2019-2022 Groundwater Monitoring Well Report
Formerly Kobuk Feed & Fuel
2751 Picket Place
Fairbanks, Alaska

ADEC File ID: 100.26.137

Prepared for:

Gary Lundgren

Prepared by:

Alaska Resources and Environmental Services, LLC.

August 2023

Prepared by:

Dustin Stahl
Environmental Specialist

EXECUTIVE SUMMARY

This report was prepared on behalf of Castle Properties, Inc and Gary Lundgren, who has contracted with Alaska Resources & Environmental Services (ARES) to perform the groundwater investigation associated with the petroleum release (Alaska Department of Environmental Conservation (ADEC) file #100.26.137). The work was conducted as detailed in the approved Work Plan submitted in September 2008. Deviations from the workplan include the use of a bladder pump, and the analysis of groundwater collected from MW-3 and MW-2 for volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAH) by method EPA 8270DSIM analysis. Deviations from the workplan were instituted based on ADEC recommendations.

The objective of the sampling event was to obtain groundwater sample data near the site of a former petroleum release in order to determine if the documented groundwater contamination on the property is naturally attenuating and if it is migrating off-site.

Groundwater samples were collected from monitoring wells MW-1, MW-2, and MW-3 on September 23, 2019, July 22, 2020, September 24, 2021 and August 26, 2022 in general accordance with the version of following documents that was current at the time of sampling or reporting: ADEC Oil and Other Hazardous Substances Pollution Control Regulations (18 AAC 75 – amended July 2017-Feb 2023), ADEC Field Sampling Guidance August 2017-January 2022, and the approved ADEC Work Plan dated September 2008 with updates/revisions based on ADEC recommendations.

Analytical results from MW-1 groundwater samples were below ADEC cleanup levels for all tested analytes with the following exceptions:

2020

Kobuk-MW1-0720:

- Benzene: 6.7 ug/L (ADEC CUL= 4.6 ug/L)

2021

MW1-0921:

- Benzene: 10.6 ug/L (ADEC CUL= 4.6 ug/L)

2022

MW1-0822:

- Benzene: 15.3 ug/L (ADEC CUL= 4.6 ug/L)

Historically, MW-1 has been non-detect or below ADEC cleanup levels for all tested analytes until 2020. In 2020, there was a large increase in the concentrations of benzene that exceed ADEC CULs, and the concentration of benzene continued to increase through 2022. It should be noted that DRO was detected in the well in 2020 at a concentration below ADEC CULs (380 ug/L) and increased to 537 ug/L in 2021. The DRO result for MW-1 in 2022 was a low biased result of 349 ug/L. GRO (58.1 ug/L) was detected in MW-1 in 2021 and increased to a

concentration of 84.6 ug/L in 2022. The source of the increase in these analytes is unknown, but it is likely from an offsite/upgradient source.

Analytical results from MW-2 groundwater samples were below ADEC cleanup levels for all tested analytes with the following exceptions:

2019

Kobuk-MW2-919:

- Naphthalene by method 8270D SIM: 4.1 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 13 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 6.8 ug/L (ADEC CUL= 1.7 ug/L)

Kobuk-MW12-919:

- Naphthalene by method 8270D SIM: 3.7 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 14 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 8 ug/L (ADEC CUL= 1.7 ug/L)

2020

Kobuk-MW2-0720:

- DRO: 1800 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.6 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 90 ug/L (ADEC CUL= 4.6 ug/L)
- Ethylbenzene: 22 ug/L (ADEC CUL= 15 ug/L)
- Naphthalene by method 8260D: 7.2 ug/L (ADEC CUL= 1.7 ug/L)

Kobuk-MW12-0720:

- DRO: 1900 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.3 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 88 ug/L (ADEC CUL= 4.6 ug/L)
- Ethylbenzene: 22 ug/L (ADEC CUL= 15 ug/L)
- Naphthalene by method 8260D: 7.1 ug/L (ADEC CUL= 1.7 ug/L)

2021

MW2-0921:

- Naphthalene by method 8270D SIM: 2.57 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 31.9 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 6.36 ug/L (ADEC CUL= 1.7 ug/L)

MW12-0921:

- Naphthalene by method 8270D SIM: 2.4 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 31 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 5.84 ug/L (ADEC CUL= 1.7 ug/L)

2022

MW2-0822:

- DRO: 1870 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.49 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 26.2 ug/L (ADEC CUL= 4.6 ug/L)

MW12-0822:

- Naphthalene by method 8270D SIM: 3.2 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 30.2 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 4.3 ug/L (ADEC CUL= 1.7 ug/L)

DRO results have fluctuated over the four-year sampling period addressed in this report, but remained above ADEC cleanup levels in 2022. Naphthalene and Benzene concentrations were above ADEC cleanup levels during this period. Ethylbenzene concentrations were below in 2019 but increased to above ADEC cleanup levels in 2020. In 2021 and 2022, ethylbenzene was below ADEC cleanup levels.

Analytical results from MW-3 groundwater samples were below ADEC cleanup levels for all tested analytes with the following exceptions:

2019

Kobuk-MW3-919:

- DRO: 1900 ug/L (ADEC CUL= 1800 ug/L)
- 1-Methylnaphthalene: 16 ug/L (ADEC CUL: 11 ug/L)
- Naphthalene by method 8270D SIM: 14 ug/L (ADEC CUL= 1.7 ug/L)
- 1,3,4- Trimethylbenzene: 48 ug/L (15 ug/L)
- Naphthalene by method 8260C SIM: 35 ug/L (ADEC CUL= 1.7 ug/L)

2022

MW3-0822:

- DRO: 2570 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 2.08 ug/L (ADEC CUL= 1.7 ug/L)
- Naphthalene by method 8260C SIM: 4.2 ug/L (ADEC CUL= 1.7 ug/L)

Due to the presence of free product in the well analytical samples were not collected from MW-3 in 2020 or 2021. Up until 2019, MW-3 was only analyzed for BTEX, GRO and DRO. From 2019-2022, this monitoring well was sampled for GRO, DRO, PAH and VOCs. DRO has exceeded ADEC cleanup levels in all historic sampling events that samples were collected from the well. GRO has been below ADEC cleanup levels since 2015. 1-Methylnapthalene was above ADEC cleanup levels in 2019, however in 2022, this analyte was significantly below ADEC cleanup levels. Naphthalene was above ADEC clean up levels, however saw a significant decrease in concentration in 2022, but still exceeded ADEC cleanup levels. Benzene was above ADEC cleanup levels from 2008-2012. Benzene was below ADEC CULs from 2013-2022 and in 2022, the well was non-detect for the analyte. Ethylbenzene and xylenes been below ADEC CULs since 2018 and 2017 respectively.

Since MW-1 has seen an increase in benzene concentration above ADEC cleanup levels (and increases in DRO and GRO below ADEC CULs), has been historically non-detect for all analytes or detected below ADEC cleanup levels and this well is cross-gradient to the source area, it is likely that this contamination is migrating onsite from another upgradient source.

In general, all analytes sampled MW-2 have been decreasing in concentration with the exception of DRO and Benzene. These analytes saw an increase in concentration in 2020 and have fluctuated greatly historically.

In general, all analytes sampled in MW-3 have been decreasing in concentration with the exception of DRO. Prior to 20019, DRO was following a downward trend. From 2019 to 2022, there was an increase in concentration however, this well wasn't sampled in 2020 and 2021.

MW2 is located adjacent to the former site of two (2) 10,000-gallon gasoline UST's. MW3 is located adjacent to the former site of one (1) 10,000-gallon gasoline UST and one (1) 5,000-gallon diesel UST.

Field technicians have observed slow recovery in MW-3 on consecutive years. It is likely that the galvanized metal screen is rusting and slowing recovery. All the monitoring wells at the site are galvanized metal with a cut screen. This type of well is much more inexpensive to install as it can be jackhammered in place without the use of a drill rig, but this well type is not ideal for long-term monitoring due to screen deterioration over time. It is likely that MW-3 (and possibly MW2 and MW1) is approaching the end of its serviceable use. If additional wells are installed in the future, the value of replacing MW-3 should be evaluated.

ARES recommends the following:

- Schedule an additional annual groundwater sampling event during period of high seasonal groundwater conditions (August 2023). Groundwater collected from all wells should be analyzed for GRO by method AK101 and DRO by method AK 102. Due to new fuel related detections in the well, groundwater collected from MW1 should also be analyzed for VOCs by method EPA 8260D and PAH by method 8270DSIM. Groundwater collected from MW-2 and MW-3 should be analyzed for volatile organic compounds (VOCs) by method EPA 8260D, and polycyclic aromatic hydrocarbons (PAH) by method EPA 8270D SIM;
- Contaminants are likely migrating off-site. Additional down-gradient samples (soil/water) would need to be collected to determine the extent of the contaminant plume. ARES recommends additional soil borings and well points/groundwater monitoring wells be placed down-gradient to assess potential impacts. If additional wells are installed, ARES recommends replacement of MW-3. Monitoring wells installed on adjacent properties or right of way areas would require permission from the property owners and be installed in accordance with an ADEC approved workplan.

Table of Contents

Appendices

Appendix A – Figures
Appendix B – Graphical Anayis of Analytical Results Over Time
Appendix C – Laboratory Reports and ADEC Lab Quality Checklists
Appendix C-1-2019 Laboratory Report 580-89500-1
Appendix C-2-2020 Laboratory Report 580-96236-1
Appendix C-3-2021 Laboratory Report 1216322
Appendix C-4-2022 Laboratory Report 1225201
Appendix D – Analytical Summary Tables
Appendix D-1: 2019 Analytical Summary Table 580-89500-1
Appendix D-2: 2020 Analytical Summary Table 580-96236-1
Appendix D-3: 2021 Analytical Summary Table 1216322
Appendix D-4: 2022 Analytical Summary Table 1225201
Appendix E –Field Notes & Groundwater Sampling Field Data Sheets
Appendix F- Disposal Documents

ACRONYMS AND ABBREVIATIONS

AAC .....Alaska Administrative Code
ADEC.....Alaska Department of Environmental Conservation
AK.....Alaska
ARES .....Alaska Resources and Environmental Services, LLC
bgs.....Below Ground Surface
BTEX .....Benzene, Toluene, Ethylbenzene and Xylenes
COC .....Chain of Custody
CULs.....Clean Up Levels
°C .....Degrees Celsius
DO.....Dissolved Oxygen
DRO .....Diesel Range Organics
EHC.....Eternal Holdings Corporation Inc.
EPA.....Environmental Protection Agency
°F.....Degrees Fahrenheit
ft²....Square Feet
GFAHFH.....Greater Fairbanks Area Habitat for Humanity
GRO .....Gasoline Range Organics
LCS .....Laboratory Control Sample
LCSD .....Laboratory Control Sample Duplicate
LLC.....Limited Liability Company
LOQ .....Limit of Quantitation
MS/MSD.....Matrix Spike/Matrix Spike Duplicate
mv .....millivolt
ND.....Non-Detect
PAH.....Poly Aromatic Hydrocarbons
ppm .....Parts Per Million
PQL.....Practical Quantitation Limit
QA.....Quality Assurance
QC.....Quality Control
RPD.....Relative Percent Difference
TB .....Trip Blank
µg/L.....Micrograms Per Liter
USGS .....United States Geological Survey

1.0 INTRODUCTION

This report was prepared on behalf of Castle Properties, Inc and Gary Lundgren, who has contracted with Alaska Resources & Environmental Services (ARES) to perform the groundwater investigation associated with the petroleum release (Alaska Department of Environmental Conservation (ADEC) file #100.26.137). The work was conducted as detailed in the approved Work Plan submitted in September 2008. Deviations from the workplan include the use of a bladder pump, and the analysis of groundwater collected from MW-3 and MW-2 for volatile organic compounds (VOCs) and polycyclic aromatic hydrocarbons (PAH) by method EPA 8270DSIM analysis. Deviations from the workplan were instituted based on ADEC recommendations.

1.1 Objectives and Scope of Work

The objective of the sampling event was to obtain groundwater sample data near the site of a former petroleum release in order to determine if the documented groundwater contamination on the property is naturally attenuating and if it is migrating off-site. Groundwater samples were collected from monitoring wells MW-1, MW-2, and MW-3 on September 23, 2019, July 22, 2020, September 24, 2021 and August 26, 2022 in general accordance with the version of following documents that was current at the time of sampling or reporting: ADEC Oil and Other Hazardous Substances Pollution Control Regulations (18 AAC 75 – amended July 2017-Feb 2023), ADEC Field Sampling Guidance August 2017-January 2022, and the approved ADEC Work Plan dated September 2008 with updates/revisions based on ADEC recommendations.

1.2 Project Organization / Personnel

Castle Properties, Inc. is the current owner of the property. Ms. Cheryl Bagstad, on behalf of Mr. Gary Lundgren, is the contact for Castle Properties, Inc. The mailing address for Castle Properties, Inc is 18333 Bothell Way NE, #115 Bothell, WA 98011. The telephone number for Ms. Cheryl Bagstad is (425)-949-8921.

Eurofins Seattle performed laboratory analysis for VOC's, GRO, DRO and PAH in groundwater. Test America Seattle is approved by ADEC to provide testing of groundwater for hazardous substances and petroleum related contaminants. The mailing address for Eurofins Seattle is 5755 8th Street East, WA 98424. The telephone number for Eurofins Seattle is (253) 922-2310.

Eurofins Spokane performed laboratory analysis for DRO and PAH in groundwater. Eurofins Spokane is approved by ADEC to provide testing of groundwater for hazardous substances and petroleum related contaminants. The mailing address for Eurofins Spokane is 11922 East 1st Ave Spokane, WA 99206. The telephone number for Eurofins Spokane is (509) 924-9200.

SGS North America Inc. performed laboratory analysis for GRO, DRO, PAH, VOCs and BTEX. SGS North America Inc is approved by ADEC to provide testing of groundwater

for hazardous substances and petroleum related contaminants. The mailing address for SGS North America is 200 W. Potter Drive, Anchorage, AK 99518. Their telephone number is (907) 562-2343.

The groundwater monitoring work described in this report was conducted by Alaska Resources & Environmental Services on September 23, 2019, July 22, 2020, September 24, 2021, and August 26, 2022, by Joshua Klynsta, Environmental Technician for ARES. Mr. Klynstra meets the qualifications of 'Qualified Environmental Professional' by the ADEC under 18 AAC 75. Mr. Dustin Stahl is the point of contact for this project and may be contacted at Alaska Resources & Environmental Services LLC P.O. Box 83050 Fairbanks, Alaska 99708. The telephone number for Mr. Stahl is (907) 374-3226.

1.3 Regulatory Framework

A regulatory framework for the groundwater monitoring activities has been developed and followed with the consideration of the following regulations and guidance:

- 18 AAC 75 *Oil and Other Hazardous Substances Pollution Control* as amended through Feb 2023;
- ADEC soil cleanup levels in accordance with 18 AAC 75.341 Table B1 and B2 Method Two 'under 40" zone' most stringent level listed; revised Feb 2023; and
- *ADEC Field Sampling Guidance* amended August 2017-January 2022 (version that was current at the time of the sampling event)

2.0 SITE BACKGROUND

2.1 Site Description

The property located at 2751 Picket Place is an industrial lot of approximately 109,335 square feet in size. The lot contains a gravel parking lot with no structures. The legal description for the site is: Tax Lot 1740 Section 17 Township 1 South Range 1 West. The elevation of the site is 439' above mean sea level.

2.2 History

The subject property was formerly a commercial agricultural feed and fuel supply facility referenced as Kobuk Feed and Fuel. It was owned and operated by Ken Ulz, who declared bankruptcy in 1993. A Phase I Site Assessment was reportedly conducted in 1993 by a prospective purchaser and a UST system was identified with fuel reportedly still in the tanks. There had been numerous surface spills and/or releases of fuel product reported at the site with an estimated 620 cubic yards of soil possibly impacted. There was no investigation of subsurface soils associated with potential leaks from the tanks and subsurface piping.

The property was transferred to the Alaska Department of Natural Resources (ADNR) as a result of a failure to fulfill the requirements of an Agriculture Revolving Loan Fund agreement. ADNR then offered the property for sale in 1996 "as is, where is" by sealed competitive bid. The successful bidder was Global Finance and Investment Co. Current tax records indicate it is now owned by Castle Residence Inns, Inc.

During excavation and removal of the four USTs in May 2007, petroleum-contaminated soils were encountered of which approximately 2,190 cubic yards of contaminated soils were removed and stockpiled on-site for remediation by land farming in accordance with the ADEC approved Work Plan. As confirmed by laboratory results, soil levels for GRO, DRO, and BTEX constituents were generally below ADEC target cleanup levels between the surface and 8' bgs on the sidewalls and end walls for both excavation pits following excavation and removal of contaminated soils. The lateral extent of contamination to the west however could not be determined. Laboratory results indicate petroleum-contaminated soils still remain along the west wall of the excavation. Excavation was forced to cease along the west wall once the property boundary limits were reached on the subject property.

The horizontal extent of contamination for the subject property was undetermined. Soils were excavated to a maximum depth of approximately 10' bgs. The seasonal high groundwater table for the surrounding area is generally 8' bgs. Sample results indicate that petroleum contaminated soils above ADEC target cleanup levels still exist within the vadose zone >8' below ground surface.

Information regarding field activities and initial Release Investigation is included in the ARES report titled *Phase II Environmental Site Assessment/ Release Investigation, Kobuk Feed and Fuel (Former) Property, July 2007.* Information regarding installation of permanent groundwater monitoring is included in the ARES report titled *Groundwater Monitoring Well Report, Kobuk Feed and Fuel Property, November 2008.*

Additional groundwater monitoring events were conducted by Alaska Resources and Environmental Services annually since 2008. A summary of recent and historical groundwater sampling data is included in Appendix D of this report. Graphical trend analysis is included in Appendix B.

2.3 Topography

The United States Geological Survey (USGS) Fairbanks Quadrangle (D-2) SW provides topographic map coverage of the site (Figure 1). Fairbanks is located in the northern part of the Tanana Basin, which is a relatively flat floodplain of the Tanana River. The subject property is situated approximately 2.5 miles north of the Tanana River and 1.5 miles south of the Chena River. Based upon the topographic map of the Fairbanks Quadrangle, the site elevation is approximately 439 feet above the mean sea level.

2.4 Regional Hydrology

The Tanana River is the dominant influence on ground-water flow in the subject area. Two discharge peaks characterize the Tanana River: spring snowmelt runoff and late summer precipitation. The stage of nearby water bodies such as Chena Slough and Chena River typically rises and falls in response to stage changes of the Tanana River. The depth to groundwater varies in response to these controlling factors. Based on interpretation of USGS data, regional groundwater flow direction is generally to the northwest. However, the direction of flow can vary depending upon the stage of the

Tanana River. The seasonal high groundwater table for the surrounding area is generally 8’ bgs.

2.5 Site Hydrology

The groundwater table at the time of sampling was approximately 9.7-10.7’ below ground surface. Depth to water (DTW) measurements on the Groundwater Monitoring Data Sheets include 3’ of stickup casing height. The presumed groundwater flow direction is to the northwest which is consistent with other data obtained in the area.

3.0 GROUNDWATER SAMPLING

3.1 Scope of Work

To achieve the stated objectives, ARES performed the following tasks:

- Collected groundwater elevations and water quality parameter measurements to include temperature, pH, conductivity, oxidation reduction potential, and dissolved oxygen;
- Collection of groundwater samples and a duplicate sample. All samples were analyzed for gasoline range organics (GRO) by method AK 101, and diesel range organics (DRO) by method AK 102. Groundwater collected from MW1 was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) by method EPA 8260C. Groundwater collected from MW-2 and MW-3 was analyzed for volatile organic compounds (VOCs) by method EPA 8260C/8260CSIM, and polycyclic aromatic hydrocarbons (PAH) by method EPA 8270DSIM; and
- Data review and report preparation.

3.2 Groundwater Sampling Procedures

A peristaltic pump with new disposable polyethylene tubing, and new nitrile gloves were used during the 2019-2022 sampling event to purge the well while it stabilized and to collect groundwater for DRO and PAH analysis. A bladder pump with disposable polyethylene bladders was used to collect samples for BTEX and VOC analysis.

Groundwater was purged and sampled using low-flow techniques. For low-flow sampling, the goal is minimum drawdown (<0.3 feet) during purging. A flow rate of 0.15-0.4 L/minute was measured and maintained throughout the purging process. Water quality parameters were obtained using a flow-through-cell and a YSI Model 556 multi-parameter water meter. Additionally, water quality parameters were measured and recorded on dedicated water parameter sheets while purging each monitoring well.

Water parameters were monitored and recorded every three to five minutes until purging was completed. Purging continued until water parameter measurements indicated that the well had stabilized.

The following water quality parameters are considered stable when three successive readings, collected 3-5 minutes apart, are within:

- ± 3% for temperature (minimum of ± 0.2°C);
- ± 0.1 for pH;
- ± 3% for conductivity;
- ± 10 mv for redox potential; and
- ± 10% for dissolved oxygen (DO).

Once the groundwater parameters stabilized, samples were collected in order of decreasing volatility. Note: MW-3 did not recover quickly enough to maintain the low flow sampling rate during multiple sampling events. For each of these events an attempt was made to collect groundwater from the well once it had recovered sufficiently, however the samples were collected without groundwater parameters stabilizing.

Groundwater was collected directly from the pump tubing and was placed directly into lab supplied sample bottles. Volatile samples were collected with care to avoid any headspace in the bottle. All bottles were labeled and placed in a pre-chilled cooler (at approximately 4°C) and submitted to an ADEC approved laboratory (Eurofins Seattle and SGS North America Inc.) following chain of custody (COC) procedures.

Purge water was placed into individually labeled 5-gallon buckets with lids and stored offsite in ARES warm storage until analytical results were received. Once the analytical results were received, all purge water that was below ADEC cleanup level was discharged onto the ground surface. Purge water exceeding ADEC cleanup levels was stored in ARES warm storage until enough water accumulated to make disposal economically practical. Purge water was combined with water from other events and sent to NRC Fairbanks facility for disposal. Disposal documentation is included in Appendix F.

Groundwater samples were collected from MW-1, MW-2 and MW-3 on September 23, 2019. A blind field duplicate sample was collected from monitoring well MW-2 for quality assurance/quality control purposes.

Groundwater samples were collected from MW-1 and MW-2 on July 22, 2020. A blind field duplicate sample was collected from monitoring well MW-2 for quality assurance/quality control purposes. Analytical samples were not collected from MW-3 due to floating product in the well (0.01 feet/0.25 gallons recovered).

Groundwater samples were collected from MW-1 and MW-2 on September 24, 2021. A blind field duplicate sample was collected from monitoring well MW-2 for quality assurance/quality control purposes. Analytical samples were not collected from MW-3 due to floating product in the well (0.01 feet/no recovery attempted)

Groundwater samples were collected from MW-1, MW-2 and MW-3 on August 26, 2022. A blind field duplicate sample was collected from monitoring well MW-2 for quality assurance/quality control purposes.

3.3 Field Observations

In the 2019 sampling event, the purge water from MW-1 was clear in appearance and did not have a sheen or odor. It is noted that this well had silt accumulating at the bottom of the well. MW-2 was clear in color and did not have a sheen or odor. MW-3 was clear in color and did not exhibit a sheen but did have a fuel odor. It was noted in the sampling form, that the well did not recharge adequately even after agitating with surge block.

In the 2020 sampling event, the purge water from MW-1 and MW-2 was clear in appearance, did not have a sheen, but did contain a slight fuel odor. MW-3 was not sampled due to floating product in the well (0.01 feet)
In the 2021 sampling event, the purge water from MW-1 and MW-2 was clear in appearance, did not have a sheen or an odor. MW-3 was not sampled due to floating product in the well (0.01 feet).
In the 2022 sampling event, the purge water from MW-1 was clear in color but contained a sheen and fuel odor. MW-2 was clear and didn't have a sheen but did contain a fuel odor. MW-3 drew down before the first parameter reading was received even at a minimum flow. The monitoring well was sampled regardless and was clear in color, contained a sheen and a strong fuel odor.

