Groundwater Monitoring Report – September 2021

ADEC File No. 1504.38.009
Hazard ID: 2385
Craig Power Plant
Craig, Alaska

HydroCon Project Number: 2019-054

Prepared for:

Alaska Power and Telephone
P.O. Box 39
Craig, Alaska 99921

August 11, 2022

Prepared by:

HydroCon, LLC
314 W 15th Street, Suite 300 Vancouver, Washington 98660
Phone: (360) 703-6079 Fax: (360) 703-6086
www.hydroconllc.net

Table of Contents

FIGURES

TABLES

APPENDICES

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 (ADEC Method 2 - >40” cleanup)
DRO	diesel range organics
GAC	Granular activated carbon
GRO	gasoline range organics
HASP	Health and Safety Plan
HydroCon	HydroCon Environmental LLC
mg/kg	milligram per kilogram
mg/L	Milligrams per liter
MRL	method reporting limit
OSHA	Occupational Safety and Health Administration
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
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 30, 2021.

2.0 BACKGROUND

This section provides a general description of the property.

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 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 the 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 on the east of the main building 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. See photos in Appendix A. 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[1]. Sampling locations from previous studies are shown on Figure 2.

1985 Release

A reported diesel release from the day tank inside the Power Plant occurred in 1985[2]. 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 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).

1994 Phase II

Hart Crowser (1994) conducted a Phase II Environmental Assessment 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 4)[3]. 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

[1] https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/2385
[2] Greg Mickelson, *hand written note documenting the release*, 1985
[3] Hart Crowser, *Phase II Environmental Site Assessment*, October 5, 1994

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

This Hart Crowser investigation (1995) included the installation of 13 soil borings, one temporary well (TW-1), and installing six permanent monitoring wells[4]. 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. 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 and higher concentrations (744, 115, and 470 mg/Kg) were 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-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 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.

[4] Hart Crowser, *Release Investigation Report, Craig Power Plant, Craig, Alaska*, August 1995

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 1,000-gallon 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 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 hydrocarbon-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 60s or 70s 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.

No building survey questionnaire has been completed for a structure located on the property. The structure, a trespass float house has been occupied, although its current occupation status is unknown. The City property zoning is Marine Industrial.

2018 Site Characterization

In December 2018, R&M Engineering – Ketchikan, Inc. (R&M) was contracted to conduct a site characterization investigation[5]. 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 samples were collected in each test pit, described, and screened with a PID. One soil sample was collected 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 soil characteristics were 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 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.

[5] 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 tide 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[6].

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.

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 delineated by previous investigations. R&M's (2018) *Soil Investigation Site Map* (Appendix A) shows both the 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.

Based on the ingestion pathway (8,250 mg/Kg for DRO), Figure 4 shows the extent of DRO in soil from previous investigation based on this CUL and shows an area of approximately 1,000

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

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 (Table 1). RRO concentrations ranged up to 978 mg/L. All detections exceeded ADEC Table C groundwater CULs.

3.0 2020 WORKPLAN

HydroCon prepared a draft workplan to perform additional groundwater characterization at the site. The workplan was approved by ADEC[7] prior to initiating fieldwork. Tasks included in the work include the following:

- Provide information (photos, maps) with the locations and status of any drainage pipes.
- Provide information regarding the presence or absence of a septic leach field and whether it may be connected to drains in the power plant building.
- Provide information and photos of the relic generator, the cooling tower, the 10,000-gallon AST, the neighboring trailer home and AST, the day tank inside the power plant, the day tank inside the generator trailer, and the waste oil tank.
- Replace the monitoring well network with new 2-inch diameter monitoring wells.
- Perform a round of groundwater monitoring after the wells have been installed and developed.
- Survey the top of the well casing at each well so that the elevation of the water table can be measured and a groundwater elevation contour plot prepared.

3.1 Deviations from Work Plan

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. This represents a deviation of the work plan as a consultant is typically on site when wells are being installed. HydroCon coordinated with GeoTek to work closely when the drilling took place.

[7] ADEC, *ADEC Approval of "Draft Supplemental Site Characterization Work Plan Craig Power Plant dated February 19, 2020"*, May 15, 2020.
[8] HydroCon*, Monitoring Well Installation and Abandonment – Craig Power Plant / Craig, Alaska*, September 8, 2020.

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 are included in Appendix A. 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 (Appendix A). 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 attached boring logs to say "potential" sheen.

Each well was drilled to a depth of 15 feet bgs and completed as 2-inch diameter monitoring wells. See photos included in Appendix A. 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.

3.2 Data Gathering of Site Information

HydroCon visited the site in 2019 and 2021. Photographs were taken of site features including the relic generator, the "old" 10,000-gallon AST, the "new 10,000-gallon AST, 1,000-gallon day tank inside the facility, diesel generators, the house next door with the AST, and the welded steel containment where the 1985 release occurred. In addition, some historic photographs taken by R&M during the Site Characterization (Test Pit 1 showing a buried pipe and the sewer manhole next to Saan Sheet residence).

These photos are included in Appendix A. Some of these features are relics of the past and are no longer in use including the relic generator/cooling tower complex and the "old" 10,000-gallon AST.

HydroCon had a conversation with the operators of the Power Plant regarding current and historic site operations. The Power Plant facility does not have a bathroom and there's never been a septic system at the site. No evidence of an on-site septic system was discovered. The personnel use the bathroom at the maintenance building located across the street. The Saan Sheet house north of the Power Plant is plumbed to the city of Craig's sanitary sewer system.

An approximate 4-inch diameter perforated drain pipe was discovered in Test Pit 1 during the R&M subsurface investigation (Appendix A). The pipe appeared to be empty and it's unknown where it originated. On the east wall there is a rain gutter and down spout which drains into a PVC pipe routed under the concrete slab. No outfall was located. According to the crew that works at the Power Plant, there are no other floor or trench drains that they are aware of. All leaks that occur inside the facility reportedly gets spilled on the floor and is removed by vacuum. HydroCon arranged for an underground utility locate service prior to drilling the new monitoring wells. The locator was asked to look for any indication of metallic objects that their electromagnetic tooling could detect. The locator did not report any noteworthy signatures during the survey. It should be noted that there were several metallic objects on the ground

surface from historic site practices including cast iron parts, engine block, etc. It's possible that these objects created interference making detection of buried piping difficult using the traditional utility locate methods.

4.0 GROUNDWATER MONITORING

On May 15, 2020, ADEC approved the May 13, 2020 *Supplemental Site Characterization Work Plan Craig Power Plant*. HydroCon performed a groundwater monitoring event at the site on September 30, 2021. This sampling event represents the first time the newly installed monitoring wells have been sampled. Groundwater monitoring and sampling methodology and laboratory results is discussed below.

4.1 Groundwater 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.

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.

Field parameters (pH, temperature, and specific conductivity) 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 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

4.2 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.

4.3 Surveying

The vertical and horizontal coordinates of the of the new wells was surveyed relative to established datums in the area. The horizontal coordinates are relative to the North American Datum, 1983 (NAD83) and the vertical coordinates is relative to the North American Vertical Datum, 1988 (NAVD88). HydroCon notched the outside of the top of the PVC well casing on the north side of each well as a reference mark that will be used to measure depth to water from. The surveyors used this location on the top of the well casing to measure the casing elevation. The survey data has been recorded on the boring logs (Appendix D).

4.4 Groundwater Conditions and Groundwater Flow Direction

The water purged from the wells during groundwater sampling activities on September 30, 2021 was non-turbid. The water purged from MW-1 exhibited noticeable hydrocarbon odor and a slight sheen. There was no free product measured in any of the site monitoring wells.

Static water levels in the monitoring wells ranged from 0.71 to 7.96 feet below the top of the PVC well casing on September 30, 2021. This sampling event was performed during seasonal low water conditions. It was raining during the sampling event.

Monitoring well MW-2 does not have a monument installed over the well and it appeared that surface water had flowed over the top of the exposed bentonite seal. According to the well driller, the monument was not installed due to the presence of surface water drainage. The monument needs to be installed as soon as weather permits. The elevation of the groundwater in the wells was calculated using the elevation of the top of the casing (at the scribed reference mark) and subtracting the depth to water measurement (Table 1).

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 0.16 feet/foot.

4.5 Groundwater Analytical Results

The groundwater analytical results are reported as micrograms per liter (µg/L) and are

summarized on Tables 1 and 2 and shown on Figure 3. Copies of the laboratory reports are included in Appendix E.

4.5.1 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[9].

DRO was detected in each of the samples collected from the other wells 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.

BTEX was not detected in any sample above their respective MRLs. 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.

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 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 0.915 ug/L to 3.767 ug/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 3.590 ug/L to 6.442 ug/L which is below the maximum allowable TAqH of 15 ug/L.

4.6 Data Quality Review

HydroCon collected a duplicate water sample (MW-100-W) from monitoring well MW-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.

4.6.1 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 F). The

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

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

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

4.6.2 Review of Chromatograms

HydroCon requested a copy of the chromatograms from the laboratory (included in Appendix E). As discussed above, the laboratory assigned a data qualifier ("X") on some of the RRO sample results. HydroCon asked the project chemist (Mr. Eric Young) to review the chromatograms and answer the question that Ms. Rachael Petraeus (ADEC project manager) asked in her initial review of this DRAFT Groundwater Monitoring Report. *"Are there considerations of what could be in MW-01? For example: fish oil, mineral oil, dielectric fluid etc.?"*

Mr. Young's response: *"There is a small hump in the second half of the c-gram for those samples – the material eluting from ~4-6 minutes. That could be any of those things ADEC mentioned. Unfortunately, high boiling chromatography is not that great for specific oil IDs, so can't get much more exact than "could be"."*

5.0 DISCUSSION

The installation of 5 new monitoring wells was a success as the chronic problem of turbid samples generated from the historic site monitoring wells has been resolved. The results of the September 2021 sampling event indicate that residual petroleum contaminants from historic spills are still present in the subsurface. The concentration of DRO and RRO in monitoring well MW-1 exceeds their respective Method C CUL. One or more PAHs are present in all wells except MW-5 at very low concentrations and there's no BTEX in any well. 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.

6.0 RECOMMENDATIONS

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

- Perform a second groundwater monitoring event in September 2022 to obtain additional groundwater data from the newly installed monitoring wells.

- Install the well monument over MW-2. If surface water continues to be a problem, the well may have to be abandoned and redrilled at a higher elevation.
- 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.

7.0

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.

