, QUESTIONNAIRE, AND PHOTO DOCUMENTATION

MEMORANDUM

DATE: **December 8, 2022**

TO: **James Baumgartner, Cody Schwegel**

FROM: **Mark Storm**

SUBJECT: **Craig Power Plant Site Characterization, Abel property building survey**

This memo serves as the summary project report of my activities to conduct a building survey for volatile organic compounds in the Abel residence adjacent Alaska Power and Telephone, Inc.'s (AP&T) Craig Generation Station. I conducted this work under AP&T task order #21868 to assist AP&T's environmental consultant, HydroCon, Inc. (HydroCon) as part of their work to characterize the overall site.

Description of Work

This work is component of a greater effort by HydroCon to characterize the Craig powerhouse site to evaluate and characterize environmental conditions resulting from a past diesel fuel spill(s) at the AP&T's Craig powerhouse site. HydroCon was onsite in September 2022 to conduct fieldwork as part of their effort. Part of that work was to conduct a building survey of the house which is located adjacent to and immediately north of the powerhouse site. HydroCon was not able to contact the building's owner before or during their September site visit and, as such, was unable to enter the building to perform the work. AP&T then retained Keta Engineering (KE) of Craig, Alaska to perform the building survey to assist Hydrocon in their work.

Prior to the actual survey, the work involved review of Alaska Department of Environmental Conservation (ADEC) guidelines for building surveys, participation of a remote meeting with AP&T and HydroCon to discuss the work, locating and contacting the building owner, Mr. Tom Abel, obtaining permission from Mr. Abel to enter the building and conduct the survey, renting a photoionization meter (PID) for detecting the presence of volatile organic compounds (VOCs) in gaseous phase and making shipping arrangements to have the meter delivered to Craig. A trial use of the PID was also performed in order to become familiar with the instrument and its use prior to performing the actual survey.

The meter was delivered to AP&T's Ketchikan office on the afternoon of Monday, December 5th. AP&T forwarded the instrument to Prince of Wales Island via Island Air Express (IAX)

while KE conducted a building walk through of the Abel residence to look for possible complications to the survey. After the walk through was complete, KE picked up the PID meter, a MiniRAE 3000 model, at approximately 6:00PM from IAX in Klawock, Alaska.

After familiarization with the PID, KE entered Mr. Abel's residence to conduct the building survey at 09:55 A.M. on December 6. Mr. Abel was not present for the survey. Per Mr. Abel, the building is not occupied other than during occasional visits to check on the property. It has been several years since the building was occupied as a full-time residence.

The survey found no sources of potential contamination such as solvents or paint inside the building. Some household cleaners, e.g., glass cleaner, a "Simple Green" type cleaning agent, and ammonia, were stored on a kitchen shelf and a 1-gallon jug of household bleach and abrasive cleaners were stored in the bathroom (see photos). The PID was used throughout all rooms and registered 0.0 ppm VOC everywhere inside the building (No VOCs detected).

Outside the building a 300-gallon (estimated) above-ground fuel tank is situated next to a 420 lb. propane tank along the building's east exterior (see photos). A second above-ground fuel tank of similar size was observed along the building's west exterior wall under a covered canopy. This second tank appears to be not in use. Two small red plastic fuel jugs, like those commonly used to store gasoline for small engines, were observed sitting on the ground under the second tank. The PID meter was used around the perimeter of the building's exterior to check for VOCs. The meter read 0.0 ppm throughout the entire perimeter (No VOCs detected).

Weather conditions at the time of the survey were an air temperature of approximately 36°F with overcast skies and light rain with a southeast wind of approximately 10-15 knots. Temperature inside the Abel residence was 75°F at the beginning of the survey and approximately 72°F at the end of the survey (Mr. Abel had asked me to check the temperature of the building and I lowered the thermostat setting to approximately 60°F at his request).

The survey was complete at 10:50 A.M. The meter was then packaged for shipment and delivered to IAX who delivered it to AP&T's Ketchikan office. AP&T shipped the instrument back to the rental company (In-Situ, Inc.) the following morning via Federal Express.

Detailed results of the building survey can be seen on the attached Building Survey report. Photos of the Abel property are also included with this transmittal.

ALASKA DEPARTMENT OF ENVIRONMENAL CONSERVATION
BUILDING INVENTORY AND INDOOR AIR SAMPLING QUESTIONNAIRE

This form should be prepared by a person familiar with indoor air assessments with assistance from a person knowledgeable about the building. Complete this form for each building in which interior samples (e.g., indoor air, crawl space, or subslab soil gas samples) will be collected. Section I of this form should be used to assist in choosing an investigative strategy during work-plan development. Section II should be used to assist in identification of complicating factors during a presampling building walkthrough.