Groundwater measurements taken during the 2019 sampling event indicate that the water table was approximately 8.5-10.5' below ground surface at the time of sampling.

Groundwater measurements taken during the 2020 sampling event indicate that the water table was approximately 7.35'-8.59' below ground surface at the time of sampling.

Groundwater measurements taken during the 2021 sampling event indicate that the water table was approximately 8.90'-10.47' below ground surface at the time of sampling.
Groundwater measurements taken during the 2022 sampling event indicate that the water table was approximately 8.25'-9.9' below ground surface at the time of sampling.

3.4 Analytical Results

During the 2019 sampling event, all three monitoring wells were sampled for DRO by method AK102 and GRO by method AK101. Monitoring well MW-1 was also sampled for benzene, ethylbenzene, m-xylene, p-xylene, o-xylene and Toluene (BTEX) by method 8260C. Monitoring well MW-2 (including the blind field duplicate sample) and MW-3 were both also sampled for PAH by method EPA 8270D SIM and VOCs by method 8260C and low-level VOCs by method 8260C SIM. A summary table of all analytical results is included in Appendix D. Complete laboratory results are included in Appendix C.

During the 2020 sampling event, all three monitoring wells were sampled for DRO by method AK102 and GRO by method AK101. Monitoring well MW-1 was also sampled for BTEX by method 8260D. Monitoring well MW-2 (including the blind field duplicate sample) was also sampled for PAH by method EPA 8270E SIM and VOCs by method 8260D. A summary table of all analytical results is included in Appendix D. Complete laboratory results are included in Appendix C.

During the 2021 sampling event, all three monitoring wells were sampled for DRO by method AK102 and GRO by method AK101. Monitoring well MW-1 was alsosampled for BTEX by method 8260D.. Monitoring well MW-2 (including the blind field duplicate sample) was alsosampled for PAH by method EPA 8270D SIM and VOCs by method 8260D. A summary table of all analytical results is included in Appendix D. Complete laboratory results are included in Appendix C.

In the 2022 sampling event, all three monitoring wells were sampled for DRO by method AK102 & 103, GRO by method AK101 and PAH by method 8270D SIM. Monitoring well MW-1 was also sampled for BTEX by method 8260D. Sampling well MW-2 (including the blind field duplicate sample) and MW-3 was additionally sampled for VOCs by method 8260D. A summary table of all analytical results is included in Appendix D. Complete laboratory results are included in Appendix C.

Groundwater monitoring well MW-1, was non-detect or detected below ADEC CULs from 2019-2022 for all tested analytes with the following exceptions:

2019

Kobuk-MW1-919:

- All tested analytes were non-detect without exception.

2020

Kobuk-MW1-0720:

- Benzene: 6.7 ug/L (ADEC CUL= 4.6 ug/L)

2021

MW1-0921:

- Benzene: 10.6 ug/L (ADEC CUL= 4.6 ug/L)

2022

MW1-0822:

- Benzene: 15.3 ug/L (ADEC CUL= 4.6 ug/L)

Groundwater monitoring well MW-1 was sampled for DRO, GRO and BTEX from 2008 to 2021. In 2022, PAH analysis was added to the annual sampling. MW-1 is a cross-gradient/up-gradient groundwater well that is located east of MW-2, MW-3 and the former locations of the removed USTs. MW-1 has been non-detect or significantly below ADEC CULs from 2008-2019 for all tested analytes. In 2020-2022, the sample results show that the concentrations of benzene are increasing and are at concentrations that exceed ADEC CULs. It should be noted that DRO was detected in the well in 2020 at a concentration below ADEC CULs (380 ug/L) and increased to 537 ug/L in 2021. The DRO result for MW-1 in 2022 was a low biased result of 349 ug/L. GRO (58.1 ug/L) was detected in MW-1 in 2021 and increased to a concentration of 84.6 ug/L in 2022. The source of the increase in these analytes is unknown, but it is likely from an offsite/upgradient source.

Groundwater monitoring well MW-2 (including blind field duplicate samples), was non-detect or detected below ADEC CULs from 2019-2022 for all tested analytes with the following exceptions:

2019

Kobuk-MW2-919:

- Naphthalene by method 8270D SIM: 4.1 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 13 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 6.8 ug/L (ADEC CUL= 1.7 ug/L)

Kobuk-MW12-919 (blind duplicate of Kobuk-MW2-919) :

- Naphthalene by method 8270D SIM: 3.7 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 14 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 8 ug/L (ADEC CUL= 1.7 ug/L)

2020

Kobuk-MW2-0720:

- DRO: 1800 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.6 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 90 ug/L (ADEC CUL= 4.6 ug/L)
- Ethylbenzene: 22 ug/L (ADEC CUL= 15 ug/L)
- Naphthalene by method 8260D: 7.2 ug/L (ADEC CUL= 1.7 ug/L)

Kobuk-MW12-0720(blind duplicate of Kobuk-MW2-0720):

- DRO: 1900 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.3 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 88 ug/L (ADEC CUL= 4.6 ug/L)
- Ethylbenzene: 22 ug/L (ADEC CUL= 15 ug/L)
- Naphthalene by method 8260D: 7.1 ug/L (ADEC CUL= 1.7 ug/L)

2021

MW2-0921:

- Naphthalene by method 8270D SIM: 2.57 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 31.9 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 6.36 ug/L (ADEC CUL= 1.7 ug/L)

MW12-0921 (blind duplicate of MW2-0921):

- Naphthalene by method 8270D SIM: 2.4 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 31 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 5.84 ug/L (ADEC CUL= 1.7 ug/L)

2022

MW2-0822:

- DRO: 1870 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.49 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 26.2 ug/L (ADEC CUL= 4.6 ug/L)

MW12-0822 (blind duplicate of MW2-0822):

- Naphthalene by method 8270D SIM: 3.2 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 30.2 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 4.3 ug/L (ADEC CUL= 1.7 ug/L)

Monitoring well MW-2 is located down-gradient from the source area, the former location of the UST's. Historically, from 2008-2018, MW-2 was sampled for BTEX, GRO and DRO. From 2019-2022, MW-2 was sampled for VOCs, GRO, PAH and DRO. GRO exceeded ADEC CULs (with the exception of 2011 and 2013) from 2008-2014. From 2014-2022, GRO has been below ADEC CULs. GRO results were following a decreasing trend from 2008-2019, however in 2020 there was a large increase, but remained below ADEC CULs. DRO results have fluctuated greatly from 2008-2022, ranging from above ADEC CULs to below. DRO mostly followed a downward trend from 2008-2019, however in 2020 the results for DRO increased to above ADEC CULs as well as in 2022. Benzene has exceeded ADEC CULs from 2008-2022. In 2020, the results for Benzene greatly increased and since has started a downward trend. Naphthalene was first sampled in 2019 and was above ADEC CULs and has remained steady through 2022. Ethylbenzene sampled from 2008-2022 and was above ADEC CULs from 2008-2018 (with the exception of 2014 and 2017). In 2020, there was a large increase from the previous years and exceeded ADEC CULs, but from 2021-2022 the concentrations have been below ADEC CULs. Xylene (total) exceeded ADEC CULs the first time it was sampled in 2008. Since 2008, it has remained below ADEC CULs in this monitoring well.

Groundwater monitoring well MW-3, was non-detect or detected below ADEC CULs from 2019-2022 for all tested analytes with the following exceptions:

2019

Kobuk-MW3-919:

- DRO: 1900 ug/L (ADEC CUL= 1800 ug/L)
- 1-Methylnaphthalene: 16 ug/L (ADEC CUL: 11 ug/L)
- Naphthalene by method 8270D SIM: 14 ug/L (ADEC CUL= 1.7 ug/L)
- 1,3,4- Trimethylbenzene: 48 ug/L (15 ug/L)
- Naphthalene by method 8260C SIM: 35 ug/L (ADEC CUL= 1.7 ug/L)

2022

MW3-0822:

- DRO: 2570 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 2.08 ug/L (ADEC CUL= 1.7 ug/L)
- Naphthalene by method 8260C SIM: 4.2 ug/L (ADEC CUL= 1.7 ug/L)

Monitoring well MW-3 is downgradient from the source area and the former location of the removed USTs. Prior to 2019, this well was sampled for only BTEX, GRO, and DRO. There have been historical issues with this well drawing down. Due to the presence of free product in the well, analytical samples were not collected in 2020 or 2021. MW-3 has historically had the following analytes exceed ADEC CULs: GRO, DRO, benzene, 1-Methylnaphthalene, Naphthalene, 1,3,4-Trimethybenzene, ethylbenzene, and xylenes. The trend for GRO has been decreasing in concentration since 2015. DRO overall, has

been following a downward trajectory, however, there has been an increase in DRO concentration since 2019. 1-Methylnapthalene, Napthalene and 1,3,4-Trimethylnapthalene were only part of the required analyses since 2019 and all have exceeded ADEC CULs, however since 2019, the concentrations have all decreased. Benzene exceeded ADEC CULs significantly back in 2008. Since 2008, the concentrations of benzene have been decreasing and in 2022, this analyte was not detected in the associated sample. Ethylbenzene significantly exceeded ADEC CULs in 2008 (605 ug/L, ADEC CUL= 15 ug/L), since then there has been a significant decrease in concentration. Since 2018, ethylbenzene has been below ADEC CULs and in 2022 the result was 0.659 ug/L. Xylene (Total) greatly exceeded ADEC CULs from 2008 to 2016. Since 2017, the results have been below ADEC CULs and continue to follow a downward trend.

Summary tables of each years analytical results, and summary tables documenting all historical analytical results from each well are included in Appendix D. The complete laboratory reports and ADEC checklists are included in Appendix C.

4.0 CHEMICAL DATA QUALITY REVIEW

4.1 Introduction

The ADEC *Technical Memorandum Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data* (October 22, 2019) and United States Environmental Protection Agency (EPA) National Functional Guidelines for Organic Review (EPA 2017) were followed in this site investigation. The data was reviewed to determine the data quality and to evaluate potential impact on the usability of the data. The review was performed using Level II reports that were provided by Eurofins Seattle laboratory of Tacoma, WA and SGS North America Inc of Anchorage, AK. The analytical laboratory reports, chain-of-custody records, and ADEC Lab Quality Checklists are included in Appendix D.

The following quality control parameters were reviewed:

- Test Methods
- Holding times
- Sample handling and receiving
- Chain of custody and shipping documents
- Surrogate percent recovery
- Field duplicate sample comparability
- Equipment blanks
- Trip blanks
- Method blanks
- Matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD)
- Laboratory control sample (LCS)/Laboratory control sample duplicate (LCSD) percent recoveries and RPD
- Method Sensitivity – reporting limits and practical quantitation limits (PQL)

4.2 Analytical Laboratory and Test Methods

Analytical analysis for this project was performed by Eurofins Seattle laboratory of Tacoma, Washington and SGS North America Inc of Anchorage Alaska. Eurofins Seattle and SGS Anchorage are approved by ADEC and DOD for the test methods listed below. SGS North America Inc and Eurofins Seattle performed groundwater analysis for the following analytes and methods:

- GRO- AK101
- DRO- AK102
- VOCs- EPA 8260D
- PAH- EPA 8270D SIM

A total of four (4) analytical sampling events occurred during the project.

A total of four (4) lab reports were provided by the laboratory for this project with the following lab identification numbers:

- **580-89500-1 (2019)**
- **580-96236-1 (2020)**
- **1216322 (2021)**
- **1225201 (2022)**

4.3 Data Review Process

The ADEC *Technical Memorandum Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data* (October 22, 2019) and United States Environmental Protection Agency (EPA) National Functional Guidelines for Organic Review (EPA 2017) were used as guidance throughout the data quality review. An ADEC Laboratory Data Review Checklist was completed and laboratory discrepancies and QC errors were noted in the Chemical Data Quality Review section of the final report. The data was reviewed to determine the data quality and to evaluate potential impact on the usability of the data. Analytical results with data quality and or usability affected by QC errors have been qualified with data flags in the analytical summary tables included in Appendix C.

4.4 Data Validation

In order for data to be used for decision making purposes it is essential that it be of known and documented quality. Validation of data requires that appropriate QA/QC procedures be followed and that adequate documentation be included for all laboratory-generated analytical data. The QA/QC documentation provided by the laboratory in conjunction with sample results allows for the evaluation of the following indicators of data quality:

- Integrity and stability of samples;
- Instrument performance during sample analysis;
- Possibility of sample contamination;
- Identification and quantitation of analytes;

- Analytical precision; and
- Analytical accuracy

The laboratory has conducted QA/QC checks in accordance with ADEC, EPA, DOD, project, and lab specific requirements and provided documentation of these checks in the following sections of the provided Level IV report:

- Case Narrative
- Chain of Custody documentation
- Sample receipt documentation
- Summary of results
- Summary of QC results and
- Raw Data

These sections of the laboratory report were reviewed and an ADEC Laboratory Checklist was completed in order to identify potential data quality issues. The quality control parameters were found to be within accepted limits with the following exceptions listed in Sections 4.4-4.7 below.

All QA/QC errors identified during data validation were reviewed to determine the impact on data quality and data usability. These effects on data quality and usability of the data are discussed in in Sections 4.4-4.7 below.

4.5 Sample Handling and Chain of Custody

580-89500-1:

Five (5) analytical samples consisting of four (4) groundwater samples (including one duplicate sample) and one (1) trip blank were received by Eurofins Seattle on September 25, 2019. The samples arrived in good condition and were properly preserved. The coolers at the time of receipt in Seattle was 0.7 ° C.

The COC information was completed properly, signed and dated. There were no discrepancies related to the COC or sample receipt without exception.

580-96236-1:

Four (4) samples consisting of three (3) groundwater samples (including one duplicate) and one (1) trip blank were received by Eurofins Seattle on July 23, 2020. The samples arrived in good condition and properly preserved. The cooler at the time of receipt in Seattle was 3.8 ° C.

The COC information was completed properly, signed, and dated. There were no discrepancies related to the COC or sample receipt without exceptions.

1216322:

Four (4) samples consisting of three (3) groundwater samples (including one duplicate sample) were received by SGS on September 24, 2021. The samples arrived in good

condition and properly preserved. Sample received by laboratory at a temperature of 5.8° C at the SGS Fairbanks office and 1.9° C at the SGS Anchorage laboratory.

The COC information was completed properly, signed, and dated. There were no discrepancies related to the COC or sample receipt with the following exceptions:

- The laboratory stated that the COC included PAH analysis for sample MW1-0921, but a PAH container was not provided. The field technician mistakenly included PAH analysis for this sample, but it was not required for this sampling event.

1225201:

Five (5) sample consisting of four (4) groundwater samples (including one duplicate) and one (1) trip blank were received by SGS on August 20, 2022. The samples arrived in good condition and were property preserved. Cooler temperature upon receipt in Anchorage was 3.6° C.

The COC information was completed properly, signed, and dated. There were no discrepancies related to the COC or sample receipt with the following exceptions:

- The laboratory received 10 containers for sample 1 instead of 8 mentioned on COC. Received containers for DRO & PAH analysis for sample 4. Will be ran per client although not noted on COC. Received 3 containers for trip blank instead of 6 that were mentioned on COC.
- Sample MW12-0822 was lost due to lab error. Sample was not re-extracted due to insufficient remaining sample volume.

4.6 Holding Time Compliance

580-89500-1:

All samples were analyzed within the required holding times without exception.

580-96236-1:

All samples were analyzed withing the required holding times without exception.

1216322:

All samples were analyzed withing the required holding times without exception.

1225201:

All samples were analyzed withing the required holding times without exception.

4.7 Field Quality Assurance/ Quality Control

4.7.1 Equipment Blanks

Equipment blanks were not required for this project. All samples were collected with dedicated disposable sampling supplies.

4.7.2 Field Duplicate Samples

Field quality control (QC) procedures for this project included the collection and analysis of four (4) soil blind field duplicate samples. One blind field duplicate sample was collected for each matrix and analytical method, then analyzed for the same analytes as the original sample. The QC samples were analyzed to assess the quality of sample collection and handling, as well as the accuracy and precision of the laboratory's analytical procedures.

- Kobuk-MW12-919 is the blind field duplicate to sample Kobuk-MW2-919.
- Kobuk-MW12-0720 is the blind field duplicate to sample Kobuk-MW2-0720.
- MW12-0921 is the blind field duplicate to sample MW2-0921.
- MW12-0822 is a blind field duplicate of sample MW2-0822.

RPD calculations provide a comparison of two theoretically identical samples that are submitted blind to the laboratory in order to provide an un-biased measure of precision. Due to the nature of the RPD calculation, sample data for both samples must be reported in order for the RPD calculation to provide meaningful data. RPD calculations are computed for all compounds that had laboratory reported detections above the limit of detection (LOD) for both samples. RPD calculation estimations are given below for sample sets with only one analyte detected above the LOD. The LOD is used in the place of the sample result in this type of data set. The RPDs are shown in Table 3 below for all analytes with detected results in the sample and/or duplicate.

The ADEC recommended RPD limit for duplicate groundwater samples is 30%.

The RPD calculations fell within the recommended limit for all groundwater sample analytes with the following exceptions:

580-89500-1:

The following analytes had an RPD above recommended limits for samples Kobuk-MW2-919 and Kobuk-MW12-919:

- 8260C SIM: 1,2-Dichloroethane (150.5%)
- 8260C: 4-Isopropyltoluene (75.6%)
- AK101: GRO (52.6%)

Data quality for the analytes with RPDs exceeding control limits are affected. Associated results are considered estimated with an unknown bias and are qualified with the "QN" data flag. All associated results are less than ADEC CULs. Data is usable for the purpose of groundwater characterization.

580-96236-1:

The following analyte had an RPD above recommended limits for samples Kobuk-MW12-0720 Kobuk-MW2-0720:

- 8260C SIM: 1,2-Dichloroethane (106.5%)

Data quality for the analytes with RPDs exceeding control limits are affected. Associated results are considered estimated with an unknown bias and are qualified with the "QN" data flag. All associated results are less than ADEC CULs. Data is usable for the purpose of groundwater characterization.

1216322:

All calculated RPDs were within control limits for samples MW12-0921 and MW2-0921.

1225201:

The following analyte had an RPDs above recommended limits for samples MW2-0822 and MW12-0822:

- 8260D: Naphthalene (101.8%), Chloromethane (70.1%), n-Propylbenzene (35.3%), sec-Butylbenzene (34.1%)

Data quality for the analytes with RPDs exceeding control limits are affected. Associated results are considered estimated with an unknown bias and are qualified with the "QN" data flag. All associated results are less than ADEC CULs with the exception of Naphthalene. Naphthalene was detected in the duplicate and the original at 2X the ADEC CULs. Data remains usable.

4.7.3 Trip Blank Samples

Field quality control (QC) procedures for this project included the analysis of four (4) groundwater trip blank samples which accompanied the samples in the field and transport to the laboratory during each of the sampling events. The trip blank samples were analyzed to assess the quality of sample collection and handling.

In ideal conditions the analysis of a trip blank sample should not indicate the presence of any of the tested analytes in a quantity above the limit of quantitation (LOQ). A result above the LOQ can indicate that cross-contamination occurred between samples during sample transport, analysis, or indicate laboratory contamination.

580-89500-1:

A total of one (1) soil trip blank was analyzed for this sampling event. The trip blank was analyzed for VOC compounds by method 8260C and GRO by AK101. Naphthalene (0.12 ug/L) was detected in the Trip Blank at concentrations below the LOQs and ADEC CULs. All results in which the analyte was detected in both the sample and the trip blank are qualified with the B data flag. Data quality is affected. A method blank detection was recorded for Naphthalene at similar levels to the trip blank detection. Cross-contamination may have occurred during the sampling event or transport, but the detection more likely occurred from the method blank detection. All affected results were either significantly above or below ADEC CULs and remain usable.

580-96236-1:

A total of one (1) soil trip blank was analyzed for this sampling event. The trip blank was analyzed for VOC compounds by method 8260C and GRO by AK101. Acetone (18 ug/L) was detected in the Trip Blank at concentrations below the LOQ and the project limits. All results in which the analyte was detected in both the sample and the blank have been qualified with the B data flag. Data quality is affected. Associated non-detect results are not affected. Cross-contamination between samples for these analytes may have occurred for this sampling event and associated results may be biased high. All affected results are below ADEC CULs. Data is usable.

1216322:

A total of one (1) soil trip blank was analyzed for this sampling event. The trip blank was analyzed for VOC compounds by method 8260C and GRO by AK101. The trip blank was non-detect for all tested analytes without exceptions.

1225201:

A total of one (1) soil trip blank was analyzed for this sampling event. The trip blank was analyzed for VOC compounds by method 8260C and GRO by AK101. The trip blank was non-detect for all tested analytes without exceptions.

4.8 Laboratory Quality Assurance / Quality Control

4.8.1 Detection Limits

All reported LOQs for the project were less than the ADEC CUL with the following exceptions for each specific laboratory report listed below.

580-89500-1:

- **8260C:** 1,2,3-Trichloropropane has detection limits that exceed ADEC CUL's in one or more samples.

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. The samples were collected as initial characterization samples to determine the contaminants of concern at the source of the spill. The data is usable for this purpose. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

580-96236-1:

- **8260D:** 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,2,3-Trichloropropane, 1,2-Dibromoethane, 1,2-Dichloroethane, Bromodichloromethane, Chloroform, Hexachlorobutadiene, Naphthalene, Trichloroethene and Vinyl chloride have detection limits that exceed ADEC CUL's in one or more samples.

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

1216322:

- **8260D** – 1,2,3-Trichloropropane has a detection limit that exceeds the ADEC CUL in one or more samples.

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

1225201:

- 8260 – 1,2,3-Trichloropropane has a detection limit that exceeds ADEC CUL's in one or more samples.

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

4.8.2 Method Blanks

580-89500-1:

A method blank was reported for each matrix, analysis, and 20 samples in this sampling event.

All method blank results were non-detect for all analytes with the following exceptions:

- 8260C SIM: Hexachlorobutadiene was detected in MB 580-313335/7 at concentrations (0.0529 ug/L) that were above the method detection limit, but

below the LOQ (0.50 ug/L). This analyte was not detected in associated samples. Data quality and usability are not affected.

- 8260C SIM: Napthalene was detected in MB 580-313335/7 at concentrations (0.133 ug/L) that were above the method detection limit, but below the LOQ (0.50 ug/L). This analyte was detected in associated samples significantly above and below ADEC CULs. Data quality is affected. Analytes detected in both the blank and the samples are qualified with the B data flag. Data usability is not affected.

580-96236-1:

A method blank was reported for each matrix, analysis, and 20 samples in this sampling event. All method blank results associated with this sampling event were non-detect without exception.

1216322:

A method blank was reported for each matrix, analysis, and 20 samples in this sampling event.
All method blank results associated with this sampling event were non-detect or less than the limit of quantitation.

- **8270D SIM –** 2-Methylnaphthalene (0.0174 ug/L) and Phenanthrene (0.018 ug/L) were detected in Method Blank 1639560 above the MDL but less than half the LOQ (0.0500 ug/L). Data quality is affected. Analytes detected in both the samples and the blank are considered high biased estimates and are qualified with the B data flag. These analytes were detected in associated samples significantly below ADEC CULs and remain usable. Data usability is not affected.

1225201:

A method blank was reported for each matrix, analysis, and 20 samples in this sampling event.
All method blank results associated with this sampling event were non-detect or less than the limit of quantitation.

- **8270**: 1-Methylnaphthalene and 2-Methylnaphthalene were detected in MB 1682978 at concentrations (0.0234 ug/L and 0.0315 ug/L) that were above the method detection limit but below the LOQ (0.0250 ug/L). Data quality is affected. Analytes detected in both the sample and the blank are considered high biased estimates and are qualified with the B data flag. 1-Methylnaphthalene and 2-Methylnaphthalene were detected in associated samples at concentrations below ADEC CULs. Data usability is not affected.