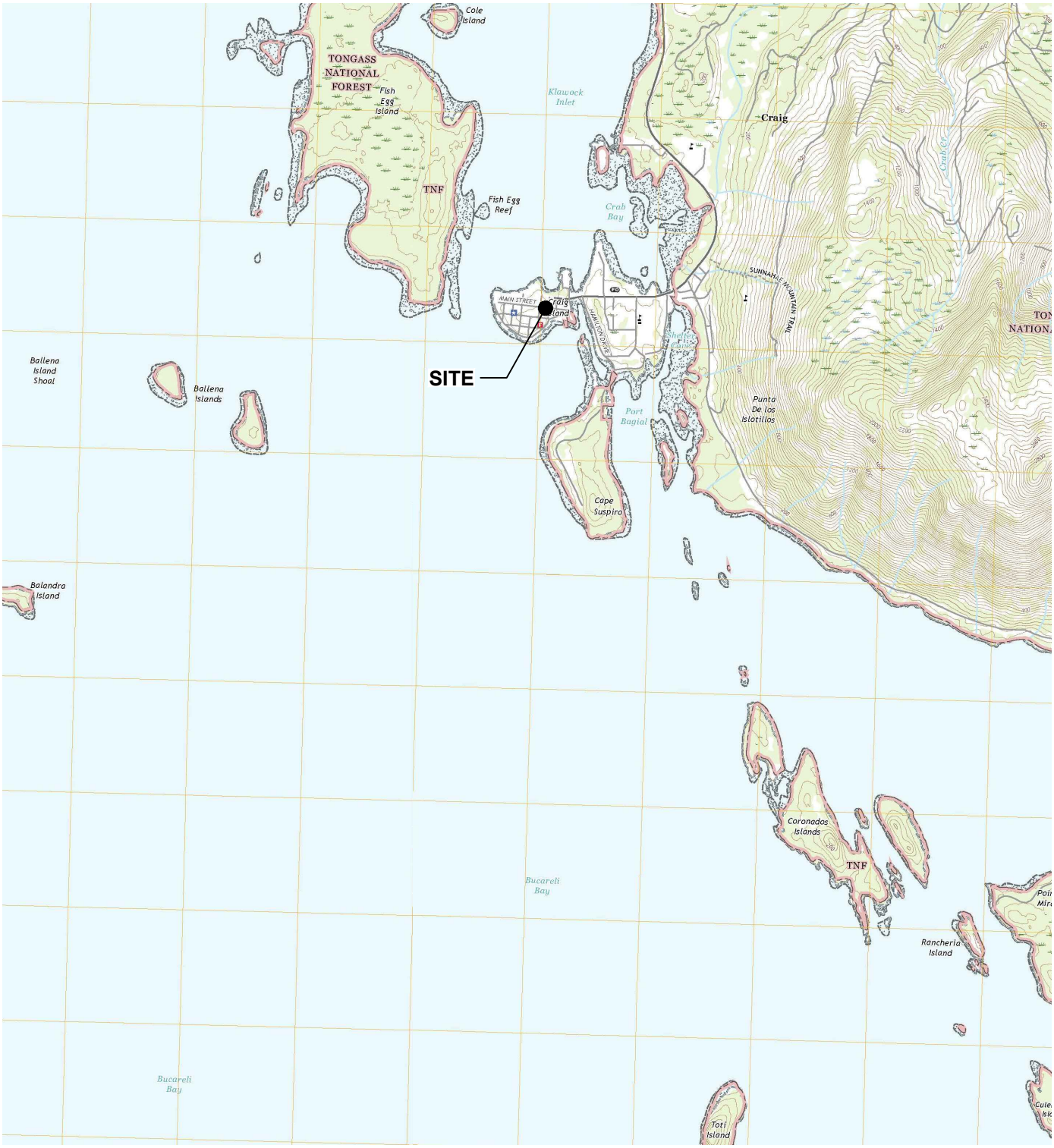
This report is intended for the sole use of **Alaska Power and Telephone**. This report may not be used or relied upon by any other party without the written consent of HydroCon. The scope of services performed in execution of this evaluation may not be appropriate to satisfy the needs of other users, 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

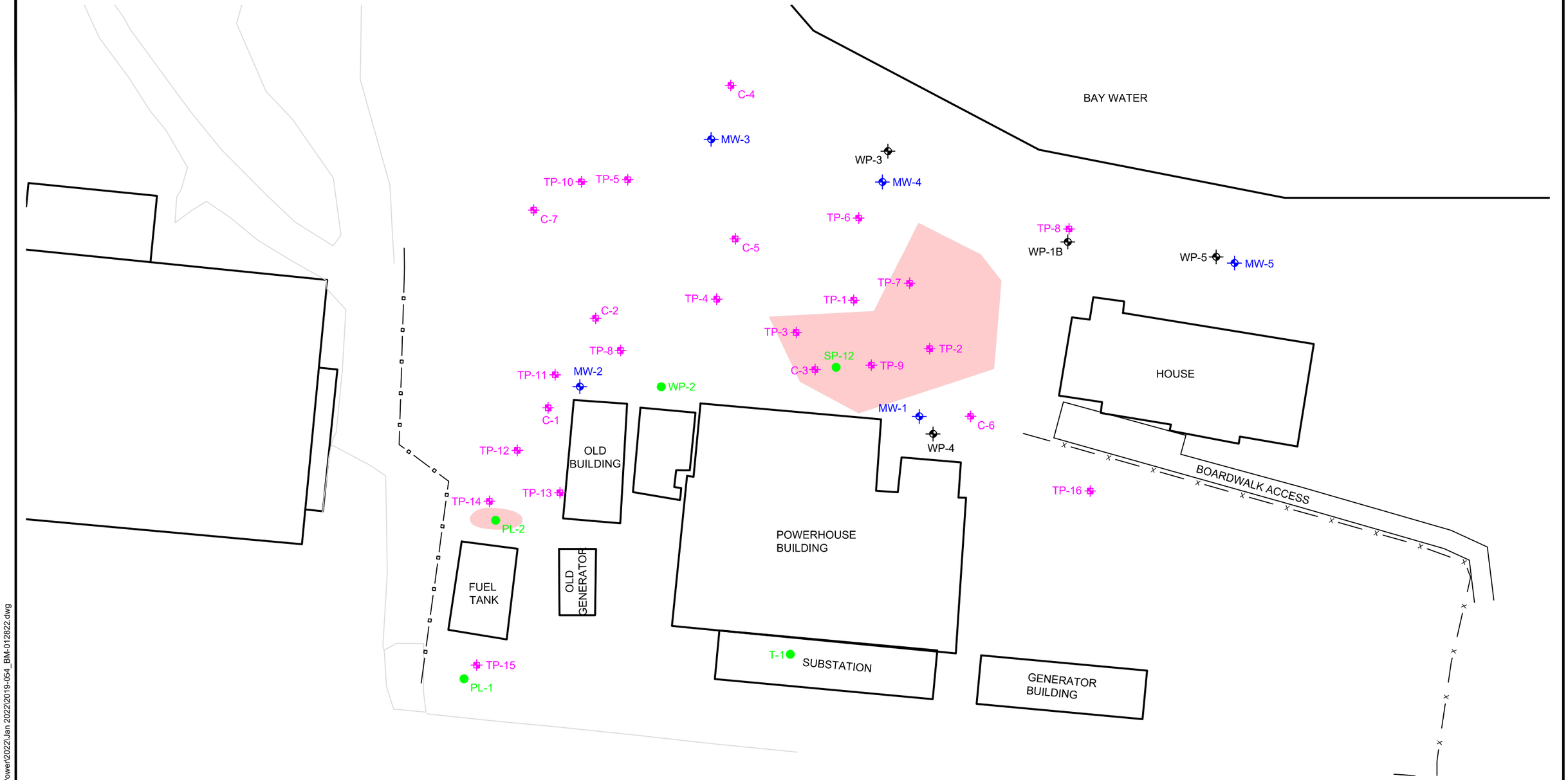
HydroCon
1339 Commerce Ave, Suite 211, Longview, Wa. 98632
Ph (360)-703-6086

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

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2019-054_BM-112519.dwg



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

N W E S

0 20 40

SCALE IN FEET
1" = 20'

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

DATE: 1-28-22
DWN: JJT
CHK: NV
APPROVED: NV
PRJ. MGR: CH
PROJECT NO: 2019-054

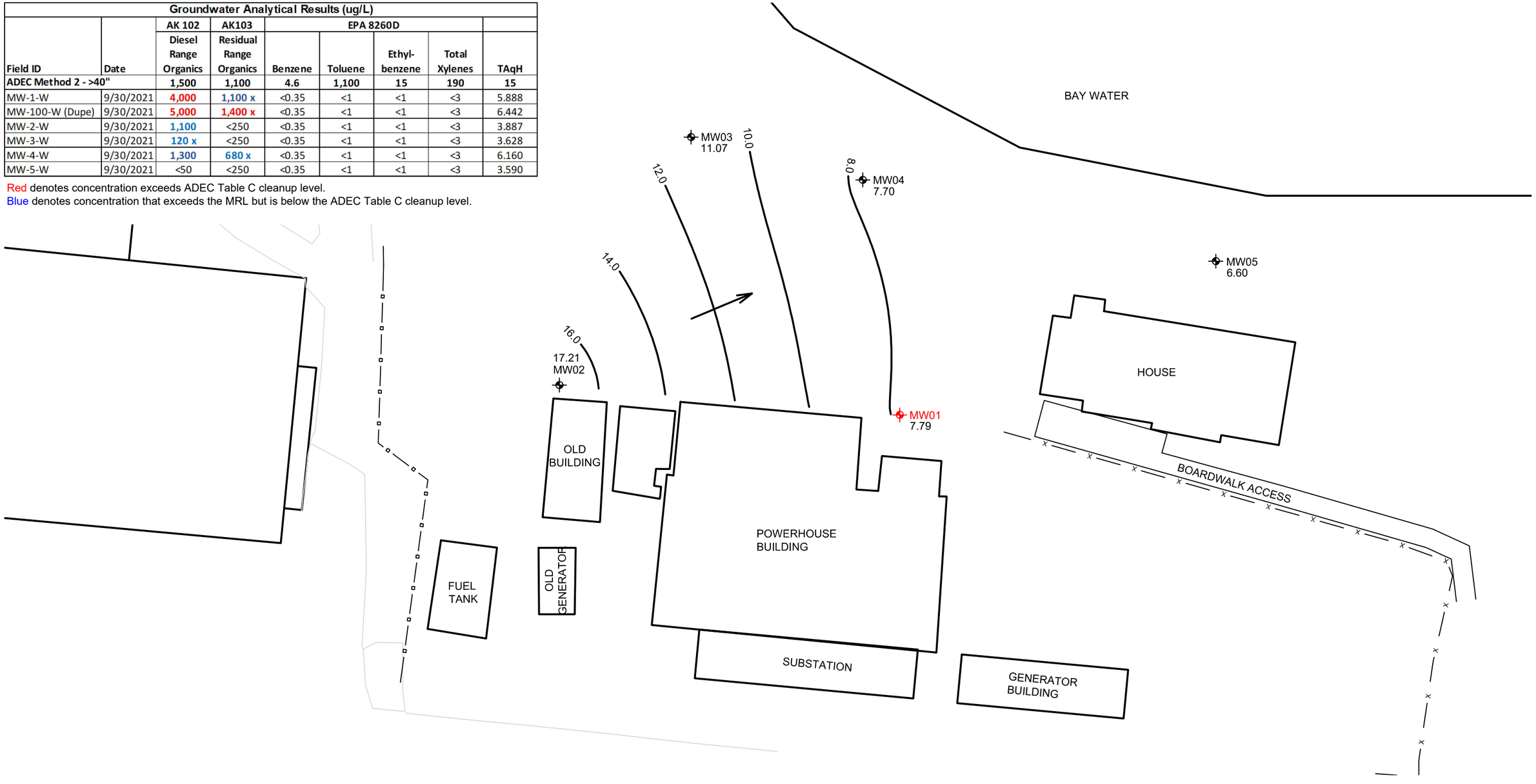
FIGURE 2
SITE FEATURES

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

I:\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2022\Jan 2022\2019-054_BM-012822.dwg

Groundwater Analytical Results (ug/L)								
		AK 102	AK103	EPA 8260D				
Field ID	Date	Diesel Range Organics	Residual Range Organics	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TAqH
ADEC Method 2 - >40"		**1,500**	**1,100**	**4.6**	**1,100**	**15**	**190**	**15**
MW-1-W	9/30/2021	**4,000**	**1,100 x**	<0.35	<1	<1	<3	5.888
MW-100-W (Dupe)	9/30/2021	**5,000**	**1,400 x**	<0.35	<1	<1	<3	6.442
MW-2-W	9/30/2021	**1,100**	<250	<0.35	<1	<1	<3	3.887
MW-3-W	9/30/2021	**120 x**	<250	<0.35	<1	<1	<3	3.628
MW-4-W	9/30/2021	**1,300**	**680 x**	<0.35	<1	<1	<3	6.160
MW-5-W	9/30/2021	<50	<250	<0.35	<1	<1	<3	3.590

Red denotes concentration exceeds ADEC Table C cleanup level.
Blue denotes concentration that exceeds the MRL but is below the ADEC Table C cleanup level.