Preparer's Name Mark Storm Date/Time Prepared Dec 6 2022

Preparer's Affiliation Consultant Phone No. (907)401-1124

Purpose of Investigation Site Characterization

SECTION I: BUILDING INVENTORY

1. OCCUPANT OR BUILDING PERSONNEL:

Interviewed: Y / N

Last Name _____ First Name _____

Address _____

County _____

Phone No. _____

Number of Occupants/persons at this location 0 Age of Occupants _____

2. OWNER or LANDLORD: (Check if same as occupant ____)

Interviewed: Y / N

Last Name Abel First Name Tom

Address Hoonah, Alaska

County N/A

Phone No. (907) 209-4660

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

(Residential) Industrial School Church Commercial/Multi-use Other _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
(Modular)	Log Home	(Other) Floathouse skidded ashore

If multiple units, how many? N/A

If the property is commercial, type?

Business Types(s)_____

Does it include residences (i.e., multi-use)? Y / N If yes, how many?_____

Other characteristics:

Number of floors 1 Building age unknown

Is the building insulated? (Y) N How air tight? Tight / (Average) / Not Tight

Have occupants noticed chemical odors in the building? Y (N)

If yes, please describe:_____

4. **AIRFLOW**

Use air current tubes, tracer smoke, or knowledge about the building to evaluate airflow patterns and qualitatively describe:

Airflow between floors
N/A (single story)

Airflow in building near suspected source
Minor. Some air currents will result from direct vent heater.

Outdoor air infiltration
Minor. Could occur if window or door is left open but unlikely for long periods due to climate.

Infiltration into air ducts N/A.

5. **BASEMENT AND CONSTRUCTION CHARACTERISTICS** (Circle all that apply)

a. Above grade construction: (wood frame) log concrete brick

(constructed on pilings with enclosed air space) constructed on pilings with open air space

b. Basement type: full (crawlspace) slab-on-grade other_____

c. Basement floor: concrete dirt stone other _____

d. Basement floor: unsealed sealed sealed with_____

e. Foundation walls: poured block stone (other) plywood skirting only

f. Foundation walls: (unsealed) sealed sealed with _____

g. The basement is: wet damp dry

h. The basement is: finished unfinished partially finished } Not observed due to skirting

i. Sump present? Y / N

j. Water in sump? Y / N / not applicable

Basement/Lowest level depth below grade 0 (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

from under bldg. through normal cracks/joints.

6. **HEATING, VENTING and AIR CONDITIONING** (Circle all that apply)

Type of heating system(s) used in this building: (Circle all that apply – not primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other Direct Vent (Toyo Stove)

The primary type of fuel used is:

Natural Gas	(Fuel Oil)	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by Propane (On-demand H2O heater)

Boiler/furnace located in: Basement Outdoors (Main Floor) Other_____

Do any of the heating appliances have cold-air intakes? Y (N)

Type of air conditioning or ventilation used in this building: Windows

Central Air	Window units	Open Windows	(None)
Commercial HVAC	Heat-recovery system	Passive air system	

Are there air distribution ducts present? Y (N)

Describe the ventilation system in the building, its condition where visible, and the tightness of duct joints. Indicate the locations of air supply and exhaust points on the floor plan.

N/A

Is there a radon mitigation system for the building/structure? Y (N) Date of Installation_____

Is the system active or passive? Active/Passive

7. **OCCUPANCY**

Is basement/lowest level occupied? Full-time Occasionally Seldom (Almost Never)

Level	**General Use of Each Floor (e.g. family room, bedroom, laundry, workshop, storage)**
Basement	N/A
1st Floor	family, bathroom, kitchen, bedroom (2), storage
2nd Floor	N/A
3rd Floor	N/A

8. **WATER AND SEWAGE**

Water Supply:	(Public Water)	Drilled Well	Driven Well	Dug Well	Other_____
Sewage Disposal:	(Public Sewer)	Septic Tank	Leach Field	Dry Well	Other_____