4.8.3 LCS/LCSD

580-89500-1:

The laboratory analyzed and reported at least one LCS/LCSD per matrix, analysis, and 20 samples. All LSC/LCSD %Rs and RPDs were within control limits without exceptions.

580-96236-1:

The laboratory analyzed and reported at least one LCS/LCSD per matrix, analysis, and 20 samples and all LSC/LCSD %Rs and RPDs were within control limits with the following exceptions:

- 8260D: LCS 580-334180/6 exceeded recovery criteria for Dichlorodifluoromethane and Chloromethane. The analyte was biased high in the LCS and was not detected in associated samples; therefore, the data has been reported, and does not require qualification. Data quality and usability are not affected.

1216322:

The laboratory analyzed and reported at least one LCS/LCSD per matrix, analysis, and 20 samples. All LSC/LCSD %Rs and RPDs were within control limits without exceptions.

1225201:

The laboratory analyzed and reported at least one LCS/LCSD per matrix, analysis, and 20 samples and all LSC/LCSD %Rs and RPDs were within control limits with the following exceptions:

- **AK102:** The LCSD for batch 1684238 recovered below acceptance criteria for DRO. Data quality is affected. Associated detected results for DRO in samples MW1-0822, MW2-0822 and MW3-0822 are considered low biased estimates and are qualified with the QL data flag. The associated low biased detected results are significantly above or below ADEC CLs and remain usable.

4.8.4 Surrogates

580-89500-1:

Surrogate recoveries were performed and reported for all analyses and the %R for all surrogates were within control limits without exceptions.

580-96236-1:

Surrogate recoveries were performed and reported for all analyses and the %R for all surrogates were within control limits without exceptions.

1216322:

Surrogate recoveries were performed and reported for all analyses and the %R for all surrogates were within control limits without exceptions.

1225201:

Surrogate recoveries were performed and reported for all analytes and the %R for all surrogates were within control limits with the following exceptions:

- AK101: Surrogate 4-Bromofluorobenzene exceeded acceptance criteria for sample MW2-0822 for Analysis Batch VFC16244. Data quality is affected. Detected results may be biased high and are qualified with QH data flags in the associated samples. Non-detect results are not affected. Associated detected results for GRO were significantly below ADEC cleanup levels and remain usable.

4.8.5 Other Laboratory QC Errors

Other laboratory QA/QC errors not reported elsewhere are listed below:

580-89500-1:

- No other laboratory QA/QC errors were reported by the laboratory.

580-96236-1:

- AK102: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Kobuk-MW1-0720 (580-96236-1).
- AK102: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Kobuk-MW2-0720 (580-96236-2) and Kobuk-MW12-0720 (580-96236-3).

1216322:

- No other laboratory QA/QC errors were reported by the laboratory.

1216322:

- No other laboratory QA/QC errors were reported by the laboratory.

Although the data quality was affected by the QC errors listed above, none of the data related to the contaminants of concern required rejection or determined to be unusable. The data was deemed usable for its intended purpose of groundwater characterization.

5.0 Conclusions and Recommendations

Analytical results from MW-1 groundwater samples were below ADEC cleanup levels for all tested analytes with the following exceptions:

2020
Kobuk-MW1-0720:

- Benzene: 6.7 ug/L (ADEC CUL= 4.6 ug/L)

2021
MW1-0921:

- Benzene: 10.6 ug/L (ADEC CUL= 4.6 ug/L)

2022
MW1-0822:

- Benzene: 15.3 ug/L (ADEC CUL= 4.6 ug/L)

Historically, MW-1 has been non-detect or below ADEC cleanup levels for all tested analytes until 2020. In 2020, there was a large increase in the concentrations of benzene that exceed ADEC CULs, and the concentration of benzne continued to increase through 2022. It should be noted that DRO was detected in the well in 2020 at a concentration below ADEC CULs (380 ug/L) and increased to 537 ug/L in 2021. The DRO result for MW-1 in 2022 was a low biased result of 349 ug/L. GRO (58.1 ug/L) was detected in MW-1 in 2021 and increased to a concentration of 84.6 ug/L in 2022. The source of the increase in these analytes is unknown, but it is likely from an offsite/upgradient source.

Analytical results from MW-2 groundwater samples were below ADEC cleanup levels for all tested analytes with the following exceptions:

2019
Kobuk-MW2-919:

- Naphthalene by method 8270D SIM: 4.1 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 13 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 6.8 ug/L (ADEC CUL= 1.7 ug/L)

Kobuk-MW12-919:

- Naphthalene by method 8270D SIM: 3.7 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 14 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 8 ug/L (ADEC CUL= 1.7 ug/L)

2020
Kobuk-MW2-0720:

- DRO: 1800 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.6 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 90 ug/L (ADEC CUL= 4.6 ug/L)
- Ethylbenzene: 22 ug/L (ADEC CUL= 15 ug/L)
- Naphthalene by method 8260D: 7.2 ug/L (ADEC CUL= 1.7 ug/L)

Kobuk-MW12-0720:

- DRO: 1900 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.3 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 88 ug/L (ADEC CUL= 4.6 ug/L)
- Ethylbenzene: 22 ug/L (ADEC CUL= 15 ug/L)
- Naphthalene by method 8260D: 7.1 ug/L (ADEC CUL= 1.7 ug/L)

2021

MW2-0921:

- Naphthalene by method 8270D SIM: 2.57 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 31.9 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 6.36 ug/L (ADEC CUL= 1.7 ug/L)

MW12-0921:

- Naphthalene by method 8270D SIM: 2.4 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 31 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 5.84 ug/L (ADEC CUL= 1.7 ug/L)

2022

MW2-0822:

- DRO: 1870 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 3.49 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 26.2 ug/L (ADEC CUL= 4.6 ug/L)

MW12-0822:

- Naphthalene by method 8270D SIM: 3.2 ug/L (ADEC CUL= 1.7 ug/L)
- Benzene: 30.2 ug/L (ADEC CUL= 4.6 ug/L)
- Naphthalene by method 8260D: 4.3 ug/L (ADEC CUL= 1.7 ug/L)

DRO results have fluctuated over the four year sampling period addressed in this report, but remained above ADEC cleanup levels in 2022. Napthalene and benzene concentrations were above ADEC cleanup levels during this period. Ethylbenzene concentrations were below in 2019 but increased to above ADEC cleanup levels in 2020. In 2021 and 2022, ethylbenzene was below ADEC cleanup levels.

Analytical results from MW-3 groundwater samples were below ADEC cleanup levels for all tested analytes with the following exceptions:

2019

Kobuk-MW3-919:

- DRO: 1900 ug/L (ADEC CUL= 1800 ug/L)
- 1-Methylnaphthalene: 16 ug/L (ADEC CUL: 11 ug/L)
- Naphthalene by method 8270D SIM: 14 ug/L (ADEC CUL= 1.7 ug/L)
- 1,3,4- Trimethylbenzene: 48 ug/L (15 ug/L)
- Naphthalene by method 8260C SIM: 35 ug/L (ADEC CUL= 1.7 ug/L)

2022

MW3-0822:

- DRO: 2570 ug/L (ADEC CUL= 1800 ug/L)
- Naphthalene by method 8270D SIM: 2.08 ug/L (ADEC CUL= 1.7 ug/L)
- Naphthalene by method 8260C SIM: 4.2 ug/L (ADEC CUL= 1.7 ug/L)

Due to the presence of free product in the well analytical samples were not collected from MW-3 in 2020 or 2021. Up until 2019, MW-3 was only analyzed for BTEX, GRO and DRO. From 2019-2022, this monitoring well was sampled for GRO, DRO, PAH and VOCs. DRO has exceeded ADEC cleanup levels in all historic sampling events that samples were collected from the well. GRO has been below ADEC cleanup levels since 2015. 1-Methylnapthalene was above ADEC cleanup levels in 2019, however in 2022, this analyte was significantly below ADEC cleanup levels. Naphthalene was above ADEC clean up levels, however saw a significant decrease in concentration in 2022, but still exceeded ADEC cleanup levels. Benzene was above ADEC cleanup levels from 2008-2012, was below ADEC CULs from 2013-2022 and in 2022, the well was non-detect for the analyte. Ethylbenzene and xylenes been below ADEC CULs since 2018 and 2017 respectively.

Since MW-1 has seen an increase in benzene concentration above ADEC cleanup levels (and increases in DRO and GRO below ADEC CULs), has been historically non-detect for all analytes or detected below ADEC cleanup levels and this well is cross-gradient to the source area, it is likely that this contamination is migrating onsite from another upgradient source.

In general, all analytes sampled MW-2 have been decreasing in concentration with the exception of DRO and Benzene. These analytes saw an increase in concentration in 2020 and have fluctuated greatly historically.

In general, all analytes sampled in MW-3 have been decreasing in concentration with the exception of DRO. Prior to 20019, DRO was following a downward trend. From 2019 to 2022, there was an increase in concentration however, this well wasn't sampled in 2020 and 2021.

MW2 is located adjacent to the former site of two (2) 10,000-gallon gasoline UST's. MW3 is located adjacent to the former site of one (1) 10,000-gallon gasoline UST and one (1) 5,000-gallon diesel UST.

Field technicians have observed slow recovery in MW-3 on consecutive years. It is likely that the galvanized metal screen is rusting and slowing recovery. All the monitoring wells at the site are galvanized metal with a cut screen. This type of well is much more inexpensive to install as it can be jackhammered in place without the use of a drill rig, but this well type is not ideal for long-term monitoring due to screen deterioration over time. It is likely that MW-3 (and possibly MW2 and MW1) is approaching the end of its serviceable use. If additional wells are installed in the future, the value of replacing MW-3 should be evaluated.

ARES recommends the following:

- Schedule an additional annual groundwater sampling event during period of high seasonal groundwater conditions (August 2023). Groundwater collected from all wells should be analyzed for GRO by method AK101 and DRO by method AK 102. Due to new fuel related detections in the well, groundwater collected from MW1 should also be analyzed for VOCsby method EPA 8260D and PAH by method 8270DSIM. Groundwater collected from MW-2 and MW-3 should be analyzed for volatile organic compounds (VOCs) by method EPA 8260D, and polycyclic aromatic hydrocarbons (PAH) by method EPA 8270D SIM;
- Contaminants are likely migrating off-site. Additional down-gradient samples (soil/water) would need to be collected to determine the extent of the contaminant plume. ARES recommends additional soil borings and well points/groundwater monitoring wells be placed down-gradient to assess potential impacts. If additional wells are installed, ARES recommends replacement of MW-3. Monitoring wells installed on adjacent properties or right of ways would require permission from the property owners and be installed in accordance with an ADEC approved workplan.

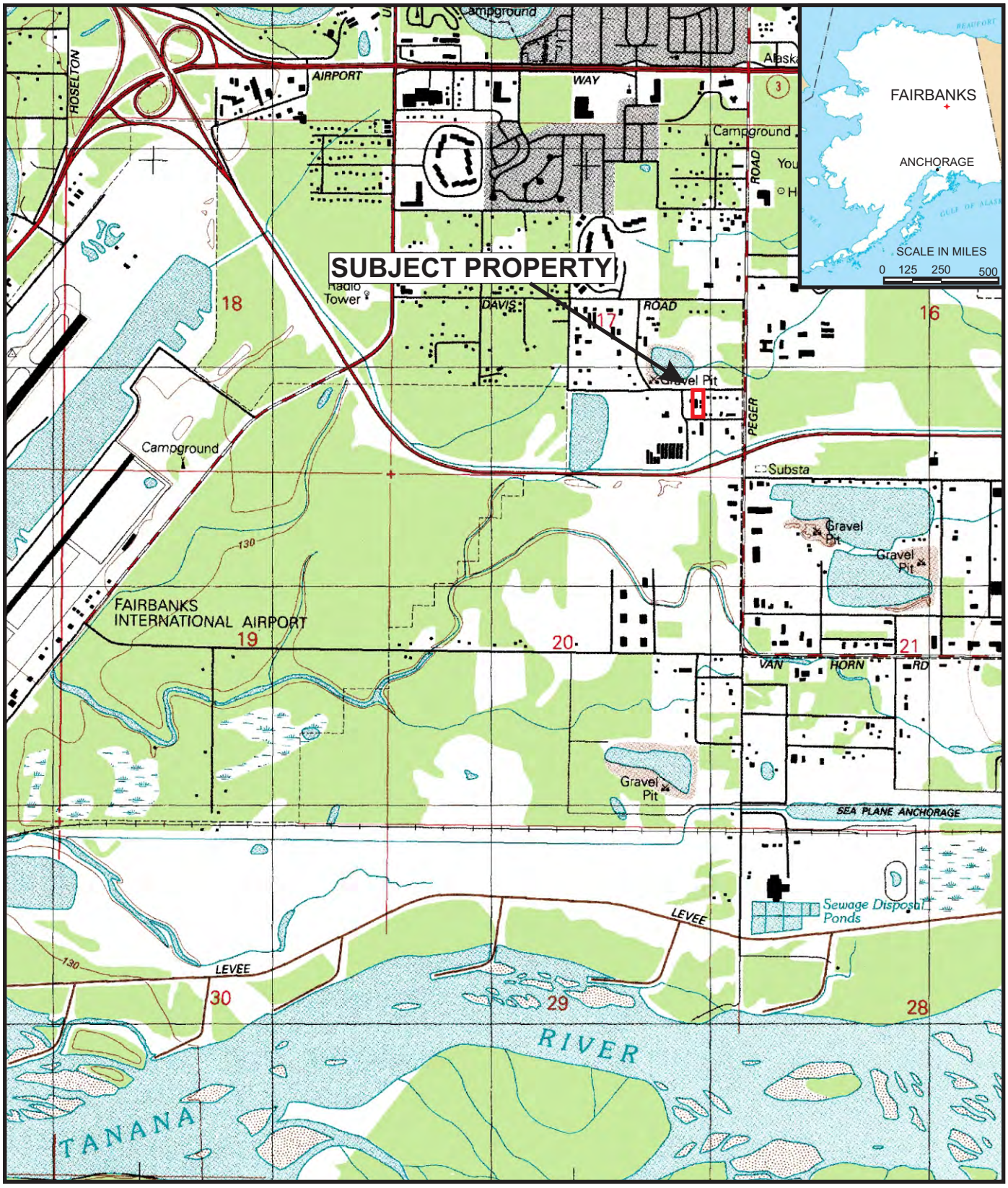
6.0 Limitations

This report presents the analytical results from a limited number of groundwater samples and should not be construed as a comprehensive study of groundwater quality at the site. The samples were intended to evaluate the presence or absence of contaminants at the locations selected. Detectable levels of petroleum hydrocarbons may be present at other locations. It was also not the intent of our sampling and testing to detect the presence of groundwater affected by contaminants other than those for which laboratory analyses were performed. No conclusions can be drawn about the presence or absence of other contaminants. This is not a geotechnical study.

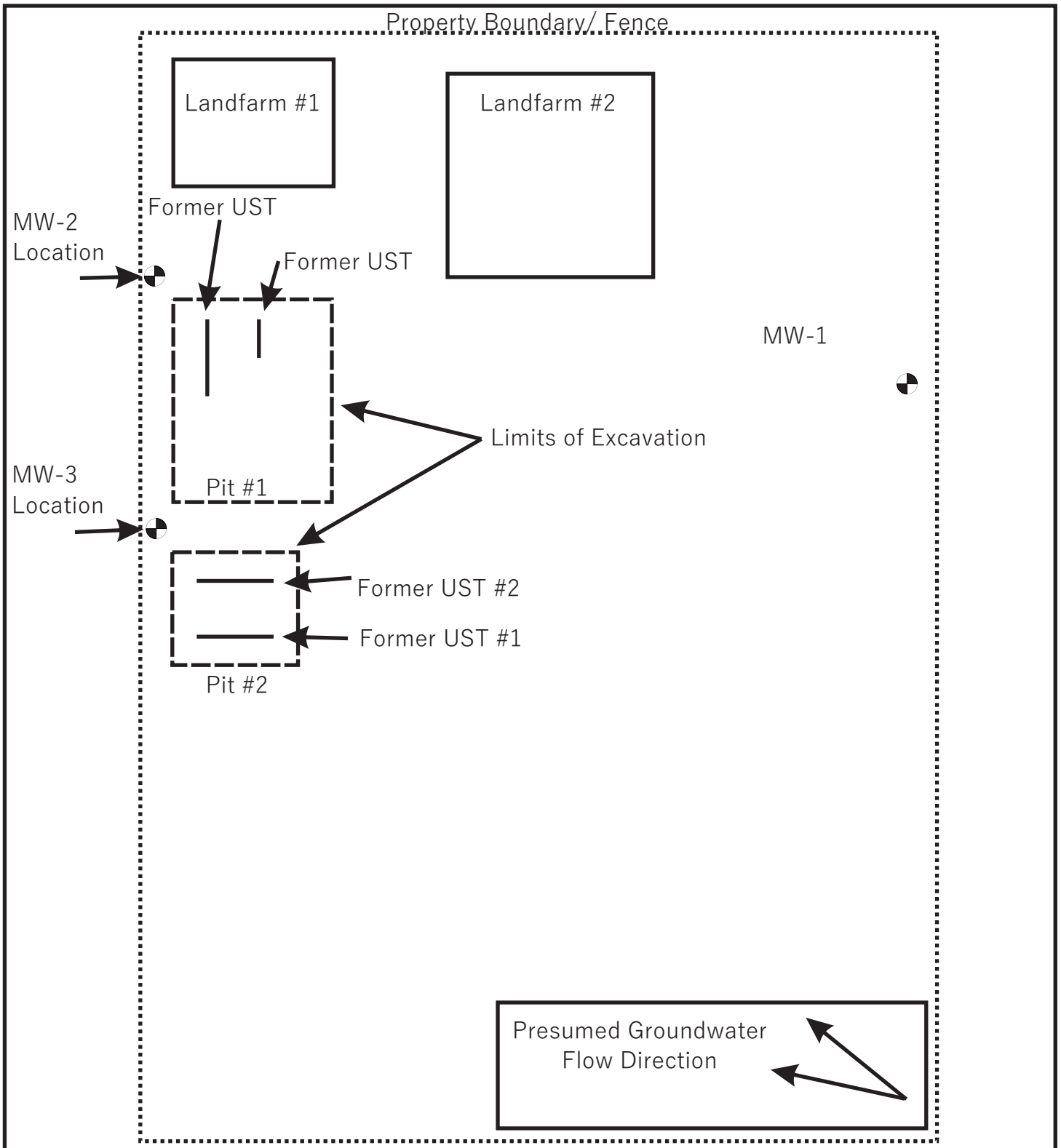
The data presented in this report should be considered representative of the time of our site observations and sample collection. Changes in site conditions can occur with time because of natural forces or human activity. ARES reserves the right to modify or alter conclusions and recommendations should additional data become available.

This report was prepared for the exclusive use of Castle Properties, Inc, Gary Lundgren, and their representatives. If it is made available to others, it should be for information on factual data only and not as a warranty of subsurface conditions.

Appendix A:
Figures



1992 TOPOGRAPHICAL MAP FAIRBANKS, AK QUAD D-2 SW	DATE: 08/30/2023 DRAWN: DJS	SCALE IN MILES: 0 ¼ ½	**ALASKA RESOURCES AND ENVIRONMENTAL SERVICES, LLC** **3520 INTERNATIONAL STREET** **FAIRBANKS, AK 99701** **PH. (907) 374-3226** **FAX (907) 374-3219**	FIGURE 1
	PROJECT: FORMER KOBUCK FEED AND FUEL 2019-2022 GROUNDWATER SAMPLING 2751 PICKET PLACE, FAIRBANKS, AK	N W E S		



N
W E
S

Site Map

Scale in Feet:

0 25 50 100

2019-2022 Groundwater Monitoring Well Report
2751 Picket Place

FIGURE 2

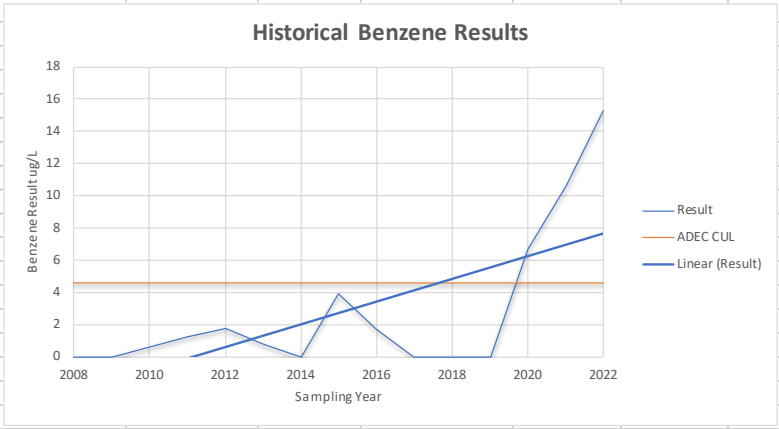
ARES
Alaska Resources and Environmental Services, LLC
3520 International Street
Fairbanks AK 99701

Appendix B:

Graphical Trend Analysis of Analytical Results Over Time

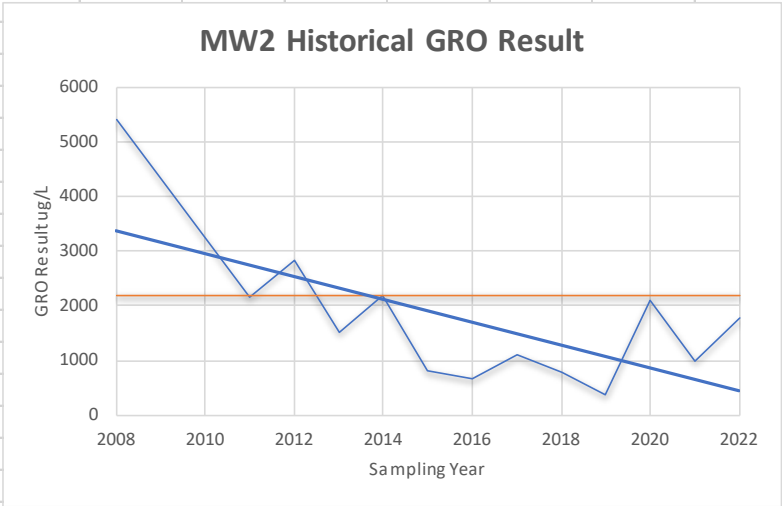
MW-1

Benzene Historical		
Year	Result	ADEC CUL
2008	0	4.6
2009	0	4.6
2011	1.24	4.6
2012	1.77	4.6
2013	0.772	4.6
2014	0	4.6
2015	3.92	4.6
2016	1.69	4.6
2017	0	4.6
2018	0	4.6
2019	0	4.6
2020	6.7	4.6
2021	10.6	4.6
2022	15.3	4.6