LEGEND

- MW01 — Monitoring Well
- Groundwater Elevation Contour
- 7.70 — Groundwater Surface Elevation
- Approximate Groundwater Flow Direction

N / W / E / S

0 20 40
SCALE IN FEET
1" = 20'

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

DATE: 1-26-22
DWN: JJT
CHK: NV
APPROVED: NV
PRJ. MGR: CH
PROJECT NO: 2019-054

FIGURE 3
GROUNDWATER ELEVATION CONTOURS
FOR SEPTEMBER 30, 2021

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

I:\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2021\Oct 2021\2019-054_BM-102921.dwg

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**											
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
MW-2-W	9/30/2021	17.92	0.71	---	17.21	**1,100**	<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
MW-4-W	9/30/2021	13.70	6.00	---	7.70	**1,300**	**680 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

Notes
TAH = sum of BTEX
Summation of BTEX should include 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

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**																			
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	3.213
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
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
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
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
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

Notes
Summation of PAHs should include 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) Method 2 Oil Pollution & Hazardous Substances 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
--- = insufficient amount of water in well to sample
NA = not analyzed

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			
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
MW-2-W	9/30/2021	2.675	1.212	3.887
MW-3-W	9/30/2021	2.675	0.953	3.628
MW-4-W	9/30/2021	2.675	3.485	6.160
MW-5-W	9/30/2021	2.675	0.915	3.590

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

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

ATTACHMENT A

PHOTO DOCUMENTATION

SITE FEATURES

PHOTO 1
10,000 gallon Diesel AST.

PHOTO 2
Day tank inside Power Generation Facility.

PHOTO 3
Diesel generators.

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

DATE: 11-25-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE 1
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2019-054_BM-112519.dwg

PHOTO 4
House next door with HOT.

PHOTO 5
One of the original monitoring wells installed by Hart & Crowser

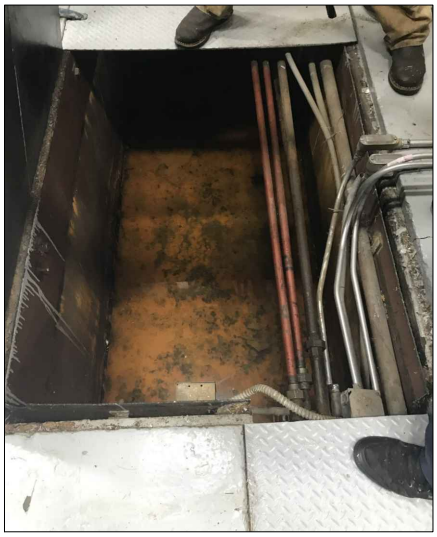


PHOTO 6
Welded steel containment at 1985 release location.

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

DATE: 11-25-19
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE 2
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

C:\Users\Josh\Desktop\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2019-054_BM-112519.dwg

PHOTO 9

R&M Investigation

Storm drains in front of garage.

PHOTO 10

R&M Investigation

Test Pit TP-1

4-Inch diameter perforated pipe

PHOTO 11

R&M Investigation

Test Pit TP-1

4-Inch diameter perforated pipe

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

DATE: 1-28-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE 4
R&M INVESTIGATION
PHOTOGRAPHS OF DRAIN PIPE

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

SOIL CORES FROM INSTALLATION OF MONITORING WELLS MW-1 THROUGH MW-5

PHOTO 1

0' to 5'

PHOTO 2

5' to 10'

PHOTO 3

10' to 15'

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

DATE: 1-28-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE MW-1
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

I:\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2022\Jan 2022\2019-054_PP-012822.dwg

PHOTO 1

0' to 5'

PHOTO 2

5' to 10'

PHOTO 3

10' to 15'

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

DATE: 1-28-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE MW-2
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

I:\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2022\Jan 2022\2019-054_PP-012822.dwg

PHOTO 1

0' to 5'

PHOTO 5

5' to 10'

PHOTO 6

10' to 15'

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

DATE: 1-28-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE MW-3
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

I:\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2022\Jan 2022\2019-054_PP-012822.dwg

PHOTO 1

0' to 5'

PHOTO 2

5' to 10'

PHOTO 3

10' to 15'

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

DATE: 1-28-22
DWN: JJT
CHK: CH
APPROVED: CH
PRJ. MGR: CH
PROJECT NO: 2019-054

PHOTOPLATE MW-4
SITE PHOTOGRAPHS

ALASKA POWER & TELEPHONE
CRAIG, ALASKA

I:\Autocad Files\Hydrocon-Autocad\2019-054 Alaska Power\2022\Jan 2022\2019-054_PP-012822.dwg

APPENDIX B

GROUNDWATER SAMPLE COLLECTION FORMS

GROUNDWATER SAMPLE COLLECTION FORM

Well I.D. Number: MW-1

Project Name:. AT&T Cove
Hydrocon Project #: 20R-58
Date 9-30-21

Sample I.D. MW-1-W Time: 0930
Field Duplicate I.D. MW-100-W Time: 0930
Personnel: DAH

WELL INFORMATION

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

PURGING INFORMATION

Total well depth 15.06 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 7.96 ft Intake Depth (BTOC) 13 Begin Purging Well: 0907
Casing volume 7.04 ft (H_2O) X 0.16 gal/ft = 1.12 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: Hydrocarbon odor & Slight Sheen

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	~~(mS/cm)~~ Sp. Cond. (µS/cm) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	~~Turbidity~~ TDS (ppm) (NTU) (± 10% or ≤10)
0906	7.96	0.1	13.0	490	NR	7.30	NR	348
0913	"	"	12.9	496		7.06		326
0916	"	"	12.8	516		7.01		375
0919	"	"	12.8	515		7.01		367
0922	"	"	12.8	517		7.01		367

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	4	HCl	(No) 0.45 0.10	DRO BTEX
500 mL Amber	2	—	(No) 0.45 0.10	RRO PAHs
			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-2

Project Name:. ATT Cary
Hydrocon Project #: 2024-58
Date 9-30-24

Sample I.D. MW-2-MW Time: 0955
Field Duplicate I.D. _____ Time: _____
Personnel: RAH

WELL INFORMATION

Monument condition: ☐ Good ☑ Needs repair No Monument ☐ Water in Monument
Well cap condition: ☑ Good ☐ Replaced ☐ Needs replacement ☐ Surface Water in Well
Headspace reading: ☑ Not measured _____ ppm ☐ Odor None
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth 15.00 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 6.77 ft Intake Depth (BTOC) 13 Begin Purging Well: 0937
Casing volume 14.23 ft (H_2O) X 0.16 gal/ft = 227 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: Sulfur odor No 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)	TDS (ppm) ~~Turbidity~~ (~~NTU~~) (± 10% or ≤10)
0940	14.23	0.1	12.3	1381	NR	7.44	NR	975
0943	"	"	12.3	1,074		7.52		785
0946	"	"	12.5	992		7.43		707
0949	"	"	12.5	988		7.49		514
0952	"	"	12.5	985		7.44		510

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	4	HCl	(No) 0.45 0.10	VOC BTEX
500 mL Amber	2	—	(No) 0.45 0.10	SVOC PAH'S
			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-3

Project Name:. ATBT Circ
Hydrocon Project #: 2019-35
Date 9-30-21

Sample I.D. MW-3-W Time: 1026
Field Duplicate I.D. _____ Time: _____
Personnel: RAG

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 None
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth 15.00 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product ~~_____~~ ft
Depth to water 2.71 ft Intake Depth (BTOC) 13 Begin Purging Well: 1001
Casing volume 12.29 ft (H_2O) X 0.16 gal/ft = 1.96 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)	~~mS/cm~~ µS/cm Sp. Cond. (~~mS/cm~~) (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	~~Turbidity~~ TDS (ppm) (NTU) (± 10% or ≤10)
1004	2.71	~0.1	12.7	292	NR	6.89	NR	205
1007	"	"	12.7	286		7.16		206
1010	"	"	12.7	283		7.19		195
1013	"	"	13.0	288		7.17		208
1015	"	"	13.0	288		7.16		203

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	4	HCl	(No) 0.45 0.10	BTEX
500 mL Amber	2	—	(No) 0.45 0.10	PAHs
			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: ATSF Clovis
Hydrocon Project #: 2014-058
Date: 9-30-21

Sample I.D.: MW-4-20 Time: 1050
Field Duplicate I.D.: _____ Time: _____
Personnel: RAH

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 None
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth 15.00 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 6.00 ft Intake Depth (BTOC) 13 Begin Purging Well: 1027
Casing volume 9.00 ft (H_2O) X 0.16 gal/ft = 1.44 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: Slight Sheen

Time	Water Level (BTOC)	Purge Rate (L/min)	Temp. (°C)	~~mS/cm~~ µS/cm Sp. Cond. (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	TDS (ppm) ~~Turbidity~~ (NTU) (± 10% or ≤10)
1030	6.00	0.1	12.5	1,181	NR	6.94	NR	810
1033	"	"	12.5	1,138		6.98		803
1036	"	"	12.5	1,058		7.01		748
1039	"	"	12.7	1050		7.01		735
1042	"	"	12.7	1045		7.01		700

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	4	HCl	No 0.45 0.10	GRO BTEX
500 mL Amber	2	—	No 0.45 0.10	NAP PAH
			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-5

Project Name: AT&T Craig
Hydrocon Project #: 2019-58
Date 9-30-21

Sample I.D. MW-5-W Time: 1115
Field Duplicate I.D. _____ Time: _____
Personnel: RAH

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 None
Well diameter: ☑ 2-inch ☐ 4-inch ☐ 6-inch ☐ Other _____
Comments _____

PURGING INFORMATION

Total well depth 15.00 ft Bottom: ☐ Hard ☐ Soft ☑ Not measured Screen Interval(s): _____
Depth to product — ft
Depth to water 5.47 ft Intake Depth (BTOC) 13 Begin Purging Well: 1053
Casing volume 9.53 ft (H_2O) X 0.16 gal/ft = 1.44 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)	~~(mS/cm)~~ Sp. Cond. ~~(mS/cm)~~ (±3%)	Dissolved Oxygen (±10% or ≤1.00 ±0.2)	pH (SU) (±0.1)	ORP (mV)	~~NTU~~ (PPM) ~~Turbidity~~ (NTU) (± 10% or ≤10)
1056	5.47	2.0 L	12.0	794	NR	7.22	NR	531
1059	"	"	12.0	791		7.02		531
1102	"	"	12.1	719		7.00		530
1105	"	"	12.1	707		7.03		497
1108	"	"	12.1	705		7.02		493

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	4	HCL	(No) 0.45 0.10	ORO BTEX
500 mL Amber	1	—	(No) 0.45 0.10	RRO PAH's
			No 0.45 0.10	
			No 0.45 0.10	
			No 0.45 0.10	

Sampling Comments: _____

APPENDIX C

FIELD NOTES

HydroCon	DAILY FIELD REPORT	HydroCon Job Number:
	Project Name: CRAIG Power STATION	Date: 9-30-21
Phone: 360.998.2902	Client: Alaska Power & Telephone	Page: 1 Of 1
1339 Commerce Ave., Suite 211; Longview, WA		
Prepared By: Craig Hultgren	Location: Craig, ALASKA	Arrival:
		Departure:
Purpose:	Weather:	Permit:

(0815) Arrive At site, nobody At site yet. CALL Kasey Smith they will Arrive @ ~ 0830.

Kasey lets us in the gate. Go Around site And observe well locations. Unpack sampling gear & prepare for Sampling

Open wells And let water levels equilibrate. Notice NO well monument in MW-2

Depth to water measurements

~~Time~~	Well ID	Depth to water (BTOC)	NOTES
	MW-1	7.96	Strong Petroleum odor
	MW-2	0.71	Possible surface water infiltration ??
	MW-3	2.71	—
	MW-4	6.00	—
	MW-5	5.97	—

Put Notch mark outside rim of PVC casing (North side) and paint with black pen. CALL surveyor And told them We need elevation of the TOp of casing At each well At reference mark.