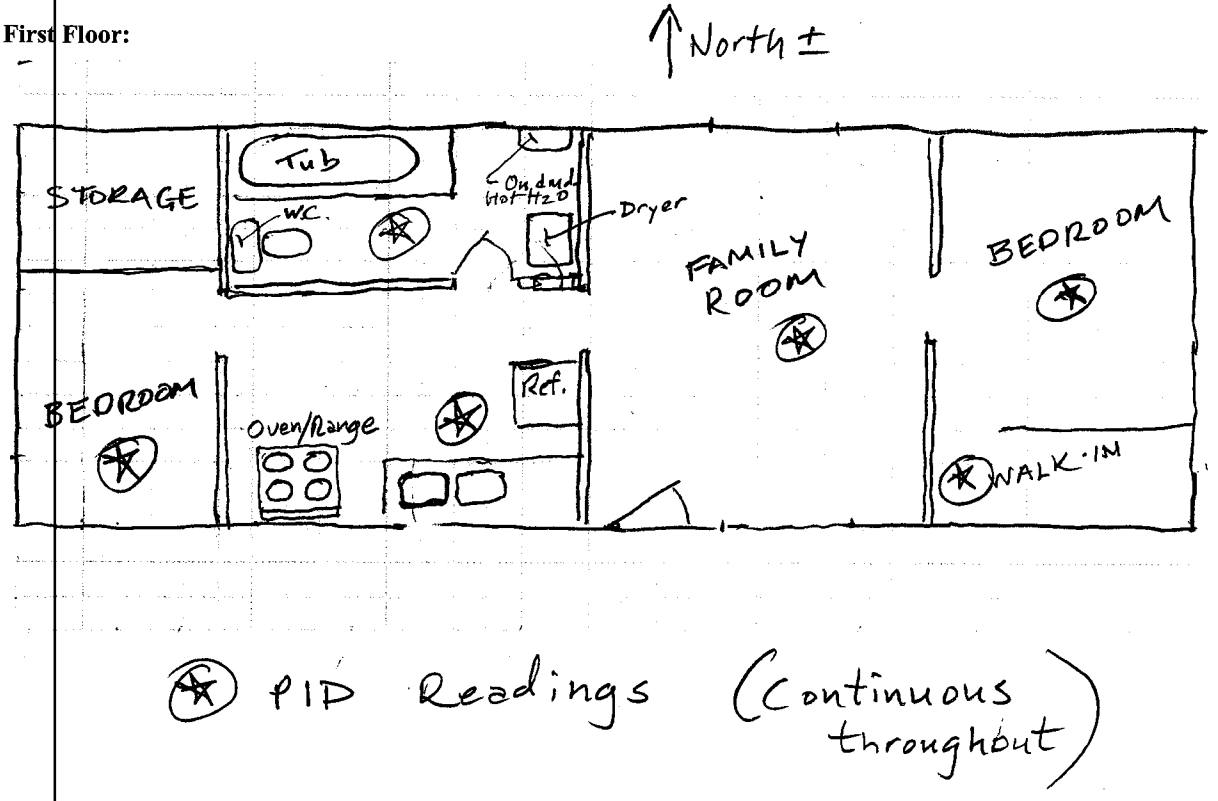
9. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

N/A

First Floor:



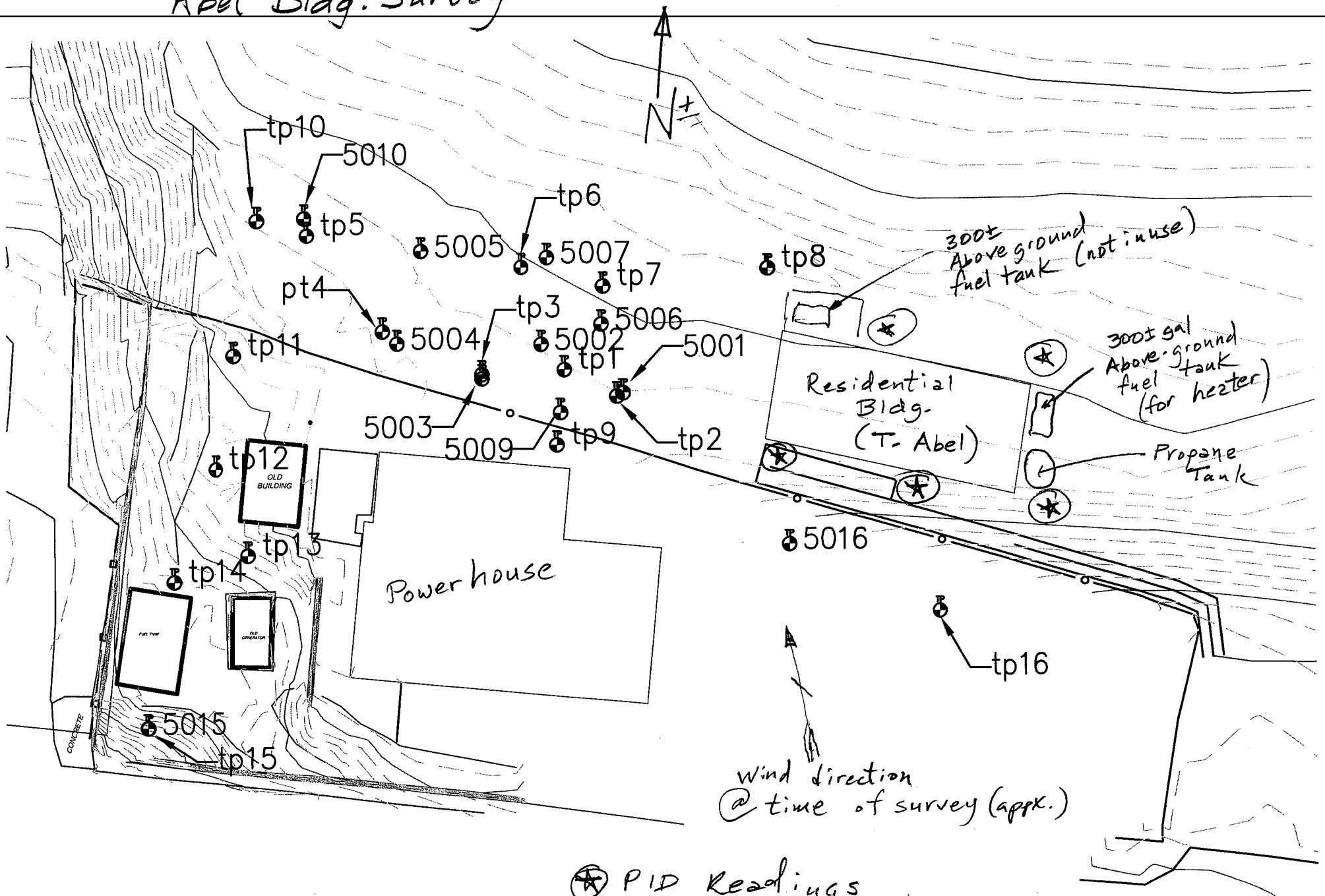
10. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