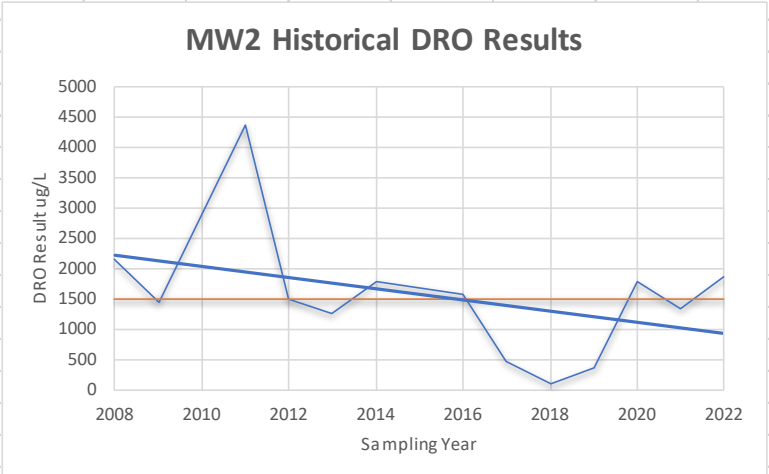


MW-2

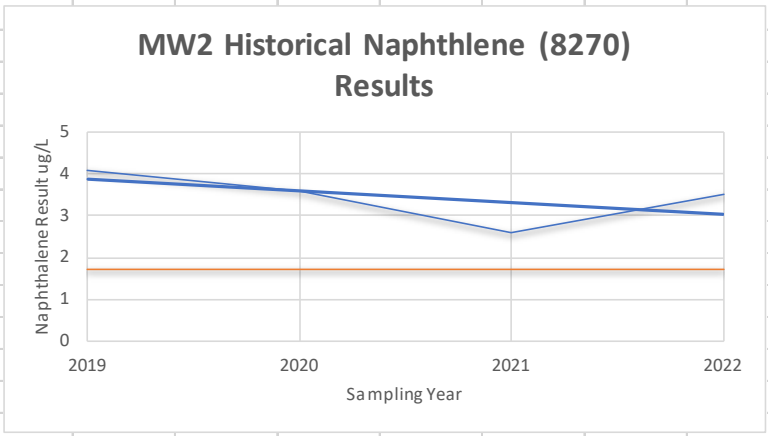
Year	Result	ADEC CUL
2008	5410	2200
2011	2160	2200
2012	2830	2200
2013	1500	2200
2014	2200	2200
2015	808	2200
2016	656	2200
2017	1100	2200
2018	790	2200
2019	360	2200
2020	2100	2200
2021	991	2200
2022	1780	2200



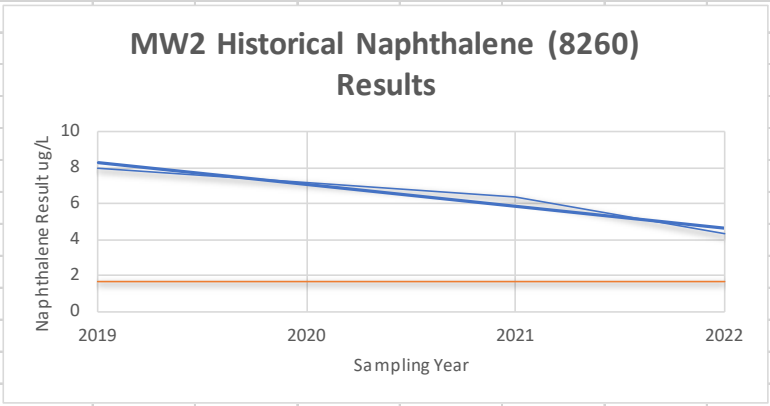
Year	**Result**	ADEC CUL
2008	2150	1500
2009	1450	1500
2011	4370	1500
2012	1500	1500
2013	1270	1500
2014	1800	1500
2015	1680	1500
2016	1570	1500
2017	460	1500
2018	110	1500
2019	360	1500
2020	1800	1500
2021	1330	1500
2022	1870	1500



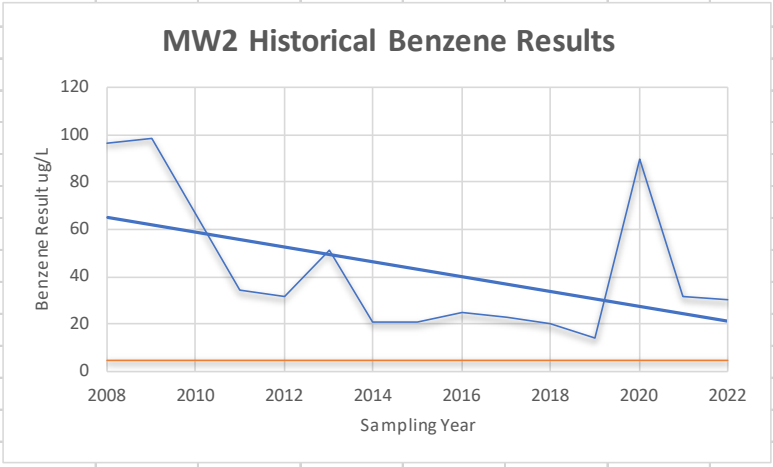
Year	Results	ADEC CUL
2019	4.1	1.7
2020	3.6	1.7
2021	2.6	1.7
2022	3.5	1.7



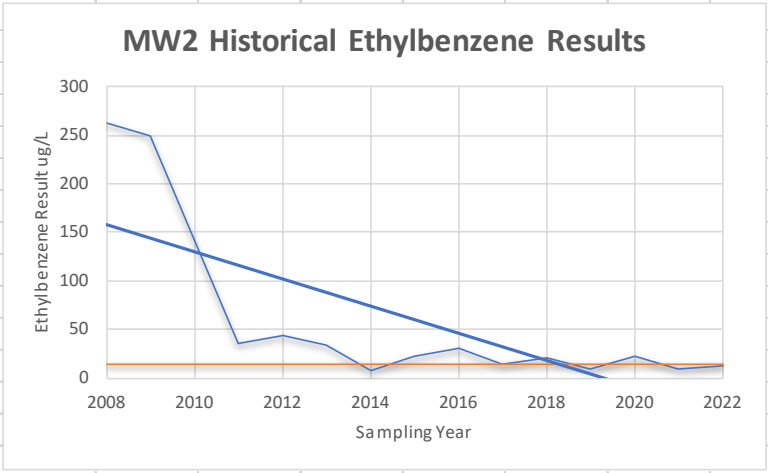
Year	Results	ADEC CUL
2019	8	1.7
2020	7.2	1.7
2021	6.36	1.7
2022	4.3	1.7



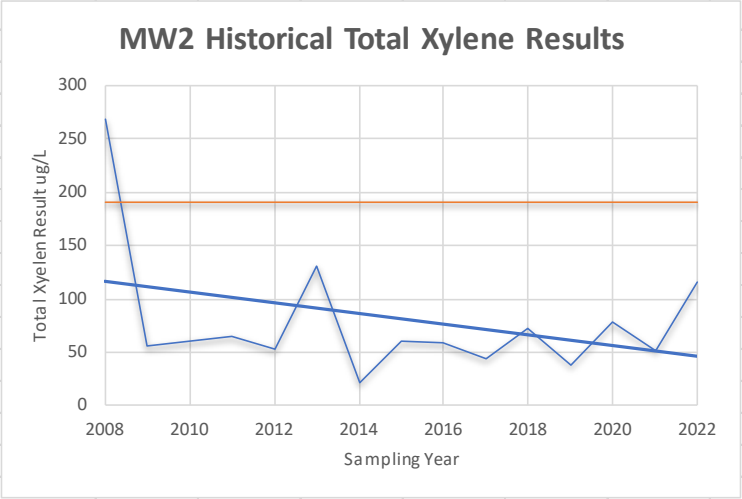
Year	Result	ADEC CUL
2008	96.4	4.6
2009	98.6	4.6
2011	34.1	4.6
2012	31.4	4.6
2013	51.2	4.6
2014	21	4.6
2015	21.1	4.6
2016	24.7	4.6
2017	23	4.6
2018	20	4.6
2019	14	4.6
2020	90	4.6
2021	31.9	4.6
2022	30.2	4.6



Year	Result	ADEC CUL
2008	262	15
2009	250	15
2011	36	15
2012	44.3	15
2013	33.5	15
2014	7.5	15
2015	22.8	15
2016	30	15
2017	14	15
2018	20	15
2019	9.8	15
2020	22	15
2021	9.21	15
2022	12.1	15

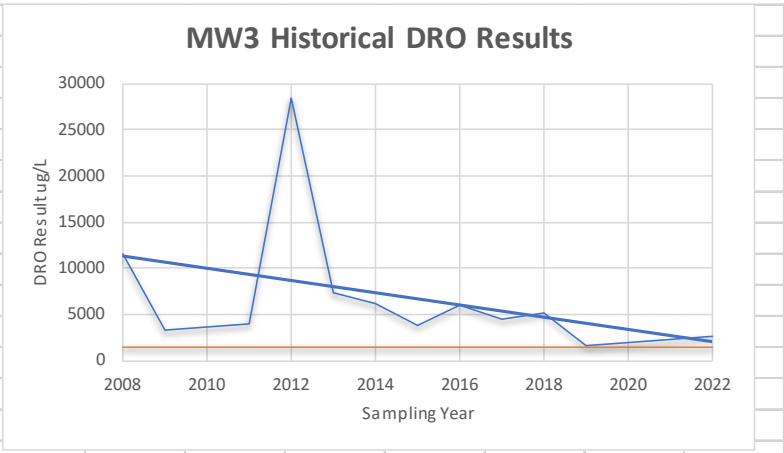


Year	Results	ADEC CUL
2008	268	190
2009	55.8	190
2011	65.4	190
2012	53	190
2013	131	190
2014	22	190
2015	60.6	190
2016	59.6	190
2017	44.3	190
2018	72	190
2019	37.7	190
2020	79	190
2021	51.7	190
2022	116	190

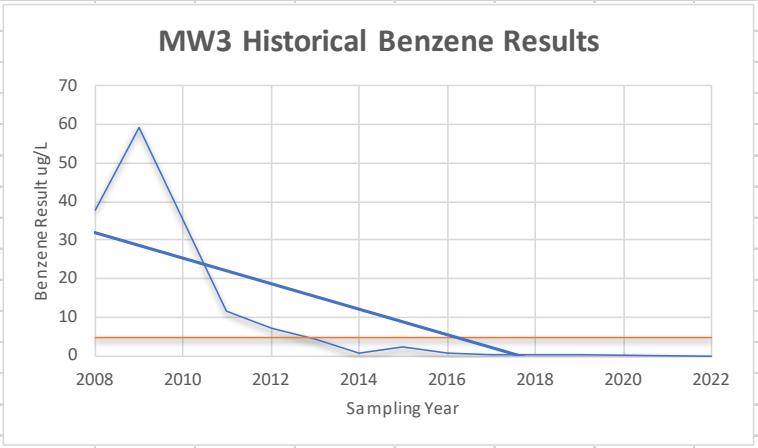


MW-3

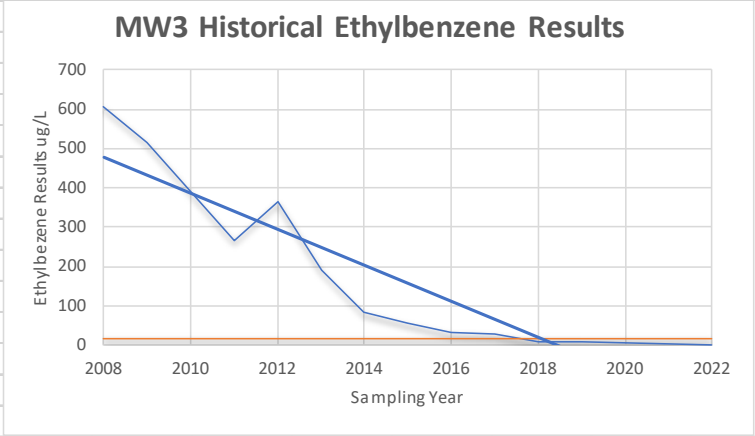
Year	Result	ADEC CUL
2008	11600	1500
2009	3260	1500
2011	3910	1500
2012	28500	1500
2013	7340	1500
2014	6100	1500
2015	3890	1500
2016	5990	1500
2017	4400	1500
2018	5100	1500
2019	1700	1500
2022	2570	1500



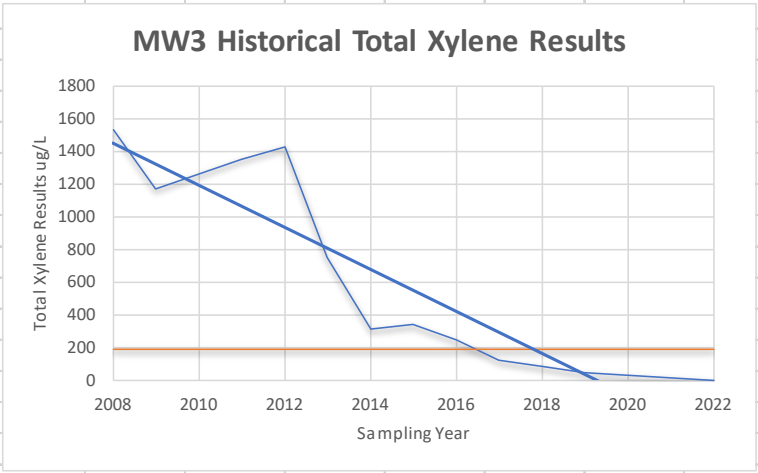
Year	Result	ADEC CUL
2008	37.9	4.7
2009	59.4	4.7
2011	11.4	4.7
2012	7.27	4.7
2013	4.27	4.7
2014	0.84	4.7
2015	2.15	4.7
2016	0.5	4.7
2017	0.29	4.7
2018	0.19	4.7
2019	0.17	4.7
2022	0	4.7



Year	Result	ADEC CUL
2008	605	15
2009	515	15
2011	266	15
2012	364	15
2013	192	15
2014	86	15
2015	57.8	15
2016	34.2	15
2017	27	15
2018	9.6	15
2019	9.3	15
2022	0.659	15



Year	Result	ADEC CUL
2008	1530	190
2009	1170	190
2011	1350	190
2012	1430	190
2013	756	190
2014	320	190
2015	344	190
2016	246	190
2017	130	190
2018	88	190
2019	50	190
2022	6.09	190



Appendix C:

Laboratory Reports

&

ADEC Lab Quality Checklists

Appendix C-1:

2019 Laboratory Report 580-89500-1

&

ADEC Lab Quality Checklist

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-89500-1
Client Project/Site: Kobuk Feed & Fuel

For:
Alaska Resources & Environment
PO BOX 83050
Fairbanks, Alaska 99708

Attn: Lyle Gresehover

M. Elaine Walker

Authorized for release by:
10/9/2019 3:16:05 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

Table of Contents

Job ID: 580-89500-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-89500-1

Receipt
Five samples were received on 9/25/2019 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.7º C.

GC/MS VOA
Method(s) 8260C SIM: The method blank for analytical batch 580-312962 contained Naphthalene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 8260C SIM: The method blank for analytical batch 580-313335 contained Naphthalene and Hexachlorobutadiene above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Kobuk-MW1-919

Date Collected: 09/23/19 13:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/03/19 20:06	1
Toluene	ND		2.0	0.39	ug/L			10/03/19 20:06	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/03/19 20:06	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/03/19 20:06	1
o-Xylene	ND		2.0	0.39	ug/L			10/03/19 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*10/03/19 20:06*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 120*		*10/03/19 20:06*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*10/03/19 20:06*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*10/03/19 20:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*		*10/03/19 20:06*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/03/19 20:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*83*		*50 - 150*		*10/03/19 20:45*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.27	0.098	mg/L		10/02/19 12:35	10/03/19 05:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*10/02/19 12:35*	*10/03/19 05:10*	*1*
n-Triacontane-d62	*95*		*50 - 150*	*10/02/19 12:35*	*10/03/19 05:10*	*1*

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Kobuk-MW2-919

Date Collected: 09/23/19 12:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-2

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.0090	ug/L			10/04/19 23:46	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.049	ug/L			10/04/19 23:46	1
1,1,2-Trichloroethane	ND		0.50	0.017	ug/L			10/04/19 23:46	1
1,1-Dichloroethene	**0.12**	**J**	0.50	0.014	ug/L			10/04/19 23:46	1
1,2-Dibromoethane	ND		0.50	0.014	ug/L			10/04/19 23:46	1
1,2-Dichloroethane	ND		0.50	0.024	ug/L			10/04/19 23:46	1
1,4-Dichlorobenzene	ND		0.50	0.014	ug/L			10/04/19 23:46	1
2-Hexanone	ND		0.50	0.098	ug/L			10/04/19 23:46	1
Benzene	**13**		0.50	0.0090	ug/L			10/04/19 23:46	1
Bromodichloromethane	ND		0.50	0.0060	ug/L			10/04/19 23:46	1
Bromoform	ND		0.50	0.013	ug/L			10/04/19 23:46	1
Bromomethane	ND		0.50	0.012	ug/L			10/04/19 23:46	1
Chloroform	ND		0.50	0.0090	ug/L			10/04/19 23:46	1
cis-1,3-Dichloropropene	ND		0.50	0.026	ug/L			10/04/19 23:46	1
Dibromochloromethane	ND		0.50	0.016	ug/L			10/04/19 23:46	1
Dibromomethane	ND		0.50	0.017	ug/L			10/04/19 23:46	1
Hexachlorobutadiene	ND		0.50	0.026	ug/L			10/04/19 23:46	1
Naphthalene	**6.8**	**B**	0.50	0.013	ug/L			10/04/19 23:46	1
Tetrachloroethene	**0.15**	**J**	0.50	0.017	ug/L			10/04/19 23:46	1
trans-1,3-Dichloropropene	ND		0.50	0.027	ug/L			10/04/19 23:46	1
Trichloroethene	ND		0.50	0.0090	ug/L			10/04/19 23:46	1
Vinyl chloride	ND		0.50	0.013	ug/L			10/04/19 23:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*48 - 150*		*10/04/19 23:46*	*1*
4-Bromofluorobenzene (Surr)	*102*		*75 - 120*		*10/04/19 23:46*	*1*
Dibromofluoromethane (Surr)	*97*		*80 - 120*		*10/04/19 23:46*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*10/04/19 23:46*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*10/04/19 23:46*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			10/03/19 20:31	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			10/03/19 20:31	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			10/03/19 20:31	1
1,2,3-Trichlorobenzene	ND		5.0	1.1	ug/L			10/03/19 20:31	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			10/03/19 20:31	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			10/03/19 20:31	1
1,2,4-Trimethylbenzene	**7.1**		3.0	0.61	ug/L			10/03/19 20:31	1
1,2-Dibromo-3-Chloropropane	ND		10	1.8	ug/L			10/03/19 20:31	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			10/03/19 20:31	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/03/19 20:31	1
1,3,5-Trimethylbenzene	**2.7**	**J**	3.0	0.55	ug/L			10/03/19 20:31	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			10/03/19 20:31	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			10/03/19 20:31	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			10/03/19 20:31	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			10/03/19 20:31	1
4-Chlorotoluene	ND		2.0	0.51	ug/L			10/03/19 20:31	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			10/03/19 20:31	1
Bromobenzene	ND		2.0	0.43	ug/L			10/03/19 20:31	1

Client Sample ID: Kobuk-MW2-919

Date Collected: 09/23/19 12:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromochloromethane	ND		2.0	0.29	ug/L			10/03/19 20:31	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			10/03/19 20:31	1
Chlorobenzene	ND		2.0	0.44	ug/L			10/03/19 20:31	1
Chloroethane	ND		5.0	1.1	ug/L			10/03/19 20:31	1
Chloromethane	ND		20	5.4	ug/L			10/03/19 20:31	1
Dichlorodifluoromethane	ND		10	2.3	ug/L			10/03/19 20:31	1
Ethylbenzene	**9.8**		3.0	0.50	ug/L			10/03/19 20:31	1
Isopropylbenzene	**1.9**	**J**	2.0	0.51	ug/L			10/03/19 20:31	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			10/03/19 20:31	1
Methylene Chloride	ND		5.0	1.4	ug/L			10/03/19 20:31	1
m-Xylene & p-Xylene	**31**		3.0	0.75	ug/L			10/03/19 20:31	1
n-Butylbenzene	ND		3.0	0.44	ug/L			10/03/19 20:31	1
N-Propylbenzene	**2.0**	**J**	3.0	0.50	ug/L			10/03/19 20:31	1
o-Xylene	**6.7**		2.0	0.39	ug/L			10/03/19 20:31	1
sec-Butylbenzene	ND		3.0	0.49	ug/L			10/03/19 20:31	1
Styrene	ND		5.0	1.0	ug/L			10/03/19 20:31	1
t-Butylbenzene	ND		3.0	0.58	ug/L			10/03/19 20:31	1
Toluene	**1.5**	**J**	2.0	0.39	ug/L			10/03/19 20:31	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			10/03/19 20:31	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			10/03/19 20:31	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			10/03/19 20:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 126*		*10/03/19 20:31*	*1*
4-Bromofluorobenzene (Surr)	*96*		*80 - 120*		*10/03/19 20:31*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*10/03/19 20:31*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*10/03/19 20:31*	*1*
Trifluorotoluene (Surr)	*96*		*80 - 120*		*10/03/19 20:31*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**4.1**		0.090	0.053	ug/L		09/27/19 13:08	09/28/19 02:53	1
2-Methylnaphthalene	**0.24**		0.090	0.044	ug/L		09/27/19 13:08	09/28/19 02:53	1
1-Methylnaphthalene	**0.62**		0.090	0.023	ug/L		09/27/19 13:08	09/28/19 02:53	1
Acenaphthylene	ND		0.090	0.016	ug/L		09/27/19 13:08	09/28/19 02:53	1
Acenaphthene	**0.022**	**J**	0.090	0.022	ug/L		09/27/19 13:08	09/28/19 02:53	1
Fluorene	**0.023**	**J**	0.090	0.016	ug/L		09/27/19 13:08	09/28/19 02:53	1
Phenanthrene	ND		0.090	0.056	ug/L		09/27/19 13:08	09/28/19 02:53	1
Anthracene	ND		0.090	0.025	ug/L		09/27/19 13:08	09/28/19 02:53	1
Fluoranthene	ND		0.090	0.017	ug/L		09/27/19 13:08	09/28/19 02:53	1
Pyrene	ND		0.090	0.026	ug/L		09/27/19 13:08	09/28/19 02:53	1
Benzo[a]anthracene	ND		0.090	0.012	ug/L		09/27/19 13:08	09/28/19 02:53	1
Chrysene	ND		0.090	0.010	ug/L		09/27/19 13:08	09/28/19 02:53	1
Benzo[b]fluoranthene	ND		0.090	0.011	ug/L		09/27/19 13:08	09/28/19 02:53	1
Benzo[k]fluoranthene	ND		0.090	0.015	ug/L		09/27/19 13:08	09/28/19 02:53	1
Benzo[a]pyrene	ND		0.090	0.012	ug/L		09/27/19 13:08	09/28/19 02:53	1
Indeno[1,2,3-cd]pyrene	ND		0.090	0.022	ug/L		09/27/19 13:08	09/28/19 02:53	1
Dibenz(a,h)anthracene	ND		0.090	0.013	ug/L		09/27/19 13:08	09/28/19 02:53	1
Benzo[g,h,i]perylene	ND		0.090	0.021	ug/L		09/27/19 13:08	09/28/19 02:53	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Kobuk-MW2-919

Date Collected: 09/23/19 12:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-2

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	67		36 - 126	09/27/19 13:08	09/28/19 02:53	1
2-Fluorobiphenyl (Surr)	71		44 - 120	09/27/19 13:08	09/28/19 02:53	1
p-Terphenyl-d14	85		51 - 121	09/27/19 13:08	09/28/19 02:53	1

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.36		0.25	0.10	mg/L			10/03/19 22:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		50 - 150		10/03/19 22:21	1

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.36		0.27	0.098	mg/L		10/02/19 12:35	10/03/19 05:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	80		50 - 150	10/02/19 12:35	10/03/19 05:31	1
n-Triacontane-d62	89		50 - 150	10/02/19 12:35	10/03/19 05:31	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Kobuk-MW3-919

Date Collected: 09/23/19 10:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-3