Rob Hornsberger begins groundwater sampling — see Groundwater Sample Collection forms for details

0930	MW-1-W / (dup) MW-100-W	(2 Amber / 4 VOA per sample)
0955	MW2-W	
1020	MW3-W	
1050	MW4-W	
1115	MW5-W	
0930	MW-100-W	

APPENDIX D

BORING LOGS

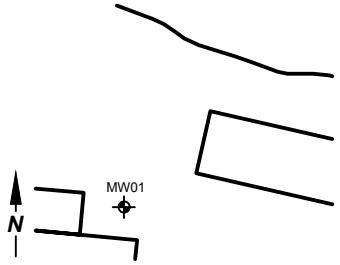
Hydro Con

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

WELL/BORING NUMBER: MW01

PROJECT NAME: Alaska Power and Telephone
PROJECT NUMBER: 2019-054
PROJECT LOCATION: Craig, AK.
LOGGED BY: G. Rawson
REVIEWED BY: C. Hultgren
DATE: 8-15-20

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
(0-5) **Sandy Gravel (GP)**, brown to black, predominantly fine to coarse subround gravels, up to 33% fine to coarse sand, someorganics, moist.	0							
(5-15) **Silty Sand with Gravel (SM)**, brown togray, low plastic fines, fine to medium sand,up to 15% subround gravel, common shells, wet at ~8', hydrocarbon odor.	5							
	10							
BOTTOM OF BORING AT 15' B.G.S.	15							
	20							
	25							
	30							

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15'
Sump: 14.8-15'
Screen: 4.8-14.8'
Casing: 0-4.8'
Backfill:
Sand Pack: 4-15'
Bentonite: 2-4'
Concrete: 0-2'
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: 10' 0.010"
End Cap: Flat sump
Sand Pack: 10-20 Silica sand
Bentonite: Chips
Concrete: Readi mix
Monument: Flush
Well Cap: J Plug
Other:

DRILLING CONTRACTOR: GeoTek Alaska, Inc.
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 7 Inch
SAMPLING METHOD: Continuous
WELL TAG ID: --

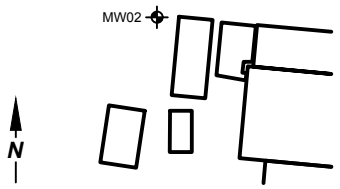
CASING ELEVATION: -- 15.74
GROUND SURFACE ELEVATION: --
NORTHING: -- 1330919.33
EASTING: -- 2793514.349

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

WELL/BORING NUMBER: MW02

PROJECT NAME: Alaska Power and Telephone
PROJECT NUMBER: 2019-054
PROJECT LOCATION: Craig, AK.
LOGGED BY: G. Rawson
REVIEWED BY: C. Hultgren
DATE: 8-15-20

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
(0-5) **Sandy Gravel (GP)**, brown to black, predominantly fine to coarse subround gravels, up to 33% fine to coarse sand, some organics, moist.	0							
No Recovery from 5' to 10'	5							
(10-15) **Silty Sand with Gravel (SM)**, gray to black, low plastic fines, fine to medium sand,up to 20% subround gravel, common shells, wet, hydrocarbon odor. Note: Sheen observed at ~11'	10							
BOTTOM OF BORING AT 15' B.G.S.	15							
	20							
	25							
	30							

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15'
Sump: 14.8-15'
Screen: 4.8-14.8'
Casing: 0-4.8'
Backfill:
Sand Pack: 4-15'
Bentonite: 2-4'
Concrete: 0-2'
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: 10' 0.010"
End Cap: Flat sump
Sand Pack: 10-20 Silica sand
Bentonite: Chips
Concrete: Readi mix
Monument: Flush
Well Cap: J Plug
Other:

DRILLING CONTRACTOR: GeoTek Alaska, Inc.
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 7 Inch
SAMPLING METHOD: Continuous
WELL TAG ID: --

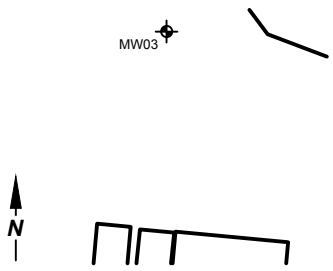
CASING ELEVATION: -- 17.92
GROUND SURFACE ELEVATION: --
NORTHING: -- 1331925.458
EASTING: -- 2793444.717

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

WELL/BORING NUMBER: MW03

PROJECT NAME: Alaska Power and Telephone
PROJECT NUMBER: 2019-054
PROJECT LOCATION: Craig, AK.
LOGGED BY: G. Rawson
REVIEWED BY: C. Hultgren
DATE: 8-15-20

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
(0-6) **Sandy Gravel (GP)**, brown to black, predominantly fine to coarse subround gravels, up to 33% fine to coarse sand, some organics, moist, hydrocarbon odor at 2', wet at ~4'.	0							
(6-10) **Silty Sand with Gravel (SM)**, brown to gray, low plastic fines, fine to medium sand, up to 15% subround gravel, common shells, wet, hydrocarbon odor and potential local sheen.	5							
(10-15) **Gravelly Silt (ML),** Gray to black, slight to moderate plastic fines, subrounded gravels, moist, no odor.	10							
BOTTOM OF BORING AT 15' B.G.S.	15							
	20							
	25							
	30							

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15'
Sump: 14.8-15'
Screen: 4.8-14.8'
Casing: 0-4.8'
Backfill:
Sand Pack: 4-15'
Bentonite: 2-4'
Concrete: 0-2'
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: 10' 0.010"
End Cap: Flat sump
Sand Pack: 10-20 Silica sand
Bentonite: Chips
Concrete: Readi mix
Monument: Flush
Well Cap: J Plug
Other:

DRILLING CONTRACTOR: GeoTek Alaska, Inc.
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 7 Inch
SAMPLING METHOD: Continuous
WELL TAG ID: --

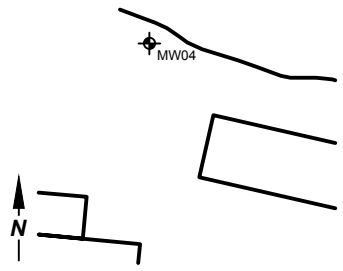
CASING ELEVATION: -- 13.78
GROUND SURFACE ELEVATION: --
NORTHING: -- 1330976.214
EASTING: -- 2793471.672

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

WELL/BORING NUMBER: MW04

PROJECT NAME: Alaska Power and Telephone
PROJECT NUMBER: 2019-054
PROJECT LOCATION: Craig, AK.
LOGGED BY: G. Rawson
REVIEWED BY: C. Hultgren
DATE: 8-15-20

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
(0-5) **Sandy Gravel with Silt (GP)**, brown to black, fine to coarse subround gravels, up to 33% fine to coarse sand, some low fines and organics, moist.	0							
(5-15) **Silty Sand with Gravel (SM)**, brown to gray, low plastic fines, fine to medium sand, up to 15% subround gravel, common shells, wet at ~7', faint hydrocarbon odor. Note: petroleum odor at 11'	5					▽		
	10							
BOTTOM OF BORING AT 15' B.G.S.	15							
	20							
	25							
	30							

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15'
Sump: 14.8-15'
Screen: 4.8-14.8'
Casing: 0-4.8'
Backfill:
Sand Pack: 4-15'
Bentonite: 2-4'
Concrete: 0-2'
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: 10' 0.010"
End Cap: Flat sump
Sand Pack: 10-20 Silica sand
Bentonite: Chips
Concrete: Readi mix
Monument: Flush
Well Cap: J Plug
Other:

DRILLING CONTRACTOR: GeoTek Alaska, Inc.
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 7 Inch
SAMPLING METHOD: Continuous
WELL TAG ID: --

CASING ELEVATION: -- 13.70
GROUND SURFACE ELEVATION: --
NORTHING: -- 1330967.457
EASTING: -- 2793506.79

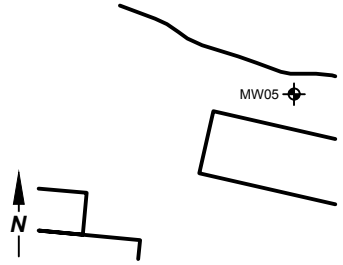
Hydro Con

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

WELL/BORING NUMBER: MW05

PROJECT NAME: Alaska Power and Telephone
PROJECT NUMBER: 2019-054
PROJECT LOCATION: Craig, AK.
LOGGED BY: G. Rawson
REVIEWED BY: C. Hultgren
DATE: 8-15-20

LOCATION MAP



DESCRIPTION (USCS Classification, Depth Interval, Color, Grain Size, Plasticity, Shapes, Mineral Composition, Density or Consistency, Moisture, Odor, Geological Interpretation)	DEPTH (FT.)	SYMBOL	WELL DETAILS	SAMPLE ID	PID	FIRST WATER	BLOW COUNTS	BOREHOLE/WELL CONSTRUCTION DETAILS
(0-6) **Sandy Gravel (GP)**, brown to black, predominantly fine to coarse subround gravels, up to 33% fine to coarse sand, some organics and wood debris, moist.	0							
(6-15) **Silty Sand with Gravel (SM)**, brown to gray, low plastic fines, fine to medium sand,up to 15% subround gravel, common shells, wet at ~8', no odor.	5							
Localized sandy interbeds								
Poor recovery from 10' to 15'	10							
BOTTOM OF BORING AT 15' B.G.S.	15							
	20							
	25							
	30							

WELL CONSTRUCTION

Depths (feet bgs)

Borehole: 15'
Sump: 14.8-15'
Screen: 4.8-14.8'
Casing: 0-4.8'
Backfill:
Sand Pack: 4-15'
Bentonite: 2-4'
Concrete: 0-2'
Stabilizers:

MATERIALS USED

Casing: 2" PVC
Well Screen: 10' 0.010"
End Cap: Flat sump
Sand Pack: 10-20 Silica sand
Bentonite: Chips
Concrete: Readi mix
Monument: Flush
Well Cap: J Plug
Other:

DRILLING CONTRACTOR: GeoTek Alaska, Inc.
DRILLING METHOD: Direct Push
BOREHOLE DIAMETER: 7 Inch
SAMPLING METHOD: Continuous
WELL TAG ID: --

CASING ELEVATION: -- 12.57
GROUND SURFACE ELEVATION: --
NORTHING: -- 1330950.805
EASTING: -- 2793579.003

APPENDIX E

LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 21, 2021

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

Dear Mr Hultgren:

Included is the amended report from the testing of material submitted on October 1, 2021 from the AT&T 2019-54, F&BI 110017 project. The benzo(a)pyrene concentration in the water samples was lowered to 0.03 ug/L.

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
HDC1013R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

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

October 13, 2021

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 October 1, 2021 from the AT&T 2019-54, F&BI 110017 project. There are 22 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
HDC1013R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 1, 2020 by Friedman & Bruya, Inc. (ADEC laboratory approval number UST-007) from the HydroCon AT&T 2019-54, F&BI 110017 project. The samples were received at 4 °C in good condition and were refrigerated upon receipt. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	HydroCon	Date Sampled
110017 -01	MW-1-W	09/30/21
110017 -02	MW-2-W	09/30/21
110017 -03	MW-3-W	09/30/21
110017 -04	MW-4-W	09/30/21
110017 -05	MW-5-W	09/30/21
110017 -06	MW-100-W	09/30/21

DRO and RRO (water) - Analysis Method AK 102 and AK 103, Extraction Method 3510

All quality control requirements were acceptable.

PAHs (water) - Analysis Method 8270E SIM, Extraction Method 3510

All quality control requirements were acceptable.

VOCs (water) - Analysis Method 8260D, Extraction Method 5030

All quality control requirements were acceptable.