See attached

10. Outdoor Plot
Abel Bldg. Survey



★ PID Readings
Continuous around perimeter of bldg.

SECTION II: INDOOR AIR SAMPLING QUESTIONNAIRE

This section should be completed during a presampling walkthrough. If indoor air sources of COCs are identified and removed, consider ventilating the building prior to sampling. However, ventilation and heating systems should be operating normally for 24 hours prior to sampling.

a) **1. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY**

Is there an attached garage? Y (N)

Does the garage have a separate heating unit? Y / N (NA)

Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car) Y / N (NA)

Please specify_____

Has the building ever had a fire? Y (N) When?_____

Is a kerosene or unvented gas space heater present? Y (N) Where?_____

Is there a workshop or hobby/craft area? Y (N) Where & Type_____

Is there smoking in the building? Y (N) How frequently?_____

Has painting/staining been done in the last 6 months? Y (N) Where & When?_____

Is there new carpet, drapes or other textiles? Y (N) Where & When?_____

Is there a kitchen exhaust fan? Y (N) If yes, where vented?_____

Is there a bathroom exhaust fan? Y (N) If yes, where vented?_____

Is there a clothes dryer? (Y) N If yes, is it vented outside? Y / N to basement thru skirting

Are cleaning products, cosmetic products, or pesticides used that could interfere with indoor air sampling? (Y / N) Possible?

If yes, please describe Simple Green, Amonia

_____

_____

Do any of the building occupants use solvents at work? Y / N Bldg. Not occupied.

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used?_____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No Not occupied

Yes, use dry-cleaning infrequently (monthly or less) Unknown

Yes, work at a dry-cleaning services

2. **PRODUCT INVENTORY FORM** (For use during building walkthrough)

Make & Model of field instrument used MiniRAE 3000 PID meter

List specific products found in the residence that have the potential to affect indoor air quality:

Location	Product Description	Site (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N
Kitchen	Amonia	Gal.	U		0.0	Y
Kitchen	GreenWorks Cleaner	qt.	U		0.0	Y
"	Lysol dis	qt.	U		0.0	Y
"	Glass Cleane	qt.	U		0.0	Y
"	"	qt	U		0.0	Y
bath	Bleach	gal	U		0.0	Y
"	Bon Ami	14 oz	U		0.0	Y
"	Comet	14 oz	U		0.0	Y

* Describe the condition of the product containers **as Unopened (UO), Used (U),** or **Deteriorated (D)**

** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

This form modified from:

ITRC (Interstate Technology & Regulatory Council). 2007. *Vapor Intrusion Pathway: A Practical Guideline.* VI-1. Washington, D.C.: Interstate Technology & Regulatory Council, Vapor Intrusion Team. www.itrcweb.org.

PHOTO 1
Active HOT and Propane Tank.

PHOTO 2
Batroom cleaning agents.

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

DATE: 12-12-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE 1
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

PHOTO 3
Household cleaning agents.

PHOTO 4
Inactive Heating OIl Tank.

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PHOTOPLATE 2
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

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PHOTO 5
PID.

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PHOTOPLATE 3
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

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