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.0090	ug/L			10/05/19 00:12	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.049	ug/L			10/05/19 00:12	1
1,1,2-Trichloroethane	ND		0.50	0.017	ug/L			10/05/19 00:12	1
1,1-Dichloroethene	ND		0.50	0.014	ug/L			10/05/19 00:12	1
1,2-Dibromoethane	ND		0.50	0.014	ug/L			10/05/19 00:12	1
1,2-Dichloroethane	ND		0.50	0.024	ug/L			10/05/19 00:12	1
1,4-Dichlorobenzene	ND		0.50	0.014	ug/L			10/05/19 00:12	1
2-Hexanone	ND		0.50	0.098	ug/L			10/05/19 00:12	1
Benzene	**0.17**	**J**	0.50	0.0090	ug/L			10/05/19 00:12	1
Bromodichloromethane	ND		0.50	0.0060	ug/L			10/05/19 00:12	1
Bromoform	ND		0.50	0.013	ug/L			10/05/19 00:12	1
Bromomethane	ND		0.50	0.012	ug/L			10/05/19 00:12	1
Chloroform	ND		0.50	0.0090	ug/L			10/05/19 00:12	1
cis-1,3-Dichloropropene	ND		0.50	0.026	ug/L			10/05/19 00:12	1
Dibromochloromethane	ND		0.50	0.016	ug/L			10/05/19 00:12	1
Dibromomethane	ND		0.50	0.017	ug/L			10/05/19 00:12	1
Hexachlorobutadiene	ND		0.50	0.026	ug/L			10/05/19 00:12	1
Naphthalene	**35**	**B**	0.50	0.013	ug/L			10/05/19 00:12	1
Tetrachloroethene	ND		0.50	0.017	ug/L			10/05/19 00:12	1
trans-1,3-Dichloropropene	ND		0.50	0.027	ug/L			10/05/19 00:12	1
Trichloroethene	ND		0.50	0.0090	ug/L			10/05/19 00:12	1
Vinyl chloride	ND		0.50	0.013	ug/L			10/05/19 00:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*48 - 150*		*10/05/19 00:12*	*1*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*		*10/05/19 00:12*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*10/05/19 00:12*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*10/05/19 00:12*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 120*		*10/05/19 00:12*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			10/03/19 20:56	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			10/03/19 20:56	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			10/03/19 20:56	1
1,2,3-Trichlorobenzene	ND		5.0	1.1	ug/L			10/03/19 20:56	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			10/03/19 20:56	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			10/03/19 20:56	1
1,2,4-Trimethylbenzene	**48**		3.0	0.61	ug/L			10/03/19 20:56	1
1,2-Dibromo-3-Chloropropane	ND		10	1.8	ug/L			10/03/19 20:56	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			10/03/19 20:56	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/03/19 20:56	1
1,3,5-Trimethylbenzene	**23**		3.0	0.55	ug/L			10/03/19 20:56	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			10/03/19 20:56	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			10/03/19 20:56	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			10/03/19 20:56	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			10/03/19 20:56	1
4-Chlorotoluene	ND		2.0	0.51	ug/L			10/03/19 20:56	1
4-Isopropyltoluene	**3.0**		3.0	0.28	ug/L			10/03/19 20:56	1
Bromobenzene	ND		2.0	0.43	ug/L			10/03/19 20:56	1

Client Sample ID: Kobuk-MW3-919

Date Collected: 09/23/19 10:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromochloromethane	ND		2.0	0.29	ug/L			10/03/19 20:56	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			10/03/19 20:56	1
Chlorobenzene	ND		2.0	0.44	ug/L			10/03/19 20:56	1
Chloroethane	ND		5.0	1.1	ug/L			10/03/19 20:56	1
Chloromethane	ND		20	5.4	ug/L			10/03/19 20:56	1
Dichlorodifluoromethane	ND		10	2.3	ug/L			10/03/19 20:56	1
Ethylbenzene	**9.3**		3.0	0.50	ug/L			10/03/19 20:56	1
Isopropylbenzene	**6.6**		2.0	0.51	ug/L			10/03/19 20:56	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			10/03/19 20:56	1
Methylene Chloride	ND		5.0	1.4	ug/L			10/03/19 20:56	1
m-Xylene & p-Xylene	**38**		3.0	0.75	ug/L			10/03/19 20:56	1
n-Butylbenzene	ND		3.0	0.44	ug/L			10/03/19 20:56	1
N-Propylbenzene	**9.7**		3.0	0.50	ug/L			10/03/19 20:56	1
o-Xylene	**12**		2.0	0.39	ug/L			10/03/19 20:56	1
sec-Butylbenzene	**2.2**	**J**	3.0	0.49	ug/L			10/03/19 20:56	1
Styrene	ND		5.0	1.0	ug/L			10/03/19 20:56	1
t-Butylbenzene	ND		3.0	0.58	ug/L			10/03/19 20:56	1
Toluene	**0.79**	**J**	2.0	0.39	ug/L			10/03/19 20:56	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			10/03/19 20:56	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			10/03/19 20:56	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			10/03/19 20:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*		*10/03/19 20:56*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/03/19 20:56*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*10/03/19 20:56*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*10/03/19 20:56*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 120*		*10/03/19 20:56*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**14**		0.11	0.068	ug/L		09/27/19 13:08	09/28/19 03:16	1
2-Methylnaphthalene	**14**		0.11	0.056	ug/L		09/27/19 13:08	09/28/19 03:16	1
1-Methylnaphthalene	**16**		0.11	0.029	ug/L		09/27/19 13:08	09/28/19 03:16	1
Acenaphthylene	**0.089**	**J**	0.11	0.020	ug/L		09/27/19 13:08	09/28/19 03:16	1
Acenaphthene	**0.41**		0.11	0.028	ug/L		09/27/19 13:08	09/28/19 03:16	1
Fluorene	**1.1**		0.11	0.020	ug/L		09/27/19 13:08	09/28/19 03:16	1
Phenanthrene	**0.35**		0.11	0.071	ug/L		09/27/19 13:08	09/28/19 03:16	1
Anthracene	**0.046**	**J**	0.11	0.032	ug/L		09/27/19 13:08	09/28/19 03:16	1
Fluoranthene	ND		0.11	0.022	ug/L		09/27/19 13:08	09/28/19 03:16	1
Pyrene	ND		0.11	0.033	ug/L		09/27/19 13:08	09/28/19 03:16	1
Benzo[a]anthracene	ND		0.11	0.015	ug/L		09/27/19 13:08	09/28/19 03:16	1
Chrysene	ND		0.11	0.013	ug/L		09/27/19 13:08	09/28/19 03:16	1
Benzo[b]fluoranthene	ND		0.11	0.014	ug/L		09/27/19 13:08	09/28/19 03:16	1
Benzo[k]fluoranthene	ND		0.11	0.019	ug/L		09/27/19 13:08	09/28/19 03:16	1
Benzo[a]pyrene	ND		0.11	0.015	ug/L		09/27/19 13:08	09/28/19 03:16	1
Indeno[1,2,3-cd]pyrene	ND		0.11	0.028	ug/L		09/27/19 13:08	09/28/19 03:16	1
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		09/27/19 13:08	09/28/19 03:16	1
Benzo[g,h,i]perylene	ND		0.11	0.027	ug/L		09/27/19 13:08	09/28/19 03:16	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Kobuk-MW3-919

Date Collected: 09/23/19 10:30
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-3

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	61		36 - 126	09/27/19 13:08	09/28/19 03:16	1
2-Fluorobiphenyl (Surr)	76		44 - 120	09/27/19 13:08	09/28/19 03:16	1
p-Terphenyl-d14	92		51 - 121	09/27/19 13:08	09/28/19 03:16	1

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.18	J	0.25	0.10	mg/L			10/03/19 22:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		50 - 150		10/03/19 22:45	1

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	1.7		0.28	0.10	mg/L		10/02/19 12:35	10/03/19 05:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	88		50 - 150	10/02/19 12:35	10/03/19 05:52	1
n-Triacontane-d62	96		50 - 150	10/02/19 12:35	10/03/19 05:52	1

Client Sample ID: Kobuk-MW12-919

Date Collected: 09/23/19 12:45
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-4

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.0090	ug/L			10/05/19 00:38	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.049	ug/L			10/05/19 00:38	1
1,1,2-Trichloroethane	ND		0.50	0.017	ug/L			10/05/19 00:38	1
1,1-Dichloroethene	**0.11**	**J**	0.50	0.014	ug/L			10/05/19 00:38	1
1,2-Dibromoethane	ND		0.50	0.014	ug/L			10/05/19 00:38	1
1,2-Dichloroethane	**0.17**	**J**	0.50	0.024	ug/L			10/05/19 00:38	1
1,4-Dichlorobenzene	ND		0.50	0.014	ug/L			10/05/19 00:38	1
2-Hexanone	ND		0.50	0.098	ug/L			10/05/19 00:38	1
Benzene	**14**		0.50	0.0090	ug/L			10/05/19 00:38	1
Bromodichloromethane	ND		0.50	0.0060	ug/L			10/05/19 00:38	1
Bromoform	ND		0.50	0.013	ug/L			10/05/19 00:38	1
Bromomethane	ND		0.50	0.012	ug/L			10/05/19 00:38	1
Chloroform	ND		0.50	0.0090	ug/L			10/05/19 00:38	1
cis-1,3-Dichloropropene	ND		0.50	0.026	ug/L			10/05/19 00:38	1
Dibromochloromethane	ND		0.50	0.016	ug/L			10/05/19 00:38	1
Dibromomethane	ND		0.50	0.017	ug/L			10/05/19 00:38	1
Hexachlorobutadiene	ND		0.50	0.026	ug/L			10/05/19 00:38	1
Naphthalene	**8.0**	**B**	0.50	0.013	ug/L			10/05/19 00:38	1
Tetrachloroethene	**0.15**	**J**	0.50	0.017	ug/L			10/05/19 00:38	1
trans-1,3-Dichloropropene	ND		0.50	0.027	ug/L			10/05/19 00:38	1
Trichloroethene	ND		0.50	0.0090	ug/L			10/05/19 00:38	1
Vinyl chloride	ND		0.50	0.013	ug/L			10/05/19 00:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*48 - 150*		*10/05/19 00:38*	*1*
4-Bromofluorobenzene (Surr)	*107*		*75 - 120*		*10/05/19 00:38*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*10/05/19 00:38*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/05/19 00:38*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*10/05/19 00:38*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			10/03/19 18:25	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			10/03/19 18:25	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			10/03/19 18:25	1
1,2,3-Trichlorobenzene	ND		5.0	1.1	ug/L			10/03/19 18:25	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			10/03/19 18:25	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			10/03/19 18:25	1
1,2,4-Trimethylbenzene	**7.1**		3.0	0.61	ug/L			10/03/19 18:25	1
1,2-Dibromo-3-Chloropropane	ND		10	1.8	ug/L			10/03/19 18:25	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			10/03/19 18:25	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/03/19 18:25	1
1,3,5-Trimethylbenzene	**2.8**	**J**	3.0	0.55	ug/L			10/03/19 18:25	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			10/03/19 18:25	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			10/03/19 18:25	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			10/03/19 18:25	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			10/03/19 18:25	1
4-Chlorotoluene	ND		2.0	0.51	ug/L			10/03/19 18:25	1
4-Isopropyltoluene	**0.62**	**J**	3.0	0.28	ug/L			10/03/19 18:25	1
Bromobenzene	ND		2.0	0.43	ug/L			10/03/19 18:25	1

Client Sample ID: Kobuk-MW12-919

Date Collected: 09/23/19 12:45
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromochloromethane	ND		2.0	0.29	ug/L			10/03/19 18:25	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			10/03/19 18:25	1
Chlorobenzene	ND		2.0	0.44	ug/L			10/03/19 18:25	1
Chloroethane	ND		5.0	1.1	ug/L			10/03/19 18:25	1
Chloromethane	ND		20	5.4	ug/L			10/03/19 18:25	1
Dichlorodifluoromethane	ND		10	2.3	ug/L			10/03/19 18:25	1
Ethylbenzene	**9.2**		3.0	0.50	ug/L			10/03/19 18:25	1
Isopropylbenzene	**2.1**		2.0	0.51	ug/L			10/03/19 18:25	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			10/03/19 18:25	1
Methylene Chloride	ND		5.0	1.4	ug/L			10/03/19 18:25	1
m-Xylene & p-Xylene	**31**		3.0	0.75	ug/L			10/03/19 18:25	1
n-Butylbenzene	**0.48**	**J**	3.0	0.44	ug/L			10/03/19 18:25	1
N-Propylbenzene	**2.1**	**J**	3.0	0.50	ug/L			10/03/19 18:25	1
o-Xylene	**6.5**		2.0	0.39	ug/L			10/03/19 18:25	1
sec-Butylbenzene	ND		3.0	0.49	ug/L			10/03/19 18:25	1
Styrene	ND		5.0	1.0	ug/L			10/03/19 18:25	1
t-Butylbenzene	ND		3.0	0.58	ug/L			10/03/19 18:25	1
Toluene	**1.8**	**J**	2.0	0.39	ug/L			10/03/19 18:25	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			10/03/19 18:25	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			10/03/19 18:25	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			10/03/19 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*80 - 126*		*10/03/19 18:25*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*10/03/19 18:25*	*1*
Dibromofluoromethane (Surr)	*95*		*80 - 120*		*10/03/19 18:25*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*10/03/19 18:25*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*10/03/19 18:25*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**3.7**		0.090	0.053	ug/L		09/27/19 13:08	09/28/19 03:39	1
2-Methylnaphthalene	**0.19**		0.090	0.044	ug/L		09/27/19 13:08	09/28/19 03:39	1
1-Methylnaphthalene	**0.56**		0.090	0.023	ug/L		09/27/19 13:08	09/28/19 03:39	1
Acenaphthylene	ND		0.090	0.016	ug/L		09/27/19 13:08	09/28/19 03:39	1
Acenaphthene	ND		0.090	0.022	ug/L		09/27/19 13:08	09/28/19 03:39	1
Fluorene	**0.022**	**J**	0.090	0.016	ug/L		09/27/19 13:08	09/28/19 03:39	1
Phenanthrene	ND		0.090	0.056	ug/L		09/27/19 13:08	09/28/19 03:39	1
Anthracene	ND		0.090	0.025	ug/L		09/27/19 13:08	09/28/19 03:39	1
Fluoranthene	ND		0.090	0.017	ug/L		09/27/19 13:08	09/28/19 03:39	1
Pyrene	ND		0.090	0.026	ug/L		09/27/19 13:08	09/28/19 03:39	1
Benzo[a]anthracene	ND		0.090	0.012	ug/L		09/27/19 13:08	09/28/19 03:39	1
Chrysene	ND		0.090	0.010	ug/L		09/27/19 13:08	09/28/19 03:39	1
Benzo[b]fluoranthene	ND		0.090	0.011	ug/L		09/27/19 13:08	09/28/19 03:39	1
Benzo[k]fluoranthene	ND		0.090	0.015	ug/L		09/27/19 13:08	09/28/19 03:39	1
Benzo[a]pyrene	ND		0.090	0.012	ug/L		09/27/19 13:08	09/28/19 03:39	1
Indeno[1,2,3-cd]pyrene	ND		0.090	0.022	ug/L		09/27/19 13:08	09/28/19 03:39	1
Dibenz(a,h)anthracene	ND		0.090	0.013	ug/L		09/27/19 13:08	09/28/19 03:39	1
Benzo[g,h,i]perylene	ND		0.090	0.021	ug/L		09/27/19 13:08	09/28/19 03:39	1

Client Sample ID: Kobuk-MW12-919

Date Collected: 09/23/19 12:45
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-4

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	64		36 - 126	09/27/19 13:08	09/28/19 03:39	1
2-Fluorobiphenyl (Surr)	68		44 - 120	09/27/19 13:08	09/28/19 03:39	1
p-Terphenyl-d14	90		51 - 121	09/27/19 13:08	09/28/19 03:39	1

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	0.21	J	0.25	0.10	mg/L			10/03/19 23:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		50 - 150		10/03/19 23:10	1

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.38		0.28	0.10	mg/L		10/02/19 12:35	10/03/19 06:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	83		50 - 150	10/02/19 12:35	10/03/19 06:13	1
n-Triacontane-d62	91		50 - 150	10/02/19 12:35	10/03/19 06:13	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Trip Blank

Date Collected: 09/23/19 00:01
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-5

Matrix: Water

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.0090	ug/L			10/02/19 03:01	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.049	ug/L			10/02/19 03:01	1
1,1,2-Trichloroethane	ND		0.50	0.017	ug/L			10/02/19 03:01	1
1,1-Dichloroethene	ND		0.50	0.014	ug/L			10/02/19 03:01	1
1,2-Dibromoethane	ND		0.50	0.014	ug/L			10/02/19 03:01	1
1,2-Dichloroethane	ND		0.50	0.024	ug/L			10/02/19 03:01	1
1,4-Dichlorobenzene	ND		0.50	0.014	ug/L			10/02/19 03:01	1
2-Hexanone	ND		0.50	0.098	ug/L			10/02/19 03:01	1
Benzene	ND		0.50	0.0090	ug/L			10/02/19 03:01	1
Bromodichloromethane	ND		0.50	0.0060	ug/L			10/02/19 03:01	1
Bromoform	ND		0.50	0.013	ug/L			10/02/19 03:01	1
Bromomethane	ND		0.50	0.012	ug/L			10/02/19 03:01	1
Chloroform	ND		0.50	0.0090	ug/L			10/02/19 03:01	1
cis-1,3-Dichloropropene	ND		0.50	0.026	ug/L			10/02/19 03:01	1
Dibromochloromethane	ND		0.50	0.016	ug/L			10/02/19 03:01	1
Dibromomethane	ND		0.50	0.017	ug/L			10/02/19 03:01	1
Hexachlorobutadiene	ND		0.50	0.026	ug/L			10/02/19 03:01	1
Naphthalene	**0.12**	**J B**	0.50	0.013	ug/L			10/02/19 03:01	1
Tetrachloroethene	ND		0.50	0.017	ug/L			10/02/19 03:01	1
trans-1,3-Dichloropropene	ND		0.50	0.027	ug/L			10/02/19 03:01	1
Trichloroethene	ND		0.50	0.0090	ug/L			10/02/19 03:01	1
Vinyl chloride	ND		0.50	0.013	ug/L			10/02/19 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*48 - 150*		*10/02/19 03:01*	*1*
4-Bromofluorobenzene (Surr)	*96*		*75 - 120*		*10/02/19 03:01*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*10/02/19 03:01*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*10/02/19 03:01*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*10/02/19 03:01*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			10/03/19 15:07	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			10/03/19 15:07	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			10/03/19 15:07	1
1,2,3-Trichlorobenzene	ND		5.0	1.1	ug/L			10/03/19 15:07	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			10/03/19 15:07	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			10/03/19 15:07	1
1,2,4-Trimethylbenzene	ND		3.0	0.61	ug/L			10/03/19 15:07	1
1,2-Dibromo-3-Chloropropane	ND		10	1.8	ug/L			10/03/19 15:07	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			10/03/19 15:07	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/03/19 15:07	1
1,3,5-Trimethylbenzene	ND		3.0	0.55	ug/L			10/03/19 15:07	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			10/03/19 15:07	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			10/03/19 15:07	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			10/03/19 15:07	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			10/03/19 15:07	1
4-Chlorotoluene	ND		2.0	0.51	ug/L			10/03/19 15:07	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			10/03/19 15:07	1
Bromobenzene	ND		2.0	0.43	ug/L			10/03/19 15:07	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Trip Blank

Date Collected: 09/23/19 00:01
Date Received: 09/25/19 12:30

Lab Sample ID: 580-89500-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bromochloromethane	ND		2.0	0.29	ug/L			10/03/19 15:07	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			10/03/19 15:07	1
Chlorobenzene	ND		2.0	0.44	ug/L			10/03/19 15:07	1
Chloroethane	ND		5.0	1.1	ug/L			10/03/19 15:07	1
Chloromethane	ND		20	5.4	ug/L			10/03/19 15:07	1
Dichlorodifluoromethane	ND		10	2.3	ug/L			10/03/19 15:07	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/03/19 15:07	1
Isopropylbenzene	ND		2.0	0.51	ug/L			10/03/19 15:07	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			10/03/19 15:07	1
Methylene Chloride	ND		5.0	1.4	ug/L			10/03/19 15:07	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/03/19 15:07	1
n-Butylbenzene	ND		3.0	0.44	ug/L			10/03/19 15:07	1
N-Propylbenzene	ND		3.0	0.50	ug/L			10/03/19 15:07	1
o-Xylene	ND		2.0	0.39	ug/L			10/03/19 15:07	1
sec-Butylbenzene	ND		3.0	0.49	ug/L			10/03/19 15:07	1
Styrene	ND		5.0	1.0	ug/L			10/03/19 15:07	1
t-Butylbenzene	ND		3.0	0.58	ug/L			10/03/19 15:07	1
Toluene	ND		2.0	0.39	ug/L			10/03/19 15:07	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			10/03/19 15:07	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			10/03/19 15:07	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			10/03/19 15:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*10/03/19 15:07*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*10/03/19 15:07*	*1*
Dibromofluoromethane (Surr)	*94*		*80 - 120*		*10/03/19 15:07*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*10/03/19 15:07*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*10/03/19 15:07*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			09/30/19 15:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*89*		*50 - 150*		*09/30/19 15:17*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-313170/6
Matrix: Water
Analysis Batch: 313170

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			10/03/19 14:42	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			10/03/19 14:42	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			10/03/19 14:42	1
1,2,3-Trichlorobenzene	ND		5.0	1.1	ug/L			10/03/19 14:42	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			10/03/19 14:42	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			10/03/19 14:42	1
1,2,4-Trimethylbenzene	ND		3.0	0.61	ug/L			10/03/19 14:42	1
1,2-Dibromo-3-Chloropropane	ND		10	1.8	ug/L			10/03/19 14:42	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			10/03/19 14:42	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			10/03/19 14:42	1
1,3,5-Trimethylbenzene	ND		3.0	0.55	ug/L			10/03/19 14:42	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			10/03/19 14:42	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			10/03/19 14:42	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			10/03/19 14:42	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			10/03/19 14:42	1
4-Chlorotoluene	ND		2.0	0.51	ug/L			10/03/19 14:42	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			10/03/19 14:42	1
Bromobenzene	ND		2.0	0.43	ug/L			10/03/19 14:42	1
Bromochloromethane	ND		2.0	0.29	ug/L			10/03/19 14:42	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			10/03/19 14:42	1
Chlorobenzene	ND		2.0	0.44	ug/L			10/03/19 14:42	1
Chloroethane	ND		5.0	1.1	ug/L			10/03/19 14:42	1
Chloromethane	ND		20	5.4	ug/L			10/03/19 14:42	1
Dichlorodifluoromethane	ND		10	2.3	ug/L			10/03/19 14:42	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/03/19 14:42	1
Isopropylbenzene	ND		2.0	0.51	ug/L			10/03/19 14:42	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			10/03/19 14:42	1
Methylene Chloride	ND		5.0	1.4	ug/L			10/03/19 14:42	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/03/19 14:42	1
n-Butylbenzene	ND		3.0	0.44	ug/L			10/03/19 14:42	1
N-Propylbenzene	ND		3.0	0.50	ug/L			10/03/19 14:42	1
o-Xylene	ND		2.0	0.39	ug/L			10/03/19 14:42	1
sec-Butylbenzene	ND		3.0	0.49	ug/L			10/03/19 14:42	1
Styrene	ND		5.0	1.0	ug/L			10/03/19 14:42	1
t-Butylbenzene	ND		3.0	0.58	ug/L			10/03/19 14:42	1
Toluene	ND		2.0	0.39	ug/L			10/03/19 14:42	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			10/03/19 14:42	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			10/03/19 14:42	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			10/03/19 14:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*		*10/03/19 14:42*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*10/03/19 14:42*	*1*
Dibromofluoromethane (Surr)	*96*		*80 - 120*		*10/03/19 14:42*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*10/03/19 14:42*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 120*		*10/03/19 14:42*	*1*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-313170/3
Matrix: Water
Analysis Batch: 313170