Date of Report: 10/13/21
Date Received: 10/01/21
Project: AT&T 2019-54, F&BI 110017
Date Extracted: 10/06/21
Date Analyzed: 10/07/21

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

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
MW-1-W 110017-01	1,100 x	124
MW-2-W 110017-02	<250	128
MW-3-W 110017-03	<250	117
MW-4-W 110017-04	680 x	131
MW-5-W 110017-05	<250	121
MW-100-W 110017-06	1,400 x	121
Method Blank 01-2282 MB	<250	134

Date of Report: 10/13/21
Date Received: 10/01/21
Project: AT&T 2019-54, F&BI 110017
Date Extracted: 10/06/21
Date Analyzed: 10/07/21

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)
MW-1-W 110017-01	4,000	93
MW-2-W 110017-02	1,100	97
MW-3-W 110017-03	120 x	101
MW-4-W 110017-04	1,300	93
MW-5-W 110017-05	<50	101
MW-100-W 110017-06	5,000	96
Method Blank 01-2282 MB	<50	101

Analysis For Volatile Compounds By EPA Method 8260D Dual Acquisition

Client Sample ID:	MW-1-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	110017-01
Date Analyzed:	10/05/21	Data File:	100523.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	115	85	117
Toluene-d8	108	88	112
4-Bromofluorobenzene	98	90	111

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:	MW-2-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	110017-02
Date Analyzed:	10/05/21	Data File:	100524.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	106	85	117
Toluene-d8	101	88	112
4-Bromofluorobenzene	97	90	111

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:	MW-3-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	110017-03
Date Analyzed:	10/05/21	Data File:	100525.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	85	117
Toluene-d8	99	88	112
4-Bromofluorobenzene	99	90	111

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:	MW-4-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	110017-04
Date Analyzed:	10/05/21	Data File:	100526.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	85	117
Toluene-d8	99	88	112
4-Bromofluorobenzene	96	90	111

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:	MW-5-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	110017-05
Date Analyzed:	10/05/21	Data File:	100527.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	85	117
Toluene-d8	99	88	112
4-Bromofluorobenzene	97	90	111

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:	MW-100-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	110017-06
Date Analyzed:	10/05/21	Data File:	100528.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	105	85	117
Toluene-d8	102	88	112
4-Bromofluorobenzene	98	90	111

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 2019-54, F&BI 110017
Date Extracted:	10/05/21	Lab ID:	01-2218 mb
Date Analyzed:	10/05/21	Data File:	100507.D
Matrix:	Water	Instrument:	GCMS13
Units:	ug/L (ppb)	Operator:	WE

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	85	117
Toluene-d8	98	88	112
4-Bromofluorobenzene	98	90	111

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:	MW-1-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	110017-01 1/2
Date Analyzed:	10/07/21	Data File:	100708.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	25	11	65
Phenol-d6	20	11	65
Nitrobenzene-d5	62	50	150
2-Fluorobiphenyl	71	44	108
2,4,6-Tribromophenol	69	10	140
Terphenyl-d14	93	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	0.66
Acenaphthylene	<0.04
Acenaphthene	0.45
Fluorene	1.3
Phenanthrene	0.13
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	0.058
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.03
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:	MW-2-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	110017-02 1/2
Date Analyzed:	10/07/21	Data File:	100709.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	29	11	65
Phenol-d6	24	11	65
Nitrobenzene-d5	73	50	150
2-Fluorobiphenyl	74	44	108
2,4,6-Tribromophenol	76	10	140
Terphenyl-d14	91	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	0.086
Fluorene	0.23
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	0.041
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.03
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:	MW-3-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	110017-03 1/2
Date Analyzed:	10/07/21	Data File:	100710.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	18	11	65
Phenol-d6	20	11	65
Nitrobenzene-d5	75	50	150
2-Fluorobiphenyl	78	44	108
2,4,6-Tribromophenol	50	10	140
Terphenyl-d14	97	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
Fluorene	<0.04
Phenanthrene	0.058
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.03
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:	MW-4-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	110017-04 1/2
Date Analyzed:	10/07/21	Data File:	100711.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12	11	65
Phenol-d6	19	11	65
Nitrobenzene-d5	69	50	150
2-Fluorobiphenyl	78	44	108
2,4,6-Tribromophenol	24	10	140
Terphenyl-d14	93	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	0.81
Fluorene	1.8
Phenanthrene	<0.04
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	<0.04
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.03
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:	MW-5-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	110017-05 1/2
Date Analyzed:	10/07/21	Data File:	100712.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	13	11	65
Phenol-d6	18	11	65
Nitrobenzene-d5	72	50	150
2-Fluorobiphenyl	74	44	108
2,4,6-Tribromophenol	26	10	140
Terphenyl-d14	90	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	<0.4
Acenaphthylene	<0.04
Acenaphthene	<0.04
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	<0.03
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:	MW-100-W	Client:	HydroCon
Date Received:	10/01/21	Project:	AT&T 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	110017-06 1/2
Date Analyzed:	10/07/21	Data File:	100713.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	12	11	65
Phenol-d6	16	11	65
Nitrobenzene-d5	59	50	150
2-Fluorobiphenyl	71	44	108
2,4,6-Tribromophenol	34	10	140
Terphenyl-d14	94	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.4
2-Methylnaphthalene	<0.4
1-Methylnaphthalene	0.83
Acenaphthylene	<0.04
Acenaphthene	0.59
Fluorene	1.5
Phenanthrene	0.14
Anthracene	<0.04
Fluoranthene	<0.04
Pyrene	0.072
Benz(a)anthracene	<0.04
Chrysene	<0.04
Benzo(a)pyrene	<0.03
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 2019-54, F&BI 110017
Date Extracted:	10/06/21	Lab ID:	01-2277 mb2
Date Analyzed:	10/06/21	Data File:	100609.D
Matrix:	Water	Instrument:	GCMS12
Units:	ug/L (ppb)	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	22	11	65
Phenol-d6	16	11	65
Nitrobenzene-d5	98	50	150
2-Fluorobiphenyl	102	44	108
2,4,6-Tribromophenol	62	10	140
Terphenyl-d14	109	50	150

Compounds:	Concentration ug/L (ppb)
Naphthalene	<0.2
2-Methylnaphthalene	<0.2
1-Methylnaphthalene	<0.2
Acenaphthylene	<0.02
Acenaphthene	<0.02
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: 10/13/21
Date Received: 10/01/21
Project: AT&T 2019-54, F&BI 110017

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	84	92	60-120	9

Date of Report: 10/13/21
Date Received: 10/01/21
Project: AT&T 2019-54, F&BI 110017

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

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	72	80	60-120	11

Date of Report: 10/13/21
Date Received: 10/01/21
Project: AT&T 2019-54, F&BI 110017

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

Laboratory Code: 110017-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Benzene	ug/L (ppb)	10	<0.35	105	50-150
Toluene	ug/L (ppb)	10	<1	92	50-150
Ethylbenzene	ug/L (ppb)	10	<1	95	50-150
m,p-Xylene	ug/L (ppb)	20	<2	95	50-150
o-Xylene	ug/L (ppb)	10	<1	95	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	91	88	70-130	3
Toluene	ug/L (ppb)	10	90	85	70-130	6
Ethylbenzene	ug/L (ppb)	10	93	88	70-130	6
m,p-Xylene	ug/L (ppb)	20	94	90	70-130	4
o-Xylene	ug/L (ppb)	10	92	88	70-130	4

Date of Report: 10/13/21
Date Received: 10/01/21
Project: AT&T 2019-54, F&BI 110017

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

Laboratory Code: Laboratory Control Sample 1/0.5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Naphthalene	ug/L (ppb)	5	85	85	62-90	0
2-Methylnaphthalene	ug/L (ppb)	5	89	90	64-93	1
1-Methylnaphthalene	ug/L (ppb)	5	90	90	64-93	0
Acenaphthylene	ug/L (ppb)	5	95	93	70-130	2
Acenaphthene	ug/L (ppb)	5	91	89	70-130	2
Fluorene	ug/L (ppb)	5	93	94	70-130	1
Phenanthrene	ug/L (ppb)	5	94	93	70-130	1
Anthracene	ug/L (ppb)	5	94	91	70-130	3
Fluoranthene	ug/L (ppb)	5	97	96	70-130	1
Pyrene	ug/L (ppb)	5	97	95	70-130	2
Benz(a)anthracene	ug/L (ppb)	5	99	100	70-130	1
Chrysene	ug/L (ppb)	5	98	98	70-130	0
Benzo(a)pyrene	ug/L (ppb)	5	98	98	70-130	0
Benzo(b)fluoranthene	ug/L (ppb)	5	102	97	70-130	5
Benzo(k)fluoranthene	ug/L (ppb)	5	99	99	70-130	0
Indeno(1,2,3-cd)pyrene	ug/L (ppb)	5	86	94	70-130	9
Dibenz(a,h)anthracene	ug/L (ppb)	5	88	93	70-130	6
Benzo(g,h,i)perylene	ug/L (ppb)	5	84	90	70-130	7

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.

110017

SAMPLE CHAIN OF CUSTODY

10-01-21

VW5 / 1E04

Page # 1 of 1

Report To Craig Holtgren

Company Hydracon

Address 317 W 15th St Ste 306

City, State, ZIP Vancouver WA 98660

Phone _____ Email _____

SAMPLERS (signature)

PROJECT NAME: ATIT 2019-54

PO #

REMARKS

Project specific RLs? - Yes / No

INVOICE TO

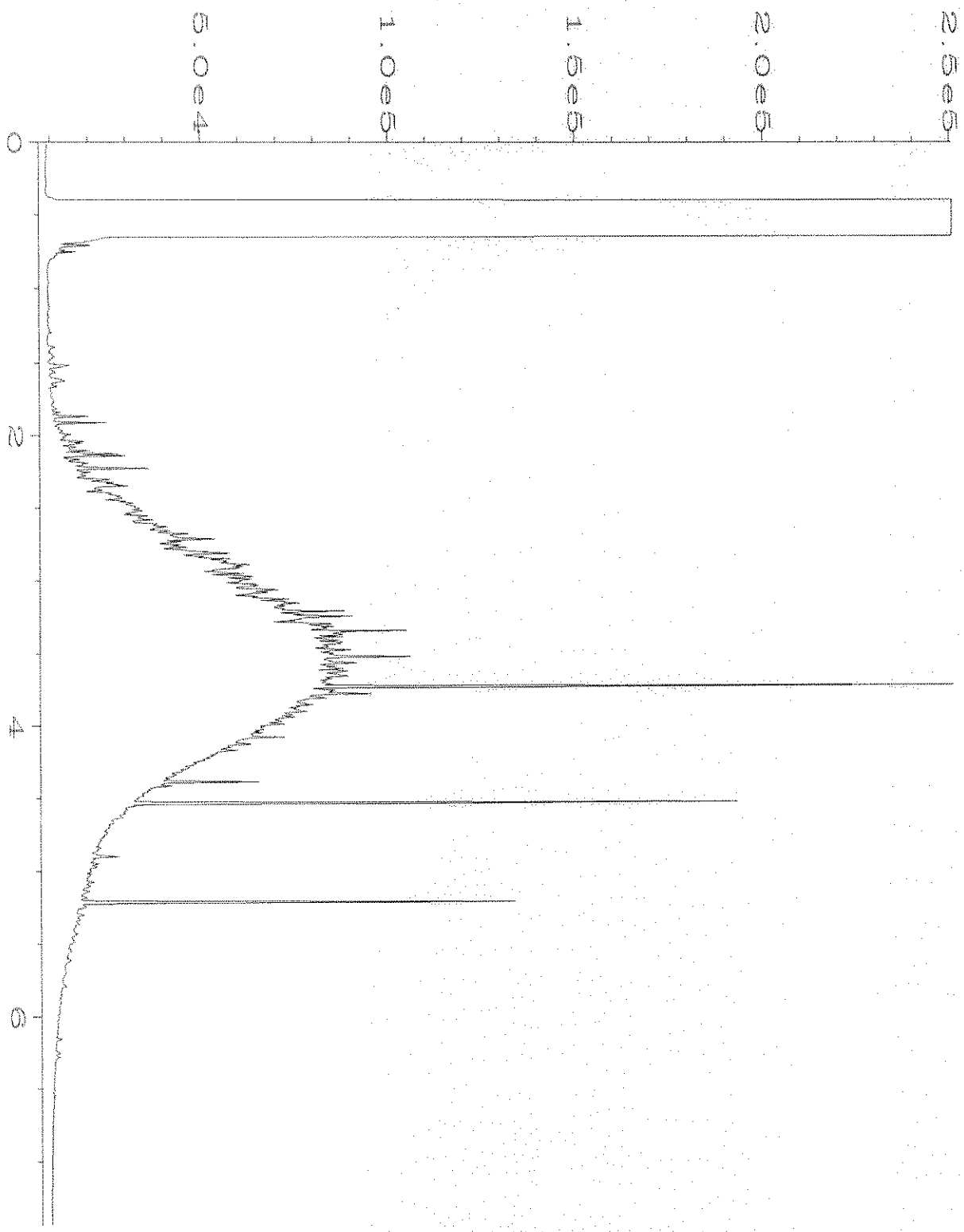
TURNAROUND TIME
- ☑ Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

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 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	DRO AK102	RRO AK103	PAHs SIM 8270 SIM		Notes
MW-1-W	01A-F	9-30-21	0930	W	6			X					X	X	X		X per CH
MW-2-W	02	"	0955	W	6			X					X	X	X		10/5/21
MW-3-W	03	"	1020	W	6			X					X	X	X		ME
MW-4-W	04	"	1050	W	6			X					X	X	X		
MW-5-W	05	"	1115	W	6			X					X	X	X		
MW-10D-W	06	"	0940	W	6			X					X	X	X		
													Samples received at 4 °C				