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	10.9		ug/L		109	74 - 130
1,1-Dichloroethane	10.0	10.1		ug/L		101	70 - 129
1,1-Dichloropropene	10.0	11.0		ug/L		110	80 - 120
1,2,3-Trichlorobenzene	10.0	10.6		ug/L		106	23 - 150
1,2,3-Trichloropropane	10.0	9.49		ug/L		95	76 - 124
1,2,4-Trichlorobenzene	10.0	10.0		ug/L		100	57 - 140
1,2,4-Trimethylbenzene	10.0	10.1		ug/L		101	80 - 120
1,2-Dibromo-3-Chloropropane	10.0	10.1		ug/L		101	65 - 125
1,2-Dichlorobenzene	10.0	9.56		ug/L		96	80 - 120
1,2-Dichloropropane	10.0	9.62		ug/L		96	72 - 126
1,3,5-Trimethylbenzene	10.0	10.1		ug/L		101	80 - 120
1,3-Dichlorobenzene	10.0	9.28		ug/L		93	80 - 120
1,3-Dichloropropane	10.0	9.62		ug/L		96	79 - 120
2,2-Dichloropropane	10.0	11.2		ug/L		112	62 - 140
2-Chlorotoluene	10.0	9.87		ug/L		99	80 - 120
4-Chlorotoluene	10.0	10.1		ug/L		101	80 - 120
4-Isopropyltoluene	10.0	9.95		ug/L		100	77 - 120
Bromobenzene	10.0	9.86		ug/L		99	80 - 120
Bromochloromethane	10.0	9.17		ug/L		92	78 - 120
Carbon tetrachloride	10.0	12.4		ug/L		124	72 - 129
Chlorobenzene	10.0	9.59		ug/L		96	80 - 120
Chloroethane	10.0	8.06		ug/L		81	65 - 132
Chloromethane	10.0	8.48	J	ug/L		85	52 - 135
Dichlorodifluoromethane	10.0	8.15	J	ug/L		81	20 - 150
Ethylbenzene	10.0	9.85		ug/L		98	80 - 120
Isopropylbenzene	10.0	10.0		ug/L		100	75 - 120
Methyl tert-butyl ether	10.0	9.83		ug/L		98	72 - 130
Methylene Chloride	10.0	8.86		ug/L		89	77 - 125
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120
n-Butylbenzene	10.0	10.5		ug/L		105	78 - 120
N-Propylbenzene	10.0	10.5		ug/L		105	80 - 120
o-Xylene	10.0	10.1		ug/L		101	80 - 120
sec-Butylbenzene	10.0	10.5		ug/L		105	78 - 120
Styrene	10.0	10.1		ug/L		101	76 - 121
t-Butylbenzene	10.0	10.2		ug/L		102	80 - 121
Toluene	10.0	9.98		ug/L		100	80 - 120
trans-1,2-Dichloroethene	10.0	10.2		ug/L		102	77 - 124
Trichlorofluoromethane	10.0	8.96		ug/L		90	64 - 136
cis-1,2-Dichloroethene	10.0	9.54		ug/L		95	76 - 129

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 126*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*100*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Trifluorotoluene (Surr)	*103*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-313170/4
Matrix: Water
Analysis Batch: 313170

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	10.9		ug/L		109	74 - 130	0	18
1,1-Dichloroethane			10.0	10.1		ug/L		101	70 - 129	1	26
1,1-Dichloropropene			10.0	10.6		ug/L		106	80 - 120	5	14
1,2,3-Trichlorobenzene			10.0	10.5		ug/L		105	23 - 150	1	35
1,2,3-Trichloropropane			10.0	9.57		ug/L		96	76 - 124	1	30
1,2,4-Trichlorobenzene			10.0	10.4		ug/L		104	57 - 140	4	27
1,2,4-Trimethylbenzene			10.0	10.1		ug/L		101	80 - 120	0	16
1,2-Dibromo-3-Chloropropane			10.0	10.0		ug/L		100	65 - 125	1	27
1,2-Dichlorobenzene			10.0	9.81		ug/L		98	80 - 120	3	15
1,2-Dichloropropane			10.0	9.57		ug/L		96	72 - 126	0	26
1,3,5-Trimethylbenzene			10.0	10.2		ug/L		102	80 - 120	0	14
1,3-Dichlorobenzene			10.0	9.62		ug/L		96	80 - 120	4	14
1,3-Dichloropropane			10.0	9.82		ug/L		98	79 - 120	2	26
2,2-Dichloropropane			10.0	11.4		ug/L		114	62 - 140	2	23
2-Chlorotoluene			10.0	10.2		ug/L		102	80 - 120	3	15
4-Chlorotoluene			10.0	10.2		ug/L		102	80 - 120	1	14
4-Isopropyltoluene			10.0	10.1		ug/L		101	77 - 120	1	13
Bromobenzene			10.0	9.74		ug/L		97	80 - 120	1	13
Bromochloromethane			10.0	9.30		ug/L		93	78 - 120	1	20
Carbon tetrachloride			10.0	12.5		ug/L		125	72 - 129	1	19
Chlorobenzene			10.0	9.81		ug/L		98	80 - 120	2	15
Chloroethane			10.0	8.39		ug/L		84	65 - 132	4	35
Chloromethane			10.0	8.44	J	ug/L		84	52 - 135	1	23
Dichlorodifluoromethane			10.0	7.43	J	ug/L		74	20 - 150	9	35
Ethylbenzene			10.0	10.1		ug/L		101	80 - 120	2	14
Isopropylbenzene			10.0	10.4		ug/L		104	75 - 120	3	20
Methyl tert-butyl ether			10.0	10.0		ug/L		100	72 - 130	2	18
Methylene Chloride			10.0	8.73		ug/L		87	77 - 125	1	18
m-Xylene & p-Xylene			10.0	10.2		ug/L		102	80 - 120	1	14
n-Butylbenzene			10.0	10.6		ug/L		106	78 - 120	1	14
N-Propylbenzene			10.0	10.5		ug/L		105	80 - 120	0	13
o-Xylene			10.0	10.4		ug/L		104	80 - 120	3	16
sec-Butylbenzene			10.0	10.5		ug/L		105	78 - 120	0	15
Styrene			10.0	10.5		ug/L		105	76 - 121	5	16
t-Butylbenzene			10.0	10.3		ug/L		103	80 - 121	2	14
Toluene			10.0	9.92		ug/L		99	80 - 120	1	19
trans-1,2-Dichloroethene			10.0	9.85		ug/L		99	77 - 124	3	21
Trichlorofluoromethane			10.0	9.31		ug/L		93	64 - 136	4	27
cis-1,2-Dichloroethene			10.0	9.61		ug/L		96	76 - 129	1	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 126*
4-Bromofluorobenzene (Surr)	*103*		*80 - 120*
Dibromofluoromethane (Surr)	*98*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*
Trifluorotoluene (Surr)	*99*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-313176/7
Matrix: Water
Analysis Batch: 313176

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.53	ug/L			10/03/19 11:35	1
Ethylbenzene	ND		3.0	0.50	ug/L			10/03/19 11:35	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			10/03/19 11:35	1
o-Xylene	ND		2.0	0.39	ug/L			10/03/19 11:35	1
Toluene	ND		2.0	0.39	ug/L			10/03/19 11:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*		*10/03/19 11:35*	*1*
4-Bromofluorobenzene (Surr)	*95*		*80 - 120*		*10/03/19 11:35*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*10/03/19 11:35*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*10/03/19 11:35*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 120*		*10/03/19 11:35*	*1*

Lab Sample ID: LCS 580-313176/4
Matrix: Water
Analysis Batch: 313176

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			10.0	9.76		ug/L		98	75 - 121		
Ethylbenzene			10.0	10.6		ug/L		106	80 - 120		
m-Xylene & p-Xylene			10.0	10.1		ug/L		101	80 - 120		
o-Xylene			10.0	10.5		ug/L		105	80 - 120		
Toluene			10.0	10.2		ug/L		102	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*80 - 126*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*101*		*80 - 120*
Trifluorotoluene (Surr)	*96*		*80 - 120*

Lab Sample ID: LCSD 580-313176/5
Matrix: Water
Analysis Batch: 313176

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			10.0	10.2		ug/L		102	75 - 121	5	14
Ethylbenzene			10.0	11.0		ug/L		110	80 - 120	4	14
m-Xylene & p-Xylene			10.0	10.4		ug/L		104	80 - 120	3	14
o-Xylene			10.0	10.7		ug/L		107	80 - 120	2	16
Toluene			10.0	10.8		ug/L		108	80 - 120	6	19

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 126*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*
Dibromofluoromethane (Surr)	*97*		*80 - 120*
Toluene-d8 (Surr)	*102*		*80 - 120*

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-313176/5
Matrix: Water
Analysis Batch: 313176

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Trifluorotoluene (Surr)	*99*		*80 - 120*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-312962/7
Matrix: Water
Analysis Batch: 312962

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.0090	ug/L			10/02/19 02:09	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.049	ug/L			10/02/19 02:09	1
1,1,2-Trichloroethane	ND		0.50	0.017	ug/L			10/02/19 02:09	1
1,1-Dichloroethene	ND		0.50	0.014	ug/L			10/02/19 02:09	1
1,2-Dibromoethane	ND		0.50	0.014	ug/L			10/02/19 02:09	1
1,2-Dichloroethane	ND		0.50	0.024	ug/L			10/02/19 02:09	1
1,4-Dichlorobenzene	ND		0.50	0.014	ug/L			10/02/19 02:09	1
2-Hexanone	ND		0.50	0.098	ug/L			10/02/19 02:09	1
Benzene	ND		0.50	0.0090	ug/L			10/02/19 02:09	1
Bromodichloromethane	ND		0.50	0.0060	ug/L			10/02/19 02:09	1
Bromoform	ND		0.50	0.013	ug/L			10/02/19 02:09	1
Bromomethane	ND		0.50	0.012	ug/L			10/02/19 02:09	1
Chloroform	ND		0.50	0.0090	ug/L			10/02/19 02:09	1
cis-1,3-Dichloropropene	ND		0.50	0.026	ug/L			10/02/19 02:09	1
Dibromochloromethane	ND		0.50	0.016	ug/L			10/02/19 02:09	1
Dibromomethane	ND		0.50	0.017	ug/L			10/02/19 02:09	1
Hexachlorobutadiene	ND		0.50	0.026	ug/L			10/02/19 02:09	1
Naphthalene	0.341	J	0.50	0.013	ug/L			10/02/19 02:09	1
Tetrachloroethene	ND		0.50	0.017	ug/L			10/02/19 02:09	1
trans-1,3-Dichloropropene	ND		0.50	0.027	ug/L			10/02/19 02:09	1
Trichloroethene	ND		0.50	0.0090	ug/L			10/02/19 02:09	1
Vinyl chloride	ND		0.50	0.013	ug/L			10/02/19 02:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	*100*		*48 - 150*		*10/02/19 02:09*	*1*
4-Bromofluorobenzene (Surr)	*98*		*75 - 120*		*10/02/19 02:09*	*1*
Dibromofluoromethane (Surr)	*98*		*80 - 120*		*10/02/19 02:09*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/02/19 02:09*	*1*
Trifluorotoluene (Surr)	*100*		*80 - 120*		*10/02/19 02:09*	*1*

Lab Sample ID: LCS 580-312962/4
Matrix: Water
Analysis Batch: 312962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	5.00	4.64		ug/L		93	64 - 124
1,1,2,2-Tetrachloroethane	5.00	4.86		ug/L		97	65 - 144
1,1,2-Trichloroethane	5.00	4.45		ug/L		89	69 - 135
1,1-Dichloroethene	5.00	4.40		ug/L		88	64 - 139

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-312962/4
Matrix: Water
Analysis Batch: 312962

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane	5.00	4.50		ug/L		90	75 - 120
1,2-Dichloroethane	5.00	5.12		ug/L		102	58 - 155
1,4-Dichlorobenzene	5.00	4.96		ug/L		99	75 - 130
2-Hexanone	25.0	24.8		ug/L		99	55 - 150
Benzene	5.00	4.99		ug/L		100	71 - 137
Bromodichloromethane	5.00	5.01		ug/L		100	61 - 150
Bromoform	5.00	4.48		ug/L		90	55 - 130
Bromomethane	5.00	4.98		ug/L		100	69 - 137
Chloroform	5.00	4.98		ug/L		100	65 - 150
cis-1,3-Dichloropropene	5.00	4.88		ug/L		98	61 - 140
Dibromochloromethane	5.00	4.54		ug/L		91	71 - 120
Dibromomethane	5.00	4.69		ug/L		94	67 - 126
Hexachlorobutadiene	5.00	4.64		ug/L		93	73 - 139
Naphthalene	5.00	4.87		ug/L		97	69 - 134
Tetrachloroethene	5.00	4.08		ug/L		82	63 - 134
trans-1,3-Dichloropropene	5.00	4.77		ug/L		95	62 - 133
Trichloroethene	5.00	4.74		ug/L		95	70 - 140
Vinyl chloride	5.00	4.14		ug/L		83	56 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*48 - 150*
4-Bromofluorobenzene (Surr)	*93*		*75 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*93*		*75 - 120*
Trifluorotoluene (Surr)	*96*		*80 - 120*

Lab Sample ID: LCSD 580-312962/5
Matrix: Water
Analysis Batch: 312962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	4.43		ug/L		89	64 - 124	5	10
1,1,2,2-Tetrachloroethane	5.00	4.75		ug/L		95	65 - 144	2	18
1,1,2-Trichloroethane	5.00	4.25		ug/L		85	69 - 135	5	15
1,1-Dichloroethene	5.00	4.18		ug/L		84	64 - 139	5	11
1,2-Dibromoethane	5.00	4.32		ug/L		86	75 - 120	4	17
1,2-Dichloroethane	5.00	4.97		ug/L		99	58 - 155	3	11
1,4-Dichlorobenzene	5.00	5.11		ug/L		102	75 - 130	3	35
2-Hexanone	25.0	23.5		ug/L		94	55 - 150	6	23
Benzene	5.00	4.81		ug/L		96	71 - 137	4	10
Bromodichloromethane	5.00	4.81		ug/L		96	61 - 150	4	10
Bromoform	5.00	4.43		ug/L		89	55 - 130	1	14
Bromomethane	5.00	4.76		ug/L		95	69 - 137	5	16
Chloroform	5.00	4.82		ug/L		96	65 - 150	3	10
cis-1,3-Dichloropropene	5.00	4.54		ug/L		91	61 - 140	7	30
Dibromochloromethane	5.00	4.38		ug/L		88	71 - 120	3	21
Dibromomethane	5.00	4.57		ug/L		91	67 - 126	3	15
Hexachlorobutadiene	5.00	4.50		ug/L		90	73 - 139	3	19

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-312962/5
Matrix: Water
Analysis Batch: 312962

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			5.00	4.29		ug/L		86	69 - 134	13	13
Tetrachloroethene			5.00	3.87		ug/L		77	63 - 134	5	20
trans-1,3-Dichloropropene			5.00	4.49		ug/L		90	62 - 133	6	30
Trichloroethene			5.00	4.68		ug/L		94	70 - 140	1	10
Vinyl chloride			5.00	3.98		ug/L		80	56 - 150	4	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*103*		*48 - 150*
4-Bromofluorobenzene (Surr)	*94*		*75 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
Toluene-d8 (Surr)	*91*		*75 - 120*
Trifluorotoluene (Surr)	*97*		*80 - 120*

Lab Sample ID: MB 580-313335/7
Matrix: Water
Analysis Batch: 313335

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	ND		0.50	0.0090	ug/L			10/04/19 19:52	1
1,1,2,2-Tetrachloroethane	ND		0.50	0.049	ug/L			10/04/19 19:52	1
1,1,2-Trichloroethane	ND		0.50	0.017	ug/L			10/04/19 19:52	1
1,1-Dichloroethene	ND		0.50	0.014	ug/L			10/04/19 19:52	1
1,2-Dibromoethane	ND		0.50	0.014	ug/L			10/04/19 19:52	1
1,2-Dichloroethane	ND		0.50	0.024	ug/L			10/04/19 19:52	1
1,4-Dichlorobenzene	ND		0.50	0.014	ug/L			10/04/19 19:52	1
2-Hexanone	ND		0.50	0.098	ug/L			10/04/19 19:52	1
Benzene	ND		0.50	0.0090	ug/L			10/04/19 19:52	1
Bromodichloromethane	ND		0.50	0.0060	ug/L			10/04/19 19:52	1
Bromoform	ND		0.50	0.013	ug/L			10/04/19 19:52	1
Bromomethane	ND		0.50	0.012	ug/L			10/04/19 19:52	1
Chloroform	ND		0.50	0.0090	ug/L			10/04/19 19:52	1
cis-1,3-Dichloropropene	ND		0.50	0.026	ug/L			10/04/19 19:52	1
Dibromochloromethane	ND		0.50	0.016	ug/L			10/04/19 19:52	1
Dibromomethane	ND		0.50	0.017	ug/L			10/04/19 19:52	1
Hexachlorobutadiene	0.0529	J	0.50	0.026	ug/L			10/04/19 19:52	1
Naphthalene	0.133	J	0.50	0.013	ug/L			10/04/19 19:52	1
Tetrachloroethene	ND		0.50	0.017	ug/L			10/04/19 19:52	1
trans-1,3-Dichloropropene	ND		0.50	0.027	ug/L			10/04/19 19:52	1
Trichloroethene	ND		0.50	0.0090	ug/L			10/04/19 19:52	1
Vinyl chloride	ND		0.50	0.013	ug/L			10/04/19 19:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*48 - 150*		*10/04/19 19:52*	*1*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*		*10/04/19 19:52*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*10/04/19 19:52*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/04/19 19:52*	*1*
Trifluorotoluene (Surr)	*101*		*80 - 120*		*10/04/19 19:52*	*1*

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-313335/4
Matrix: Water
Analysis Batch: 313335

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	5.00	4.96		ug/L		99	64 - 124
1,1,2,2-Tetrachloroethane	5.00	4.63		ug/L		93	65 - 144
1,1,2-Trichloroethane	5.00	4.48		ug/L		90	69 - 135
1,1-Dichloroethene	5.00	4.18		ug/L		84	64 - 139
1,2-Dibromoethane	5.00	4.52		ug/L		90	75 - 120
1,2-Dichloroethane	5.00	4.95		ug/L		99	58 - 155
1,4-Dichlorobenzene	5.00	5.26		ug/L		105	75 - 130
2-Hexanone	25.0	26.3		ug/L		105	55 - 150
Benzene	5.00	4.86		ug/L		97	71 - 137
Bromodichloromethane	5.00	4.90		ug/L		98	61 - 150
Bromoform	5.00	5.09		ug/L		102	55 - 130
Bromomethane	5.00	4.41		ug/L		88	69 - 137
Chloroform	5.00	4.88		ug/L		98	65 - 150
cis-1,3-Dichloropropene	5.00	4.93		ug/L		99	61 - 140
Dibromochloromethane	5.00	4.80		ug/L		96	71 - 120
Dibromomethane	5.00	4.81		ug/L		96	67 - 126
Hexachlorobutadiene	5.00	4.90		ug/L		98	73 - 139
Naphthalene	5.00	4.69		ug/L		94	69 - 134
Tetrachloroethene	5.00	4.42		ug/L		88	63 - 134
trans-1,3-Dichloropropene	5.00	4.91		ug/L		98	62 - 133
Trichloroethene	5.00	5.04		ug/L		101	70 - 140
Vinyl chloride	5.00	3.99		ug/L		80	56 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*102*		*48 - 150*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*
Dibromofluoromethane (Surr)	*99*		*80 - 120*
Toluene-d8 (Surr)	*95*		*75 - 120*
Trifluorotoluene (Surr)	*101*		*80 - 120*

Lab Sample ID: LCSD 580-313335/5
Matrix: Water
Analysis Batch: 313335

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	5.00	4.70		ug/L		94	64 - 124	5	10
1,1,2,2-Tetrachloroethane	5.00	4.75		ug/L		95	65 - 144	2	18
1,1,2-Trichloroethane	5.00	4.38		ug/L		88	69 - 135	2	15
1,1-Dichloroethene	5.00	4.40		ug/L		88	64 - 139	5	11
1,2-Dibromoethane	5.00	4.50		ug/L		90	75 - 120	1	17
1,2-Dichloroethane	5.00	5.04		ug/L		101	58 - 155	2	11
1,4-Dichlorobenzene	5.00	5.01		ug/L		100	75 - 130	5	35
2-Hexanone	25.0	25.4		ug/L		102	55 - 150	3	23
Benzene	5.00	4.95		ug/L		99	71 - 137	2	10
Bromodichloromethane	5.00	5.02		ug/L		100	61 - 150	2	10
Bromoform	5.00	4.89		ug/L		98	55 - 130	4	14
Bromomethane	5.00	4.41		ug/L		88	69 - 137	0	16
Chloroform	5.00	4.92		ug/L		98	65 - 150	1	10

Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-313335/5
Matrix: Water
Analysis Batch: 313335

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,3-Dichloropropene			5.00	4.81		ug/L		96	61 - 140	3	30
Dibromochloromethane			5.00	4.71		ug/L		94	71 - 120	2	21
Dibromomethane			5.00	5.05		ug/L		101	67 - 126	5	15
Hexachlorobutadiene			5.00	5.09		ug/L		102	73 - 139	4	19
Naphthalene			5.00	4.82		ug/L		96	69 - 134	3	13
Tetrachloroethene			5.00	4.30		ug/L		86	63 - 134	3	20
trans-1,3-Dichloropropene			5.00	4.80		ug/L		96	62 - 133	2	30
Trichloroethene			5.00	4.91		ug/L		98	70 - 140	3	10
Vinyl chloride			5.00	4.50		ug/L		90	56 - 150	12	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*101*		*48 - 150*
4-Bromofluorobenzene (Surr)	*98*		*75 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
Toluene-d8 (Surr)	*90*		*75 - 120*
Trifluorotoluene (Surr)	*101*		*80 - 120*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 590-24393/1-A
Matrix: Water
Analysis Batch: 24399

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 24393

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.090	0.053	ug/L		09/27/19 13:08	09/27/19 20:17	1
2-Methylnaphthalene	ND		0.090	0.044	ug/L		09/27/19 13:08	09/27/19 20:17	1
1-Methylnaphthalene	ND		0.090	0.023	ug/L		09/27/19 13:08	09/27/19 20:17	1
Acenaphthylene	ND		0.090	0.016	ug/L		09/27/19 13:08	09/27/19 20:17	1
Acenaphthene	ND		0.090	0.022	ug/L		09/27/19 13:08	09/27/19 20:17	1
Fluorene	ND		0.090	0.016	ug/L		09/27/19 13:08	09/27/19 20:17	1
Phenanthrene	ND		0.090	0.056	ug/L		09/27/19 13:08	09/27/19 20:17	1
Anthracene	ND		0.090	0.025	ug/L		09/27/19 13:08	09/27/19 20:17	1
Fluoranthene	ND		0.090	0.017	ug/L		09/27/19 13:08	09/27/19 20:17	1
Pyrene	ND		0.090	0.026	ug/L		09/27/19 13:08	09/27/19 20:17	1
Benzo[a]anthracene	ND		0.090	0.012	ug/L		09/27/19 13:08	09/27/19 20:17	1
Chrysene	ND		0.090	0.010	ug/L		09/27/19 13:08	09/27/19 20:17	1
Benzo[b]fluoranthene	ND		0.090	0.011	ug/L		09/27/19 13:08	09/27/19 20:17	1
Benzo[k]fluoranthene	ND		0.090	0.015	ug/L		09/27/19 13:08	09/27/19 20:17	1
Benzo[a]pyrene	ND		0.090	0.012	ug/L		09/27/19 13:08	09/27/19 20:17	1
Indeno[1,2,3-cd]pyrene	ND		0.090	0.022	ug/L		09/27/19 13:08	09/27/19 20:17	1
Dibenz(a,h)anthracene	ND		0.090	0.013	ug/L		09/27/19 13:08	09/27/19 20:17	1
Benzo[g,h,i]perylene	ND		0.090	0.021	ug/L		09/27/19 13:08	09/27/19 20:17	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*81*		*36 - 126*	*09/27/19 13:08*	*09/27/19 20:17*	*1*
2-Fluorobiphenyl (Surr)	*78*		*44 - 120*	*09/27/19 13:08*	*09/27/19 20:17*	*1*
p-Terphenyl-d14	*86*		*51 - 121*	*09/27/19 13:08*	*09/27/19 20:17*	*1*