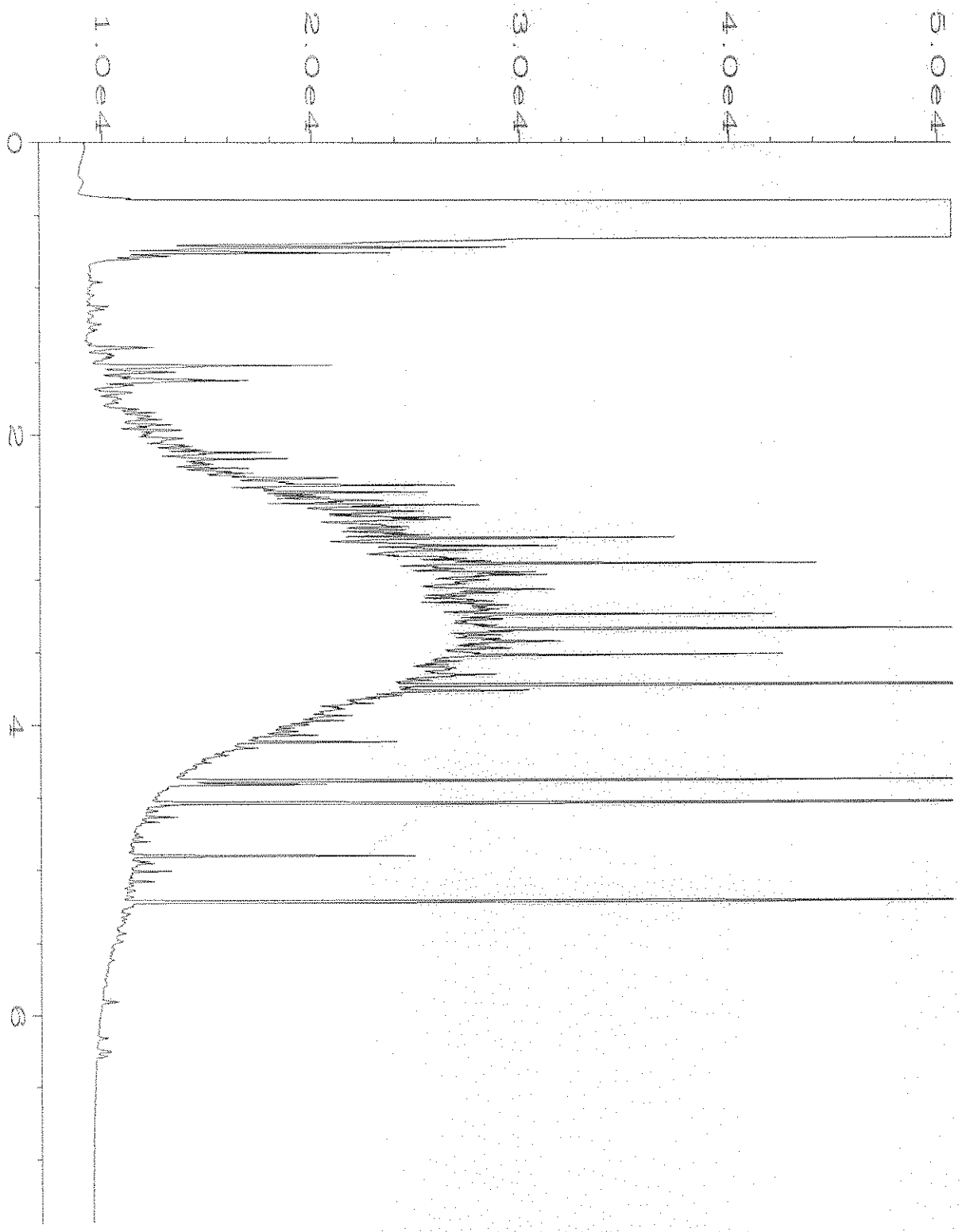
SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:				
Received by:	Anna W Bruya	F-B	10/01/21	1130
Relinquished by:				
Received by:				

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

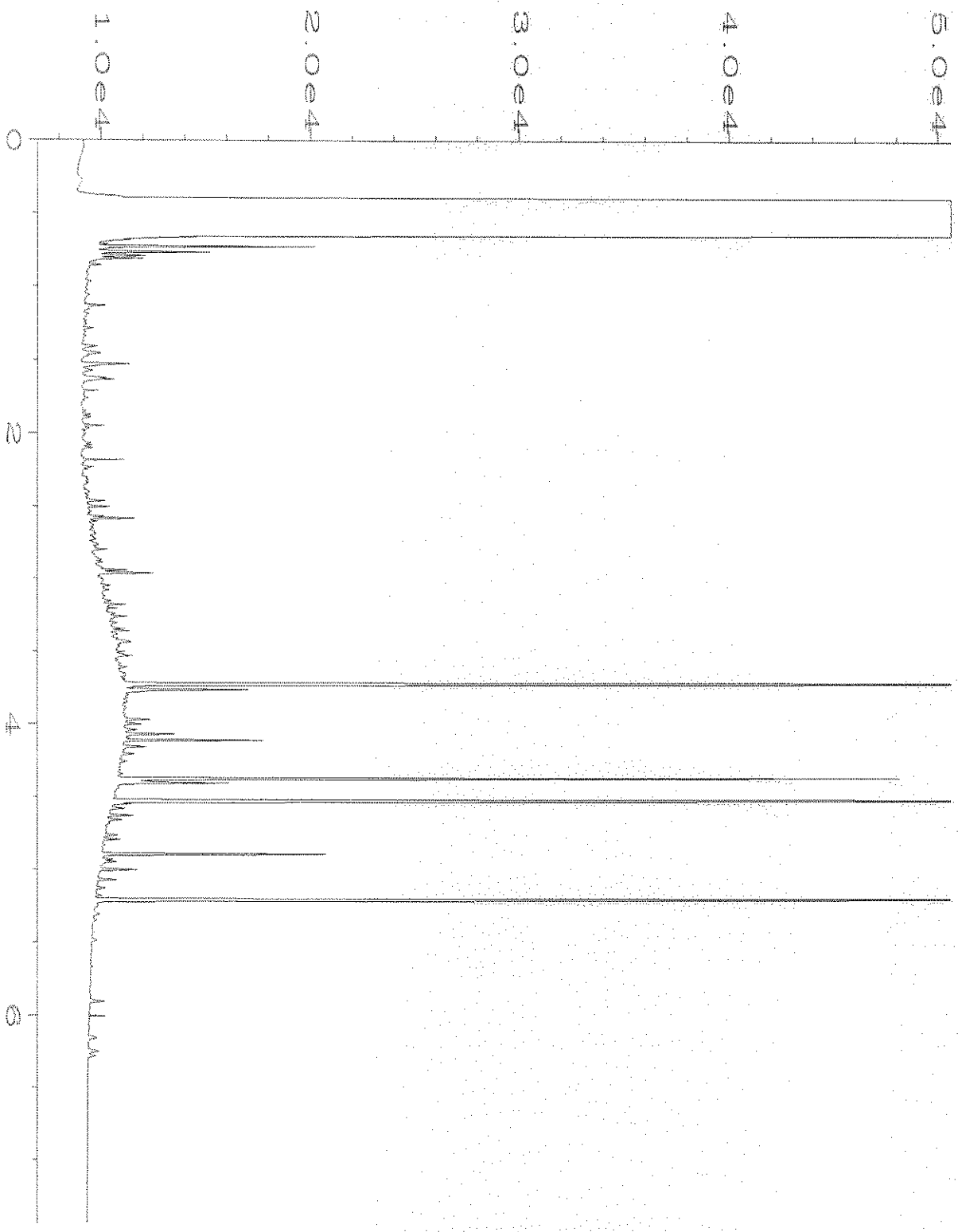


Data File Name : C:\HPCHEM\1\DATA\10-07-21\021F0601.D
Operator : TL
Instrument : GC1
Sample Name : 110017-01
Run Time Bar Code:
Acquired on : 07 Oct 21 12:35 PM
Report Created on: 27 Jan 22 09:38 AM

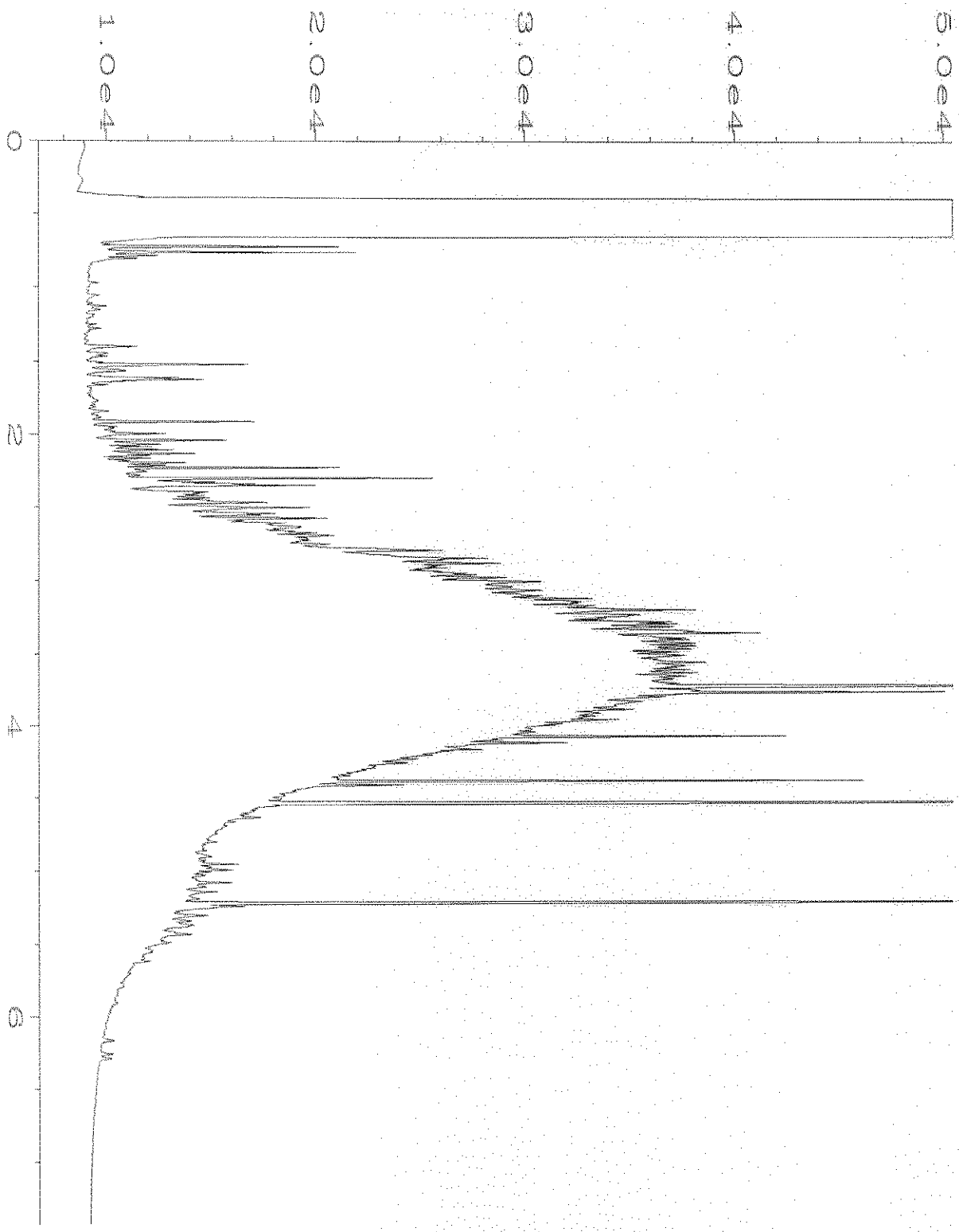
Page Number : 1
Vial Number : 21
Injection Number : 1
Sequence Line : 6
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



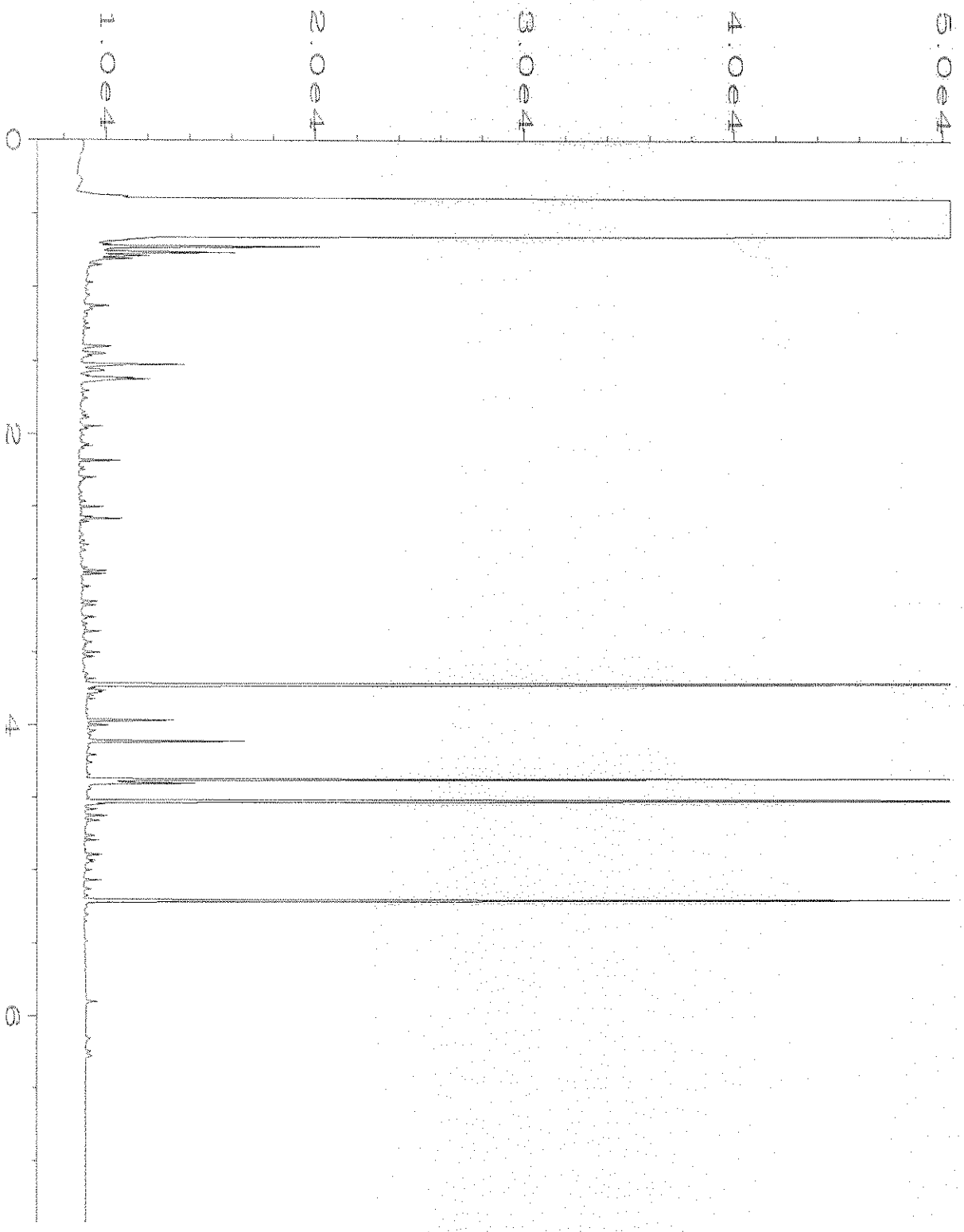
Data File Name	: C:\HPCHEM\1\DATA\10-07-21\022F0601.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 22
Sample Name	: 110017-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 07 Oct 21 12:47 PM	Instrument Method	: DX.MTH
Report Created on	: 27 Jan 22 09:38 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\10-07-21\023F0601.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 23
Sample Name	: 110017-03	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 07 Oct 21 12:59 PM	Instrument Method	: DX.MTH
Report Created on	: 27 Jan 22 09:38 AM	Analysis Method	: DEFAULT.MTH

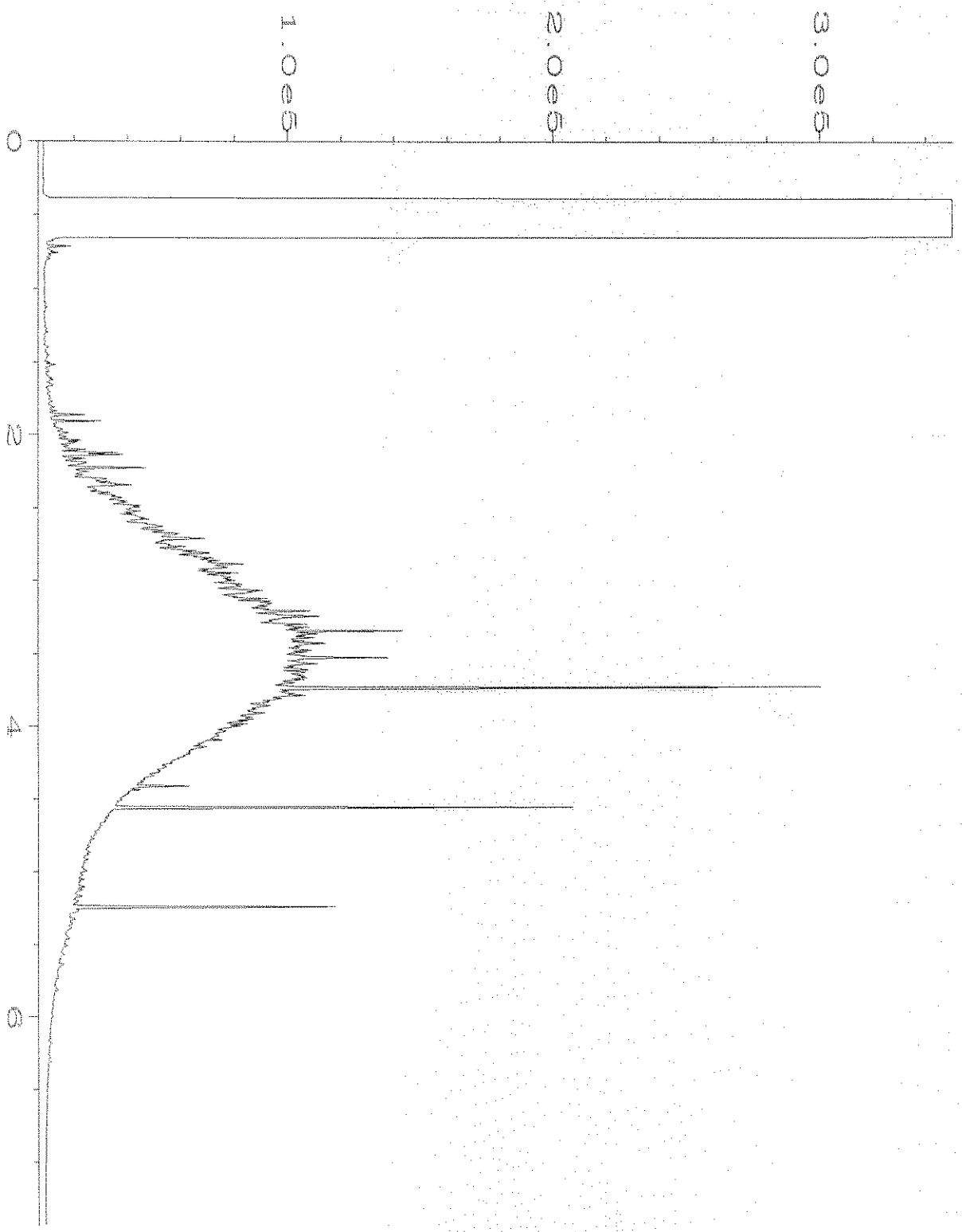


Data File Name	: C:\HPCHEM\1\DATA\10-07-21\024F1001.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 24
Sample Name	: 110017-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 10
Acquired on	: 07 Oct 21 03:14 PM	Instrument Method	: DX.MTH
Report Created on	: 27 Jan 22 09:38 AM	Analysis Method	: DEFAULT.MTH

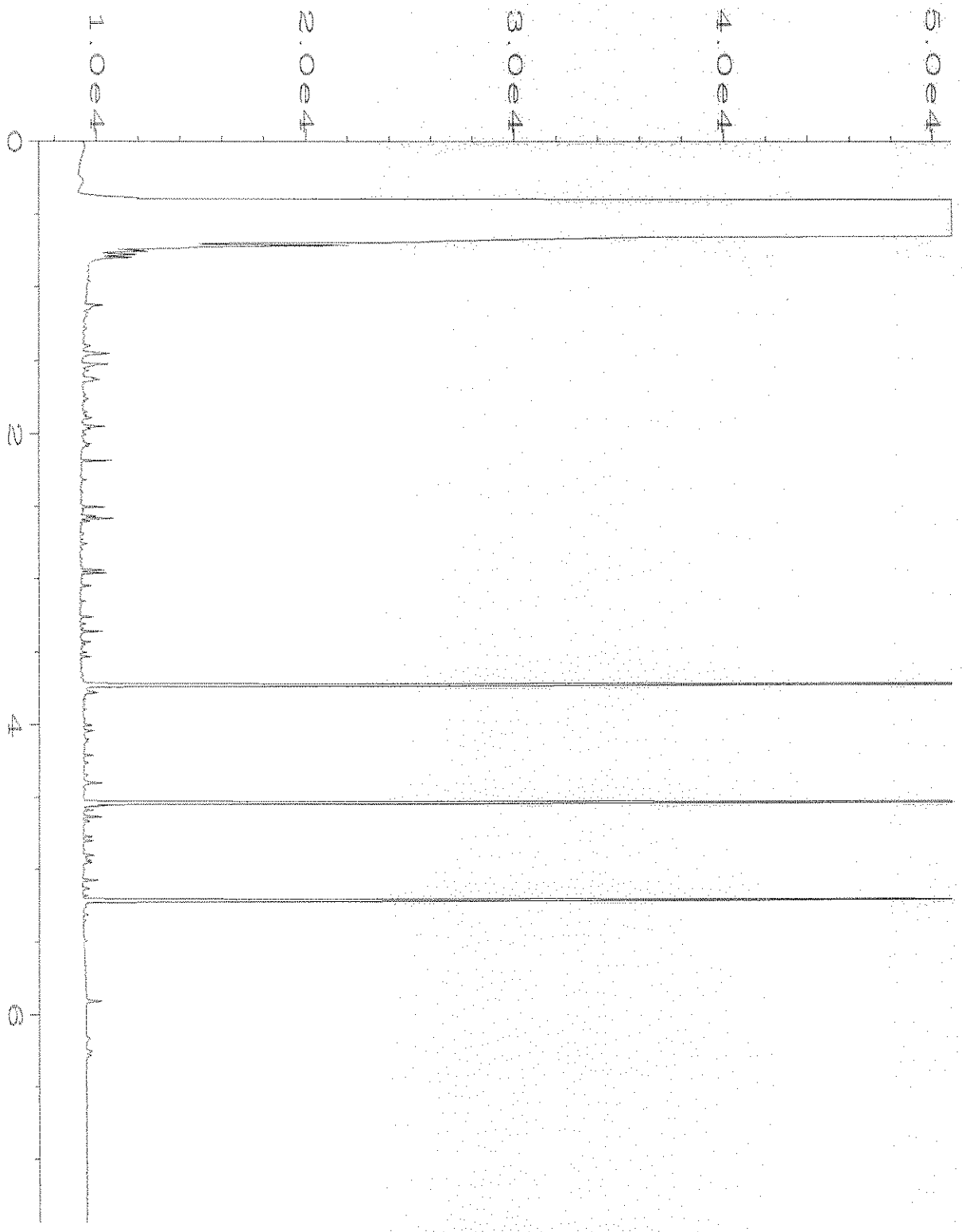


Data File Name : C:\HPCHEM\1\DATA\10-07-21\025F1001.D
Operator : TL
Instrument : GC1
Sample Name : 110017-05
Run Time Bar Code:
Acquired on : 07 Oct 21 03:25 PM
Report Created on: 27 Jan 22 09:39 AM