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 590-24393/2-A
Matrix: Water
Analysis Batch: 24399

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 24393

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Naphthalene			1.60	1.26		ug/L		79	52 - 120		
2-Methylnaphthalene			1.60	1.24		ug/L		77	44 - 120		
1-Methylnaphthalene			1.60	1.24		ug/L		77	49 - 120		
Acenaphthylene			1.60	1.27		ug/L		80	57 - 120		
Acenaphthene			1.60	1.31		ug/L		82	54 - 120		
Fluorene			1.60	1.32		ug/L		82	59 - 120		
Phenanthrene			1.60	1.38		ug/L		87	57 - 120		
Anthracene			1.60	1.38		ug/L		86	66 - 120		
Fluoranthene			1.60	1.34		ug/L		84	64 - 120		
Pyrene			1.60	1.43		ug/L		90	52 - 120		
Benzo[a]anthracene			1.60	1.38		ug/L		86	68 - 120		
Chrysene			1.60	1.41		ug/L		88	69 - 120		
Benzo[b]fluoranthene			1.60	1.43		ug/L		89	63 - 120		
Benzo[k]fluoranthene			1.60	1.32		ug/L		83	67 - 120		
Benzo[a]pyrene			1.60	1.33		ug/L		83	70 - 120		
Indeno[1,2,3-cd]pyrene			1.60	1.37		ug/L		86	58 - 120		
Dibenz(a,h)anthracene			1.60	1.38		ug/L		87	58 - 120		
Benzo[g,h,i]perylene			1.60	1.39		ug/L		87	56 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*83*		*36 - 126*
2-Fluorobiphenyl (Surr)	*83*		*44 - 120*
p-Terphenyl-d14	*86*		*51 - 121*

Lab Sample ID: LCSD 590-24393/3-A
Matrix: Water
Analysis Batch: 24399

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 24393

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			1.60	1.21		ug/L		75	52 - 120	4	30
2-Methylnaphthalene			1.60	1.20		ug/L		75	44 - 120	4	35
1-Methylnaphthalene			1.60	1.20		ug/L		75	49 - 120	3	35
Acenaphthylene			1.60	1.24		ug/L		78	57 - 120	2	30
Acenaphthene			1.60	1.27		ug/L		80	54 - 120	3	30
Fluorene			1.60	1.30		ug/L		81	59 - 120	1	30
Phenanthrene			1.60	1.40		ug/L		88	57 - 120	1	30
Anthracene			1.60	1.39		ug/L		87	66 - 120	1	30
Fluoranthene			1.60	1.36		ug/L		85	64 - 120	2	30
Pyrene			1.60	1.45		ug/L		91	52 - 120	1	30
Benzo[a]anthracene			1.60	1.41		ug/L		88	68 - 120	2	30
Chrysene			1.60	1.44		ug/L		90	69 - 120	2	24
Benzo[b]fluoranthene			1.60	1.46		ug/L		91	63 - 120	2	30
Benzo[k]fluoranthene			1.60	1.36		ug/L		85	67 - 120	3	30
Benzo[a]pyrene			1.60	1.36		ug/L		85	70 - 120	2	30
Indeno[1,2,3-cd]pyrene			1.60	1.40		ug/L		88	58 - 120	2	30
Dibenz(a,h)anthracene			1.60	1.42		ug/L		89	58 - 120	3	30
Benzo[g,h,i]perylene			1.60	1.44		ug/L		90	56 - 120	4	35

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 590-24393/3-A
Matrix: Water
Analysis Batch: 24399

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 24393

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*81*		*36 - 126*
2-Fluorobiphenyl (Surr)	*80*		*44 - 120*
p-Terphenyl-d14	*86*		*51 - 121*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Lab Sample ID: MB 580-312781/7
Matrix: Water
Analysis Batch: 312781

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			09/30/19 14:04	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*50 - 150*		*09/30/19 14:04*	*1*

Lab Sample ID: LCS 580-312781/8
Matrix: Water
Analysis Batch: 312781

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	1.00	0.916		mg/L		92	77 - 123

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*

Lab Sample ID: LCSD 580-312781/18
Matrix: Water
Analysis Batch: 312781

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	1.00	0.892		mg/L		89	77 - 123	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*50 - 150*

Lab Sample ID: MB 580-313188/7
Matrix: Water
Analysis Batch: 313188

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			10/03/19 13:04	1

Method: AK101 - Alaska - Gasoline Range Organics (GC) (Continued)

Lab Sample ID: MB 580-313188/7
Matrix: Water
Analysis Batch: 313188

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		50 - 150		10/03/19 13:04	1

Lab Sample ID: LCS 580-313188/8
Matrix: Water
Analysis Batch: 313188

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			1.00	0.876		mg/L		88	77 - 123		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	90		50 - 150

Lab Sample ID: LCSD 580-313188/9
Matrix: Water
Analysis Batch: 313188

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	0.899		mg/L		90	77 - 123	3	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		50 - 150

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Lab Sample ID: MB 590-24481/1-A
Matrix: Water
Analysis Batch: 24473

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 24481

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.25	0.090	mg/L		10/02/19 12:35	10/02/19 21:49	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	72		50 - 150	10/02/19 12:35	10/02/19 21:49	1
n-Triacontane-d62	77		50 - 150	10/02/19 12:35	10/02/19 21:49	1

Lab Sample ID: LCS 590-24481/2-A
Matrix: Water
Analysis Batch: 24473

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 24481

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			1.60	1.30		mg/L		81	75 - 125		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	88		50 - 150

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC) (Continued)

Lab Sample ID: LCS 590-24481/2-A
Matrix: Water
Analysis Batch: 24473

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 24481

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Triacontane-d62	*94*		*50 - 150*

Lab Sample ID: LCSD 590-24481/3-A
Matrix: Water
Analysis Batch: 24473

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 24481

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)			1.60	1.32		mg/L		83	75 - 125	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*88*		*50 - 150*
n-Triacontane-d62	*95*		*50 - 150*

Lab Chronicle

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Client Sample ID: Kobuk-MW1-919

Lab Sample ID: 580-89500-1
Date Collected: 09/23/19 13:30
Matrix: Water
Date Received: 09/25/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 20:06	CJ	TAL SEA
Total/NA	Analysis	AK101		1	313188	10/03/19 20:45	W1T	TAL SEA
Total/NA	Prep	3510C			24481	10/02/19 12:35	AMB	TAL SPK
Total/NA	Analysis	AK102 & 103		1	24473	10/03/19 05:10	NMI	TAL SPK

Client Sample ID: Kobuk-MW2-919

Lab Sample ID: 580-89500-2
Date Collected: 09/23/19 12:30
Matrix: Water
Date Received: 09/25/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 20:31	CJ	TAL SEA
Total/NA	Analysis	8260C SIM		1	313335	10/04/19 23:46	TL1	TAL SEA
Total/NA	Prep	3510C			24393	09/27/19 13:08	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	24399	09/28/19 02:53	NMI	TAL SPK
Total/NA	Analysis	AK101		1	313188	10/03/19 22:21	W1T	TAL SEA
Total/NA	Prep	3510C			24481	10/02/19 12:35	AMB	TAL SPK
Total/NA	Analysis	AK102 & 103		1	24473	10/03/19 05:31	NMI	TAL SPK

Client Sample ID: Kobuk-MW3-919

Lab Sample ID: 580-89500-3
Date Collected: 09/23/19 10:30
Matrix: Water
Date Received: 09/25/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313176	10/03/19 20:56	CJ	TAL SEA
Total/NA	Analysis	8260C SIM		1	313335	10/05/19 00:12	TL1	TAL SEA
Total/NA	Prep	3510C			24393	09/27/19 13:08	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	24399	09/28/19 03:16	NMI	TAL SPK
Total/NA	Analysis	AK101		1	313188	10/03/19 22:45	W1T	TAL SEA
Total/NA	Prep	3510C			24481	10/02/19 12:35	AMB	TAL SPK
Total/NA	Analysis	AK102 & 103		1	24473	10/03/19 05:52	NMI	TAL SPK

Client Sample ID: Kobuk-MW12-919

Lab Sample ID: 580-89500-4
Date Collected: 09/23/19 12:45
Matrix: Water
Date Received: 09/25/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313170	10/03/19 18:25	CJ	TAL SEA
Total/NA	Analysis	8260C SIM		1	313335	10/05/19 00:38	TL1	TAL SEA
Total/NA	Prep	3510C			24393	09/27/19 13:08	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1	24399	09/28/19 03:39	NMI	TAL SPK
Total/NA	Analysis	AK101		1	313188	10/03/19 23:10	W1T	TAL SEA
Total/NA	Prep	3510C			24481	10/02/19 12:35	AMB	TAL SPK
Total/NA	Analysis	AK102 & 103		1	24473	10/03/19 06:13	NMI	TAL SPK

Lab Chronicle

Client: Alaska Resources & Environment
Job ID: 580-89500-1
Project/Site: Kobuk Feed & Fuel

Client Sample ID: Trip Blank
Lab Sample ID: 580-89500-5
Date Collected: 09/23/19 00:01
Matrix: Water
Date Received: 09/25/19 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	313170	10/03/19 15:07	CJ	TAL SEA
Total/NA	Analysis	8260C SIM		1	312962	10/02/19 03:01	TL1	TAL SEA
Total/NA	Analysis	AK101		1	312781	09/30/19 15:17	DCV	TAL SEA

Laboratory References:

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: Alaska Resources & Environment
Job ID: 580-89500-1
Project/Site: Kobuk Feed & Fuel

Laboratory: Eurofins TestAmerica, Seattle

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	C553	02-17-20

Laboratory: Eurofins TestAmerica, Spokane

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-025	12-07-19
Oregon	NELAP	4137	12-07-19
Washington	State	C569	01-06-20

Sample Summary

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-89500-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89500-1	Kobuk-MW1-919	Water	09/23/19 13:30	09/25/19 12:30	
580-89500-2	Kobuk-MW2-919	Water	09/23/19 12:30	09/25/19 12:30	
580-89500-3	Kobuk-MW3-919	Water	09/23/19 10:30	09/25/19 12:30	
580-89500-4	Kobuk-MW12-919	Water	09/23/19 12:45	09/25/19 12:30	
580-89500-5	Trip Blank	Water	09/23/19 00:01	09/25/19 12:30	

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES

580-89500 Chain of Custody

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: Alaska Resources and Environmental Services

Report To: Lyle Gresehover
Address: ARES
P.O. Box 83050
Email: lyle@ak-res.com
Phone: (907) 374-3226 Fax: (907)374-3219

Invoice To:
ARES
P.O. Box 83050
Fairbanks, Alaska 99708

P.O. Number:

Laboratory Name: Test America, Inc
Address: 57755 8th St. East
Tacoma, WA 98424

Project Name: Kobuk Feed & Fuel
Project Number:
Sampled By: Josh Klynstra

Turnaround Request
In Business Days

Organic & Inorganic Analyses
10 | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses
5 | 4 | 3 | 2 | 1 | <1

Specify Other:
Report Tier Levels: Tier II reporting requested (results + QC)

	Sample Identification	Sampling Date/ Time		Preservative												Matrix (W,S,O)	# of Cont.	Location / Comments	Lab ID
				HCL	HCL	HCL	HCL	N/A											
				Requested Analyses															
				AK 101 GRO	AK 8260C BTEX	8260C VOC	AK 102 DRO	EPA 8270D SIM PAH											
1	Kobuk-MW1-919	09/23/2019	1330	X	X		X									W	8		
2	Kobuk-MW2-919	09/23/2019	1230	X		X	X	X								W	10		
3	Kobuk-MW3-919	09/23/2019	1030	X		X	X	X								W	10		
4	Kobuk-MW12-919	09/23/2019	1245	X		X	X	X								W	10		
5	Trip Blank	09/23/2019	0800	X		X										W	6		
6																			
7																			
8																			
9																			
10																			

Released By: [signature]
Print Name: Josh Klynstra Firm: ARES Date: 09/24/2019 Time: 1300

Received By: B. Gall
Print Name: B. Gall Firm: SEA TA Date: 9-25-19 Time: 1230

Released By:
Print Name: Firm: Date: Time:

Received By:
Print Name: Firm: Date: Time:

Additional Remarks:

Temp:

COC REV 02/2008

Page 1 of 1

Therm. ID: #1 Cor: 0.7 ° Unc: 0.8 °
Cooler Dsc: 17 Blue
Packing: Bub
Cust. Seal: Yes X No
Blue Ice, Wet, Dry, None

FedEx:
UPS:
Lab Cour:
Other: G.S.

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Phone: 253-922-2310 Fax: 253-922-5047

Chain of Custody Record

eurofins Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Walker, Elaine M	Carrier Tracking No(s):	COC No: 580-70475.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: elaine.walker@testamericainc.com	State of Origin: Alaska	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc		Accreditations Required (See note):		Job #: 580-89500-1
Address: 11922 East 1st Ave,	Due Date Requested: 10/7/2019			
City: Spokane	TAT Requested (days):			
State, Zip: WA, 99206				
Phone: 509-924-9200(Tel) 509-924-9290(Fax)	PO #:			
Email:	WO #:			
Project Name: Kobuk Feed & Fuel	Project #: 58011466			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	AK102_103/3510C_LVI_14d (MOD) DRO	8270D_SIM/3510C_LVI Polycyclic Aromatic Hydrocarbons	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
Kobuk-MW1-919 (580-89500-1)	9/23/19	13:30 Alaskan		Water			X		2	
Kobuk-MW2-919 (580-89500-2)	9/23/19	12:30 Alaskan		Water			X	X	4	
Kobuk-MW3-919 (580-89500-3)	9/23/19	10:30 Alaskan		Water			X	X	4	
Kobuk-MW12-919 (580-89500-4)	9/23/19	12:45 Alaskan		Water			X	X	4	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	9/25/19 1535	TASEA	Maria Ozoda	9/26/19 11:20	TASEA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5.1°C

Login Sample Receipt Checklist

Client: Alaska Resources & Environment

Job Number: 580-89500-1

Login Number: 89500
List Number: 1
Creator: Presley, Kim A

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Alaska Resources & Environment

Job Number: 580-89500-1

Login Number: 89500
List Number: 2
Creator: O'Toole, Maria C

List Source: Eurofins TestAmerica, Spokane
List Creation: 09/26/19 11:34 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	497224
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	5.1
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

Laboratory Data Review Checklist

Completed By:

Richard Ranft

Title:

Environmental Geologist

Date:

03/09/2023

Consultant Firm:

Alaska Resources and Environmental Services

Laboratory Name:

Eurofins Seattle

Laboratory Report Number:

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

ADEC File Number:

100.26.137

Hazard Identification Number:

24434

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Eurofins Seattle is an ADEC CS approved laboratory.

   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☐ N/A☐ Comments:

   DRO and PAH samples were subcontracted and transferred to Eurofins Spokane. Eurofins Spokane is an ADEC CS approved laboratory.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   The coolers at the time of receipt in Seattle was 0.7 ° C.

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

   Yes☒ No☐ N/A☐ Comments:

   Five (5) analytical samples consisting of four (4) groundwater samples (including one duplicate sample) and one (1) trip blank were received by Eurofins Seattle on September 25, 2019. The samples arrived in good condition and were properly preserved.

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

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

Yes☒ No☐ N/A☐ Comments:

Samples arrived in good condition and were properly preserved.

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☐ N/A☒ Comments:

There weren't any discrepancies.

e. Data quality or usability affected?

Comments:

Data quality or usability are unaffected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

The laboratory did not report any discrepancies, errors, or QC failures with the exception of method blank detections that will be addressed in the appropriate sections below.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not required.

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

Comments:

Data quality and usability will be discussed in the appropriate sections below.

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Analytical samples consisted of groundwater samples.

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

Yes☐ No☒ N/A☐ Comments:

8260C: 1,2,3-Trichloropropane have detection limits that exceed ADEC CUL's in one or more samples.

e. Data quality or usability affected?

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

8260C SIM: Hexachlorobutadiene was detected in MB 580-313335/7 at concentrations (0.0529 ug/L) that were above the method detection limit, but below the LOQ (0.50 ug/L). This analyte was not detected in associated samples. Data quality and usability are not affected.

8260C SIM: Napthalene was detected in MB 580-313335/7 at concentrations (0.133 ug/L) that were above the method detection limit, but below the LOQ (0.50 ug/L). This analyte was detected in associated samples significantly above and below ADEC CULs. Data quality is affected. Analytes detected in both the blank and the samples are qualified with the B data flag. Data usability is not affected.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

All detections were below the LOQ.

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

Yes☐ No☐ N/A☒ Comments:

Affected results are qualified with B data flags.

v. Data quality or usability affected?

Comments:

See Section 6.a.ii. above.

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☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

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

Yes☒ No☐ N/A☐ Comments:

All percent recoveries were reported and within method or laboratory limits.

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

Yes☒ No☐ N/A☐ Comments:

All RPDs were within acceptable range.

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☐ N/A☒ Comments:

Qualification is not required.

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

Comments:

Data quality and usability are not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

MS/MSD was not requested or required for this sampling event.

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

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

Yes☒ No☐ N/A☐ Comments:

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

All percent recoveries were within acceptable limits.

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

Yes☐ No☐ N/A☒ Comments:

Qualification is not required.

iv. Data quality or usability affected?

Comments:

See Section 6.d.ii above

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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☐ N/A☒ Comments:

All samples were shipped within a single cooler.

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

8260C SIM: Naphthalene (0.12 ug/L) was detected in the Trip Blank at concentrations below the LOQs and ADEC CULs. All results in which the analyte was detected in both the sample and the trip blank are qualified with the B data flag. Data quality is affected. A method blank was recorded for Naphthalene at similar levels to the trip blank detection. Cross-contamination may have occurred during the sampling event or transport, but the detection more likely occurred from the method blank detection. All affected results were either significantly above or below ADEC CULs and remain usable.

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

See Section 6.e.ii above.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Kobuk-MW12-919 is the blind field duplicate to sample Kobuk-MW2-919.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

The following analytes had an RPD above recommended limits for samples Kobuk-MW2-919 and Kobuk-MW12-919:

8260C SIM: 1,2-Dichloroethane (150.5%)

8260C: 4-Isopropyltoluene (75.6%)

AK101: GRO (52.6%)

580-89500-1

Laboratory Report Date:

10/19/2019

CS Site Name:

Kobuk Feed & Fuel

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

Comments:

Data quality for the analytes with RPDs exceeding control limits are affected. Associated results are considered estimated with an unknown bias and are qualified with the "QN" data flag. All associated results are less than ADEC CULs. Data is usable for the purpose of groundwater characterization.

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

Yes☐ No☐ N/A☒ Comments:

Dedicated disposable sampling equipment was used to collect the samples.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Appendix C-2:

2020 Laboratory Report 580-96236-1

&

ADEC Lab Quality Checklist

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-96236-1
Client Project/Site: Kobuk Feed & Fuel

For:
Alaska Resources & Environment
PO BOX 83050
Fairbanks, Alaska 99708

Attn: Lyle Gresehover

M. Elaine Walker

Authorized for release by:
8/3/2020 3:01:40 PM

Elaine Walker, Project Manager II
(253)248-4972
elaine.walker@testamericainc.com

Table of Contents

Job ID: 580-96236-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative
580-96236-1

Receipt
Four samples were received on 7/23/2020 9:20 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8º C.

GC/MS VOA
Method 8260D: The laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-334180 recovered outside control limits for the following analytes: Chloromethane and Dichlorodifluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8260D: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 580-334450 recovered outside control limits for the following analytes: Dichlorodifluoromethane. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

GC Semi VOA
Method AK102 & 103: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Kobuk-MW1-0720 (580-96236-1).

Method AK102 & 103: The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Kobuk-MW2-0720 (580-96236-2) and Kobuk-MW12-0720 (580-96236-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC/MS Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Client Sample ID: Kobuk-MW1-0720

Date Collected: 07/22/20 12:30
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-1

Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**6.7**		3.0	0.24	ug/L			07/25/20 03:29	1
Toluene	ND		2.0	0.39	ug/L			07/25/20 03:29	1
Ethylbenzene	ND		3.0	0.50	ug/L			07/25/20 03:29	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			07/25/20 03:29	1
o-Xylene	ND		2.0	0.39	ug/L			07/25/20 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*		*07/25/20 03:29*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*07/25/20 03:29*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*07/25/20 03:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 126*		*07/25/20 03:29*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			07/27/20 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*82*		*50 - 150*		*07/27/20 19:33*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**0.38**		0.12	0.084	mg/L		07/28/20 13:55	07/29/20 02:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*07/28/20 13:55*	*07/29/20 02:52*	*1*
n-Triacontane-d62	*86*		*50 - 150*	*07/28/20 13:55*	*07/29/20 02:52*	*1*

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Client Sample ID: Kobuk-MW2-0720
Date Collected: 07/22/20 13:45
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-2
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND	*	20	0.28	ug/L			07/28/20 21:12	1
Vinyl chloride	ND		1.0	0.22	ug/L			07/28/20 21:12	1
Bromomethane	ND		6.0	0.21	ug/L			07/28/20 21:12	1
Chloroethane	ND		5.0	0.35	ug/L			07/28/20 21:12	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			07/28/20 21:12	1
1,1-Dichloroethene	ND		4.0	0.28	ug/L			07/28/20 21:12	1
Carbon disulfide	ND		3.0	0.53	ug/L			07/28/20 21:12	1
Acetone	ND		50	3.2	ug/L			07/28/20 21:12	1
Methylene Chloride	ND		5.0	1.4	ug/L			07/28/20 21:12	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			07/28/20 21:12	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			07/28/20 21:12	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			07/28/20 21:12	1
2-Butanone	ND		20	4.7	ug/L			07/28/20 21:12	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			07/28/20 21:12	1
Bromochloromethane	ND		2.0	0.29	ug/L			07/28/20 21:12	1
Chloroform	ND		5.0	0.26	ug/L			07/28/20 21:12	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			07/28/20 21:12	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			07/28/20 21:12	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			07/28/20 21:12	1
Benzene	**90**		3.0	0.24	ug/L			07/28/20 21:12	1
1,2-Dichloroethane	ND		2.0	0.42	ug/L			07/28/20 21:12	1
Trichloroethene	ND		3.0	0.26	ug/L			07/28/20 21:12	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			07/28/20 21:12	1
Dibromomethane	ND		2.0	0.34	ug/L			07/28/20 21:12	1
Bromodichloromethane	ND		2.0	0.29	ug/L			07/28/20 21:12	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			07/28/20 21:12	1
4-Methyl-2-pentanone	ND		15	2.5	ug/L			07/28/20 21:12	1
Toluene	**4.0**		2.0	0.39	ug/L			07/28/20 21:12	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			07/28/20 21:12	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			07/28/20 21:12	1
Tetrachloroethene	ND		3.0	0.41	ug/L			07/28/20 21:12	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			07/28/20 21:12	1
2-Hexanone	ND		20	4.0	ug/L			07/28/20 21:12	1
Dibromochloromethane	ND		2.0	0.43	ug/L			07/28/20 21:12	1
1,2-Dibromoethane	ND		2.0	0.40	ug/L			07/28/20 21:12	1
Chlorobenzene	ND		2.0	0.44	ug/L			07/28/20 21:12	1
Ethylbenzene	**22**		3.0	0.50	ug/L			07/28/20 21:12	1
1,1,1,2-Tetrachloroethane	ND		2.0	0.18	ug/L			07/28/20 21:12	1
m-Xylene & p-Xylene	**59**		3.0	0.75	ug/L			07/28/20 21:12	1
o-Xylene	**18**		2.0	0.39	ug/L			07/28/20 21:12	1
Styrene	ND		5.0	1.0	ug/L			07/28/20 21:12	1
Bromoform	ND		3.0	0.56	ug/L			07/28/20 21:12	1
Isopropylbenzene	**4.5**		2.0	0.44	ug/L			07/28/20 21:12	1
Bromobenzene	ND		2.0	0.43	ug/L			07/28/20 21:12	1
N-Propylbenzene	**4.0**		3.0	0.50	ug/L			07/28/20 21:12	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			07/28/20 21:12	1
4-Chlorotoluene	ND		2.0	0.38	ug/L			07/28/20 21:12	1
t-Butylbenzene	ND		3.0	0.58	ug/L			07/28/20 21:12	1
1,2,4-Trimethylbenzene	**15**		3.0	0.61	ug/L			07/28/20 21:12	1