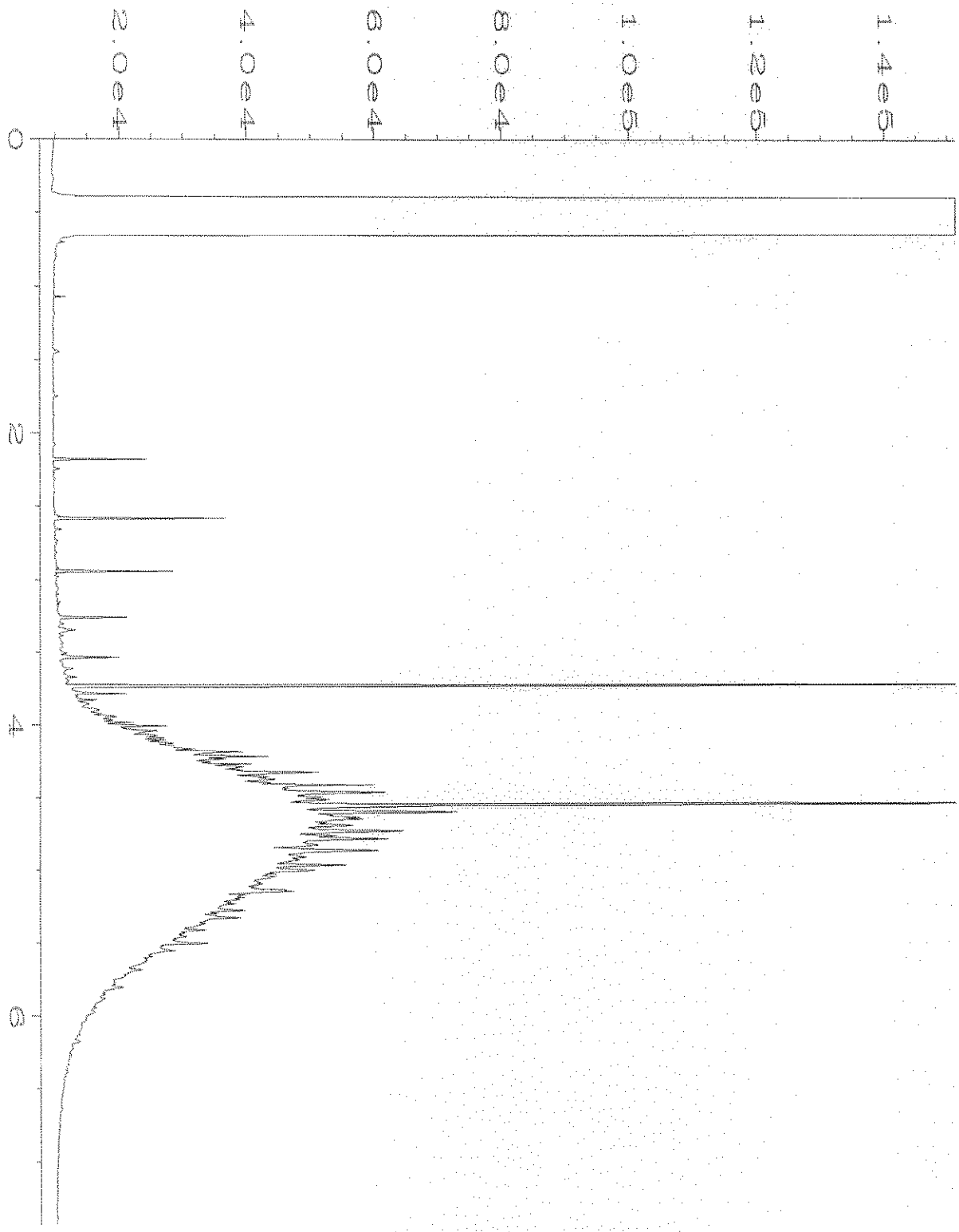
Page Number : 1
Vial Number : 25
Injection Number : 1
Sequence Line : 10
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



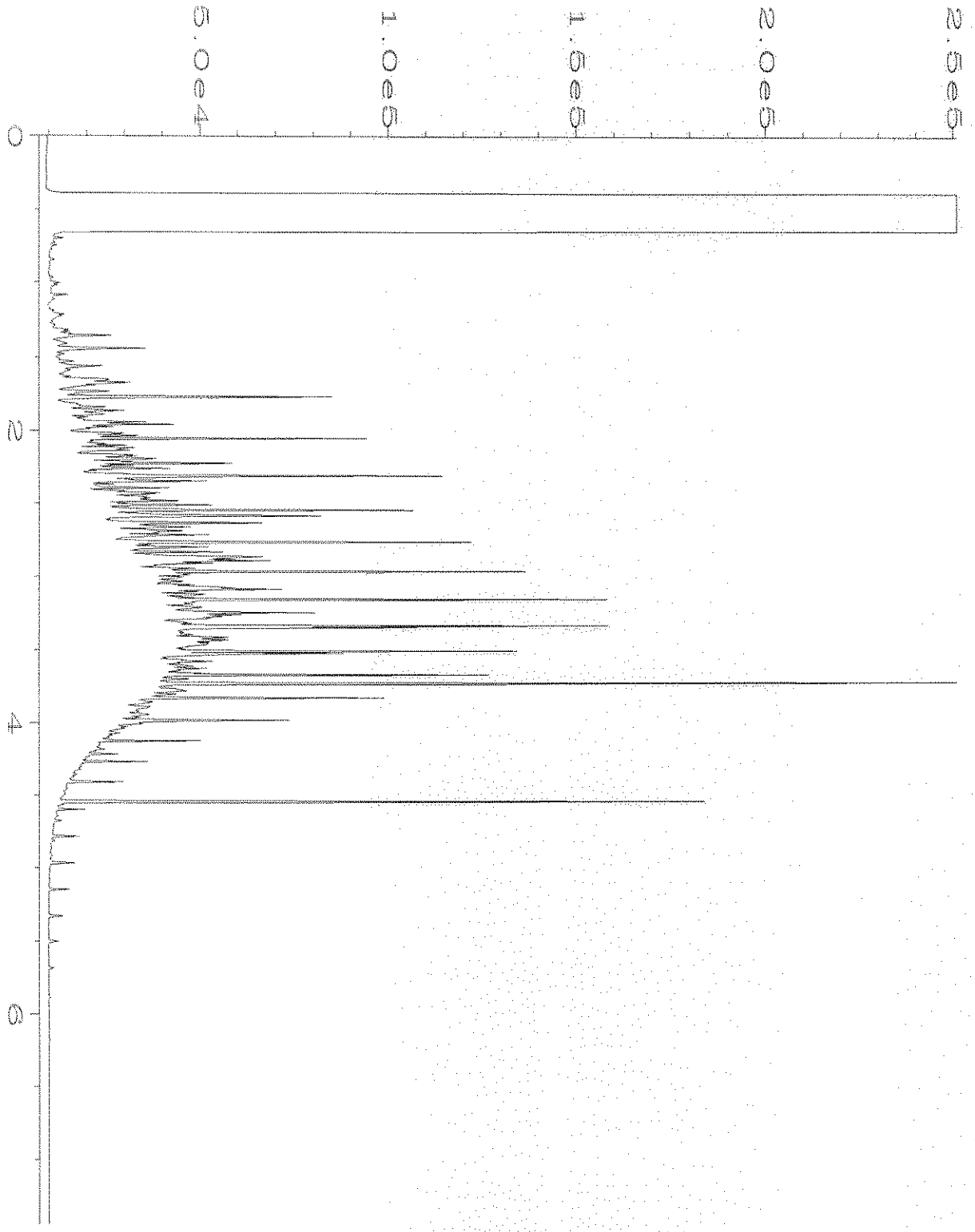
Data File Name	: C:\HPCHEM\1\DATA\10-07-21\026F1501.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 26
Sample Name	: 110017-06	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 15
Acquired on	: 07 Oct 21 05:28 PM	Instrument Method	: DX.MTH
Report Created on	: 27 Jan 22 09:39 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\10-07-21\012F0601.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 12
Sample Name	: 01-2282 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 6
Acquired on	: 07 Oct 21 10:52 AM	Instrument Method	: DX.MTH
Report Created on	: 27 Jan 22 09:39 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\10-07-21\002F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 2
Sample Name	: 500 MO 63-107B	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 07 Oct 21 06:03 AM	Instrument Method	: DX.MTH
Report Created on	: 27 Jan 22 09:40 AM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\10-07-21\003F0201.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 63-79C
Run Time Bar Code:
Acquired on : 07 Oct 21 06:18 AM
Report Created on: 27 Jan 22 09:40 AM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

APPENDIX F

LABORATORY DATA REVIEW CHECKLIST

Laboratory Data Review Checklist

Completed By:

HydroCon Environmental LLC, Craig Hultgren

Title:

Principal Geologist/Vice President

Date:

October 22, 2021 (revised January 28, 2022)

CS Report Name:

AT&T 2019-54, F&BI 110017

Report Date:

October 21, 2021

Consultant Firm:

HydroCon Environmental LLC

Laboratory Name:

Friedman & Bruya, Inc.

Laboratory Report Number:

110017

ADEC File Number:

1504.38.009

Hazard Identification Number:

2385

110017

1. Laboratory

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

   ◉ Yes ○ No Comments:

   Yes, the laboratory analyzed the samples for TPH-DRO by AK 102, TPH-RRO by AK 103, PAHs by EPA 8270E-SIM, and VOCs by EPA 8260D.

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

   ○ Yes ○ No Comments:

2. Chain of Custody (CoC)

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

   ◉ Yes ○ No Comments:

   b. Correct Analyses requested?

   ◉ Yes ○ No Comments:

3. Laboratory Sample Receipt Documentation

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

   ◉ Yes ○ No Comments:

   Samples received at 4°C.

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

   ◉ Yes ○ No Comments:

   Sample preservation was documented on the Groundwater Sample Collection Forms.

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

   ○ Yes ◉ No Comments:

   The case narrative noted that the samples were received at 4°C in good condition and were refrigerated upon receipt.

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

○ Yes ○ No Comments:

e. Data quality or usability affected?

Comments:

Data quality and usability not affected.

4. Case Narrative

a. Present and understandable?

● Yes ○ No Comments:

The case narrative noted that the samples were received at 4°C in good condition and were refrigerated upon receipt. All quality control requirements were acceptable for the TPH-DRO, TPH-RRO, PAH, and VOC analyses.

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

○ Yes ● No Comments:

The case narrative noted that the benzo(a)pyrene concentration in the water samples was lowered to 0.03 ug/L.

c. Were all corrective actions documented?

○ Yes ● No Comments:

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:

Metals/inorganics were not analyzed.

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

(●) Yes ( ) No Comments:

All LCS/LCSD percent recoveries fell within the control limits:
PAHs: 62-90% (Napthalene), 64-93% (1- and 2-Methylnaphthalene), 70-130% (all other compounds).
VOCs: 70-130%.
TPH-DRO and TPH-RRO: 60-120%.

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:

All LCS/LCSD RPDs fell below the control limits:
PAHs, VOCs, TPH-DRO, and TPH-RRO: 20%

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:

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

Comments:

Data quality/usability not affected.

c. Surrogates – Organics Only

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

(•) Yes ( ) No Comments:

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

(•) Yes ( ) No Comments:

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

( ) Yes (•) No Comments:

Not applicable.

iv. Data quality or usability affected?

Comments:

Data quality/usability not affected.

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

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

( ) Yes (•) No Comments:

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 Sample:

- MW-1-W/MW-100-W

ii. Submitted blind to lab?

◉ Yes ○ No Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

◉ Yes ○ No Comments:

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

Comments:

Data quality/usability not affected.

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

○ Yes ○ No ◉ Not Applicable

Dedicated sampling equipment used at each location.

110017

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 MW-1-W, MW-4-W, and MW-100-W and results for DRO using method AK 102 for sample MW-3-W were given the lab qualifier "x" defined as –"The sample chromatographic pattern does not resemble the fuel standard used for quantitation."