Client Sample ID: Kobuk-MW2-0720

Date Collected: 07/22/20 13:45
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-2

Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	**0.70**	**J**	3.0	0.49	ug/L			07/28/20 21:12	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			07/28/20 21:12	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			07/28/20 21:12	1
1,4-Dichlorobenzene	ND		4.0	0.46	ug/L			07/28/20 21:12	1
n-Butylbenzene	ND		3.0	0.44	ug/L			07/28/20 21:12	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			07/28/20 21:12	1
1,2-Dibromo-3-Chloropropane	ND		10	0.57	ug/L			07/28/20 21:12	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			07/28/20 21:12	1
1,2,3-Trichlorobenzene	ND		5.0	0.43	ug/L			07/28/20 21:12	1
Hexachlorobutadiene	ND		6.0	0.79	ug/L			07/28/20 21:12	1
Naphthalene	**7.2**		4.0	0.93	ug/L			07/28/20 21:12	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			07/28/20 21:12	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			07/28/20 21:12	1
1,3,5-Trimethylbenzene	**5.5**		3.0	0.55	ug/L			07/28/20 21:12	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			07/28/20 21:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*07/28/20 21:12*	*1*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*07/28/20 21:12*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*07/28/20 21:12*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 126*		*07/28/20 21:12*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	*	10	0.53	ug/L			07/31/20 15:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*		*07/31/20 15:54*	*1*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*07/31/20 15:54*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*07/31/20 15:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*		*07/31/20 15:54*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**3.6**		0.11	0.035	ug/L		07/24/20 10:03	07/25/20 01:20	1
2-Methylnaphthalene	**0.29**		0.22	0.043	ug/L		07/24/20 10:03	07/25/20 01:20	1
1-Methylnaphthalene	**0.52**		0.11	0.021	ug/L		07/24/20 10:03	07/25/20 01:20	1
Acenaphthylene	ND		0.056	0.010	ug/L		07/24/20 10:03	07/25/20 01:20	1
Acenaphthene	ND		0.11	0.016	ug/L		07/24/20 10:03	07/25/20 01:20	1
Fluorene	ND		0.11	0.019	ug/L		07/24/20 10:03	07/25/20 01:20	1
Phenanthrene	ND		0.11	0.035	ug/L		07/24/20 10:03	07/25/20 01:20	1
Anthracene	ND		0.11	0.024	ug/L		07/24/20 10:03	07/25/20 01:20	1
Fluoranthene	ND		0.22	0.056	ug/L		07/24/20 10:03	07/25/20 01:20	1
Pyrene	ND		0.11	0.037	ug/L		07/24/20 10:03	07/25/20 01:20	1
Benzo[a]anthracene	ND		0.056	0.016	ug/L		07/24/20 10:03	07/25/20 01:20	1
Chrysene	ND		0.11	0.018	ug/L		07/24/20 10:03	07/25/20 01:20	1
Benzo[b]fluoranthene	ND		0.056	0.012	ug/L		07/24/20 10:03	07/25/20 01:20	1
Benzo[k]fluoranthene	ND		0.056	0.013	ug/L		07/24/20 10:03	07/25/20 01:20	1
Benzo[a]pyrene	ND		0.11	0.012	ug/L		07/24/20 10:03	07/25/20 01:20	1
Indeno[1,2,3-cd]pyrene	ND		0.056	0.016	ug/L		07/24/20 10:03	07/25/20 01:20	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Client Sample ID: Kobuk-MW2-0720

Date Collected: 07/22/20 13:45
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-2

Matrix: Water

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		0.11	0.017	ug/L		07/24/20 10:03	07/25/20 01:20	1
Benzo[g,h,i]perylene	ND		0.056	0.013	ug/L		07/24/20 10:03	07/25/20 01:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*86*		*29 - 150*	*07/24/20 10:03*	*07/25/20 01:20*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2.1**		0.25	0.10	mg/L			07/27/20 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*50 - 150*		*07/27/20 19:57*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**1.8**		0.12	0.080	mg/L		07/28/20 13:55	07/29/20 02:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*07/28/20 13:55*	*07/29/20 02:32*	*1*
n-Triacontane-d62	*85*		*50 - 150*	*07/28/20 13:55*	*07/29/20 02:32*	*1*

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Client Sample ID: Kobuk-MW12-0720
Date Collected: 07/22/20 14:00
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-3
Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND	*	20	0.28	ug/L			07/28/20 21:37	1
Vinyl chloride	ND		1.0	0.22	ug/L			07/28/20 21:37	1
Bromomethane	ND		6.0	0.21	ug/L			07/28/20 21:37	1
Chloroethane	ND		5.0	0.35	ug/L			07/28/20 21:37	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			07/28/20 21:37	1
1,1-Dichloroethene	ND		4.0	0.28	ug/L			07/28/20 21:37	1
Carbon disulfide	ND		3.0	0.53	ug/L			07/28/20 21:37	1
Acetone	**52**		50	3.2	ug/L			07/28/20 21:37	1
Methylene Chloride	ND		5.0	1.4	ug/L			07/28/20 21:37	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			07/28/20 21:37	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			07/28/20 21:37	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			07/28/20 21:37	1
2-Butanone	ND		20	4.7	ug/L			07/28/20 21:37	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			07/28/20 21:37	1
Bromochloromethane	ND		2.0	0.29	ug/L			07/28/20 21:37	1
Chloroform	ND		5.0	0.26	ug/L			07/28/20 21:37	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			07/28/20 21:37	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			07/28/20 21:37	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			07/28/20 21:37	1
Benzene	**88**		3.0	0.24	ug/L			07/28/20 21:37	1
1,2-Dichloroethane	**0.61**	**J**	2.0	0.42	ug/L			07/28/20 21:37	1
Trichloroethene	ND		3.0	0.26	ug/L			07/28/20 21:37	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			07/28/20 21:37	1
Dibromomethane	ND		2.0	0.34	ug/L			07/28/20 21:37	1
Bromodichloromethane	ND		2.0	0.29	ug/L			07/28/20 21:37	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			07/28/20 21:37	1
4-Methyl-2-pentanone	ND		15	2.5	ug/L			07/28/20 21:37	1
Toluene	**4.0**		2.0	0.39	ug/L			07/28/20 21:37	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			07/28/20 21:37	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			07/28/20 21:37	1
Tetrachloroethene	ND		3.0	0.41	ug/L			07/28/20 21:37	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			07/28/20 21:37	1
2-Hexanone	ND		20	4.0	ug/L			07/28/20 21:37	1
Dibromochloromethane	ND		2.0	0.43	ug/L			07/28/20 21:37	1
1,2-Dibromoethane	ND		2.0	0.40	ug/L			07/28/20 21:37	1
Chlorobenzene	ND		2.0	0.44	ug/L			07/28/20 21:37	1
Ethylbenzene	**22**		3.0	0.50	ug/L			07/28/20 21:37	1
1,1,1,2-Tetrachloroethane	ND		2.0	0.18	ug/L			07/28/20 21:37	1
m-Xylene & p-Xylene	**60**		3.0	0.75	ug/L			07/28/20 21:37	1
o-Xylene	**19**		2.0	0.39	ug/L			07/28/20 21:37	1
Styrene	ND		5.0	1.0	ug/L			07/28/20 21:37	1
Bromoform	ND		3.0	0.56	ug/L			07/28/20 21:37	1
Isopropylbenzene	**4.5**		2.0	0.44	ug/L			07/28/20 21:37	1
Bromobenzene	ND		2.0	0.43	ug/L			07/28/20 21:37	1
N-Propylbenzene	**4.5**		3.0	0.50	ug/L			07/28/20 21:37	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			07/28/20 21:37	1
4-Chlorotoluene	ND		2.0	0.38	ug/L			07/28/20 21:37	1
t-Butylbenzene	ND		3.0	0.58	ug/L			07/28/20 21:37	1
1,2,4-Trimethylbenzene	**15**		3.0	0.61	ug/L			07/28/20 21:37	1

Client Sample ID: Kobuk-MW12-0720

Date Collected: 07/22/20 14:00
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-3

Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	**0.76**	**J**	3.0	0.49	ug/L			07/28/20 21:37	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			07/28/20 21:37	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			07/28/20 21:37	1
1,4-Dichlorobenzene	ND		4.0	0.46	ug/L			07/28/20 21:37	1
n-Butylbenzene	ND		3.0	0.44	ug/L			07/28/20 21:37	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			07/28/20 21:37	1
1,2-Dibromo-3-Chloropropane	ND		10	0.57	ug/L			07/28/20 21:37	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			07/28/20 21:37	1
1,2,3-Trichlorobenzene	ND		5.0	0.43	ug/L			07/28/20 21:37	1
Hexachlorobutadiene	ND		6.0	0.79	ug/L			07/28/20 21:37	1
Naphthalene	**7.1**		4.0	0.93	ug/L			07/28/20 21:37	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			07/28/20 21:37	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			07/28/20 21:37	1
1,3,5-Trimethylbenzene	**6.0**		3.0	0.55	ug/L			07/28/20 21:37	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			07/28/20 21:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*104*		*80 - 120*		*07/28/20 21:37*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*07/28/20 21:37*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*07/28/20 21:37*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*		*07/28/20 21:37*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	*	10	0.53	ug/L			07/31/20 16:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*		*07/31/20 16:18*	*1*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*		*07/31/20 16:18*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*07/31/20 16:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*		*07/31/20 16:18*	*1*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**3.3**		0.12	0.036	ug/L		07/24/20 10:03	07/25/20 01:44	1
2-Methylnaphthalene	**0.22**	**J**	0.23	0.045	ug/L		07/24/20 10:03	07/25/20 01:44	1
1-Methylnaphthalene	**0.48**		0.12	0.022	ug/L		07/24/20 10:03	07/25/20 01:44	1
Acenaphthylene	ND		0.058	0.010	ug/L		07/24/20 10:03	07/25/20 01:44	1
Acenaphthene	ND		0.12	0.016	ug/L		07/24/20 10:03	07/25/20 01:44	1
Fluorene	ND		0.12	0.020	ug/L		07/24/20 10:03	07/25/20 01:44	1
Phenanthrene	ND		0.12	0.036	ug/L		07/24/20 10:03	07/25/20 01:44	1
Anthracene	ND		0.12	0.025	ug/L		07/24/20 10:03	07/25/20 01:44	1
Fluoranthene	ND		0.23	0.058	ug/L		07/24/20 10:03	07/25/20 01:44	1
Pyrene	ND		0.12	0.038	ug/L		07/24/20 10:03	07/25/20 01:44	1
Benzo[a]anthracene	ND		0.058	0.016	ug/L		07/24/20 10:03	07/25/20 01:44	1
Chrysene	ND		0.12	0.018	ug/L		07/24/20 10:03	07/25/20 01:44	1
Benzo[b]fluoranthene	ND		0.058	0.013	ug/L		07/24/20 10:03	07/25/20 01:44	1
Benzo[k]fluoranthene	ND		0.058	0.014	ug/L		07/24/20 10:03	07/25/20 01:44	1
Benzo[a]pyrene	ND		0.12	0.013	ug/L		07/24/20 10:03	07/25/20 01:44	1
Indeno[1,2,3-cd]pyrene	ND		0.058	0.016	ug/L		07/24/20 10:03	07/25/20 01:44	1

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Client Sample ID: Kobuk-MW12-0720

Date Collected: 07/22/20 14:00
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-3

Matrix: Water

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		0.12	0.017	ug/L		07/24/20 10:03	07/25/20 01:44	1
Benzo[g,h,i]perylene	ND		0.058	0.014	ug/L		07/24/20 10:03	07/25/20 01:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Terphenyl-d14	*87*		*29 - 150*	*07/24/20 10:03*	*07/25/20 01:44*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	**2.1**		0.25	0.10	mg/L			07/27/20 20:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*50 - 150*		*07/27/20 20:21*	*1*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	**1.9**		0.12	0.082	mg/L		07/28/20 13:55	07/29/20 02:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*91*		*50 - 150*	*07/28/20 13:55*	*07/29/20 02:12*	*1*
n-Triacontane-d62	*91*		*50 - 150*	*07/28/20 13:55*	*07/29/20 02:12*	*1*

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Client Sample ID: Trip Blank

Date Collected: 07/22/20 12:00
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-4

Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND	*	10	0.53	ug/L			07/28/20 20:22	1
Vinyl chloride	ND		1.0	0.22	ug/L			07/28/20 20:22	1
Bromomethane	ND		6.0	0.21	ug/L			07/28/20 20:22	1
Chloroethane	ND		5.0	0.35	ug/L			07/28/20 20:22	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			07/28/20 20:22	1
1,1-Dichloroethene	ND		4.0	0.28	ug/L			07/28/20 20:22	1
Carbon disulfide	ND		3.0	0.53	ug/L			07/28/20 20:22	1
Acetone	**18**	**J**	50	3.2	ug/L			07/28/20 20:22	1
Methylene Chloride	ND		5.0	1.4	ug/L			07/28/20 20:22	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			07/28/20 20:22	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			07/28/20 20:22	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			07/28/20 20:22	1
2-Butanone	ND		20	4.7	ug/L			07/28/20 20:22	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			07/28/20 20:22	1
Bromochloromethane	ND		2.0	0.29	ug/L			07/28/20 20:22	1
Chloroform	ND		5.0	0.26	ug/L			07/28/20 20:22	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			07/28/20 20:22	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			07/28/20 20:22	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			07/28/20 20:22	1
Benzene	ND		3.0	0.24	ug/L			07/28/20 20:22	1
1,2-Dichloroethane	ND		2.0	0.42	ug/L			07/28/20 20:22	1
Trichloroethene	ND		3.0	0.26	ug/L			07/28/20 20:22	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			07/28/20 20:22	1
Dibromomethane	ND		2.0	0.34	ug/L			07/28/20 20:22	1
Bromodichloromethane	ND		2.0	0.29	ug/L			07/28/20 20:22	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			07/28/20 20:22	1
4-Methyl-2-pentanone	ND		15	2.5	ug/L			07/28/20 20:22	1
Toluene	ND		2.0	0.39	ug/L			07/28/20 20:22	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			07/28/20 20:22	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			07/28/20 20:22	1
Tetrachloroethene	ND		3.0	0.41	ug/L			07/28/20 20:22	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			07/28/20 20:22	1
2-Hexanone	ND		20	4.0	ug/L			07/28/20 20:22	1
Dibromochloromethane	ND		2.0	0.43	ug/L			07/28/20 20:22	1
1,2-Dibromoethane	ND		2.0	0.40	ug/L			07/28/20 20:22	1
Chlorobenzene	ND		2.0	0.44	ug/L			07/28/20 20:22	1
Ethylbenzene	ND		3.0	0.50	ug/L			07/28/20 20:22	1
1,1,1,2-Tetrachloroethane	ND		2.0	0.18	ug/L			07/28/20 20:22	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			07/28/20 20:22	1
o-Xylene	ND		2.0	0.39	ug/L			07/28/20 20:22	1
Styrene	ND		5.0	1.0	ug/L			07/28/20 20:22	1
Bromoform	ND		3.0	0.56	ug/L			07/28/20 20:22	1
Isopropylbenzene	ND		2.0	0.44	ug/L			07/28/20 20:22	1
Bromobenzene	ND		2.0	0.43	ug/L			07/28/20 20:22	1
N-Propylbenzene	ND		3.0	0.50	ug/L			07/28/20 20:22	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			07/28/20 20:22	1
4-Chlorotoluene	ND		2.0	0.38	ug/L			07/28/20 20:22	1
t-Butylbenzene	ND		3.0	0.58	ug/L			07/28/20 20:22	1
1,2,4-Trimethylbenzene	ND		3.0	0.61	ug/L			07/28/20 20:22	1

Client Sample ID: Trip Blank

Date Collected: 07/22/20 12:00
Date Received: 07/23/20 09:20

Lab Sample ID: 580-96236-4

Matrix: Water

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		3.0	0.49	ug/L			07/28/20 20:22	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			07/28/20 20:22	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			07/28/20 20:22	1
1,4-Dichlorobenzene	ND		4.0	0.46	ug/L			07/28/20 20:22	1
n-Butylbenzene	ND		3.0	0.44	ug/L			07/28/20 20:22	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			07/28/20 20:22	1
1,2-Dibromo-3-Chloropropane	ND		10	0.57	ug/L			07/28/20 20:22	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			07/28/20 20:22	1
1,2,3-Trichlorobenzene	ND		5.0	0.43	ug/L			07/28/20 20:22	1
Hexachlorobutadiene	ND		6.0	0.79	ug/L			07/28/20 20:22	1
Naphthalene	ND		4.0	0.93	ug/L			07/28/20 20:22	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			07/28/20 20:22	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			07/28/20 20:22	1
1,3,5-Trimethylbenzene	ND		3.0	0.55	ug/L			07/28/20 20:22	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			07/28/20 20:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*07/28/20 20:22*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*07/28/20 20:22*	*1*
Dibromofluoromethane (Surr)	*100*		*80 - 120*		*07/28/20 20:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*		*07/28/20 20:22*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloromethane	ND		20	0.28	ug/L			07/31/20 15:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/31/20 15:04*	*1*
4-Bromofluorobenzene (Surr)	*98*		*80 - 120*		*07/31/20 15:04*	*1*
Dibromofluoromethane (Surr)	*NaN*		*80 - 120*		*07/31/20 15:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*NaN*		*80 - 126*		*07/31/20 15:04*	*1*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			07/27/20 20:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*50 - 150*		*07/27/20 20:45*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-333913/5
Matrix: Water
Analysis Batch: 333913

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		3.0	0.24	ug/L			07/24/20 18:20	1
Toluene	ND		2.0	0.39	ug/L			07/24/20 18:20	1
Ethylbenzene	ND		3.0	0.50	ug/L			07/24/20 18:20	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			07/24/20 18:20	1
o-Xylene	ND		2.0	0.39	ug/L			07/24/20 18:20	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*102*		*80 - 120*		*07/24/20 18:20*	*1*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*		*07/24/20 18:20*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*07/24/20 18:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*80 - 126*		*07/24/20 18:20*	*1*

Lab Sample ID: LCS 580-333913/6
Matrix: Water
Analysis Batch: 333913

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.7		ug/L		107	82 - 122
Toluene	10.0	10.5		ug/L		105	80 - 120
Ethylbenzene	10.0	10.5		ug/L		105	80 - 120
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120
o-Xylene	10.0	10.2		ug/L		102	80 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 126*

Lab Sample ID: LCSD 580-333913/7
Matrix: Water
Analysis Batch: 333913

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	10.0	10.6		ug/L		106	82 - 122	1	14
Toluene	10.0	10.5		ug/L		105	80 - 120	1	13
Ethylbenzene	10.0	10.3		ug/L		103	80 - 120	1	14
m-Xylene & p-Xylene	10.0	10.2		ug/L		102	80 - 120	1	14
o-Xylene	10.0	10.1		ug/L		101	80 - 125	1	16

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*101*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-334180/5
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		10	0.53	ug/L			07/28/20 18:43	1
Chloromethane	ND		20	0.28	ug/L			07/28/20 18:43	1
Vinyl chloride	ND		1.0	0.22	ug/L			07/28/20 18:43	1
Bromomethane	ND		6.0	0.21	ug/L			07/28/20 18:43	1
Chloroethane	ND		5.0	0.35	ug/L			07/28/20 18:43	1
Trichlorofluoromethane	ND		3.0	0.63	ug/L			07/28/20 18:43	1
1,1-Dichloroethene	ND		4.0	0.28	ug/L			07/28/20 18:43	1
Carbon disulfide	ND		3.0	0.53	ug/L			07/28/20 18:43	1
Acetone	ND		50	3.2	ug/L			07/28/20 18:43	1
Methylene Chloride	ND		5.0	1.4	ug/L			07/28/20 18:43	1
trans-1,2-Dichloroethene	ND		3.0	0.39	ug/L			07/28/20 18:43	1
1,1-Dichloroethane	ND		2.0	0.22	ug/L			07/28/20 18:43	1
2,2-Dichloropropane	ND		3.0	0.32	ug/L			07/28/20 18:43	1
2-Butanone	ND		20	4.7	ug/L			07/28/20 18:43	1
cis-1,2-Dichloroethene	ND		3.0	0.69	ug/L			07/28/20 18:43	1
Bromochloromethane	ND		2.0	0.29	ug/L			07/28/20 18:43	1
Chloroform	ND		5.0	0.26	ug/L			07/28/20 18:43	1
1,1,1-Trichloroethane	ND		3.0	0.39	ug/L			07/28/20 18:43	1
Carbon tetrachloride	ND		3.0	0.30	ug/L			07/28/20 18:43	1
1,1-Dichloropropene	ND		3.0	0.29	ug/L			07/28/20 18:43	1
Benzene	ND		3.0	0.24	ug/L			07/28/20 18:43	1
1,2-Dichloroethane	ND		2.0	0.42	ug/L			07/28/20 18:43	1
Trichloroethene	ND		3.0	0.26	ug/L			07/28/20 18:43	1
1,2-Dichloropropane	ND		1.0	0.18	ug/L			07/28/20 18:43	1
Dibromomethane	ND		2.0	0.34	ug/L			07/28/20 18:43	1
Bromodichloromethane	ND		2.0	0.29	ug/L			07/28/20 18:43	1
cis-1,3-Dichloropropene	ND		1.0	0.20	ug/L			07/28/20 18:43	1
4-Methyl-2-pentanone	ND		15	2.5	ug/L			07/28/20 18:43	1
Toluene	ND		2.0	0.39	ug/L			07/28/20 18:43	1
trans-1,3-Dichloropropene	ND		1.0	0.16	ug/L			07/28/20 18:43	1
1,1,2-Trichloroethane	ND		1.0	0.24	ug/L			07/28/20 18:43	1
Tetrachloroethene	ND		3.0	0.41	ug/L			07/28/20 18:43	1
1,3-Dichloropropane	ND		2.0	0.35	ug/L			07/28/20 18:43	1
2-Hexanone	ND		20	4.0	ug/L			07/28/20 18:43	1
Dibromochloromethane	ND		2.0	0.43	ug/L			07/28/20 18:43	1
1,2-Dibromoethane	ND		2.0	0.40	ug/L			07/28/20 18:43	1
Chlorobenzene	ND		2.0	0.44	ug/L			07/28/20 18:43	1
Ethylbenzene	ND		3.0	0.50	ug/L			07/28/20 18:43	1
1,1,1,2-Tetrachloroethane	ND		2.0	0.18	ug/L			07/28/20 18:43	1
m-Xylene & p-Xylene	ND		3.0	0.75	ug/L			07/28/20 18:43	1
o-Xylene	ND		2.0	0.39	ug/L			07/28/20 18:43	1
Styrene	ND		5.0	1.0	ug/L			07/28/20 18:43	1
Bromoform	ND		3.0	0.56	ug/L			07/28/20 18:43	1
Isopropylbenzene	ND		2.0	0.44	ug/L			07/28/20 18:43	1
Bromobenzene	ND		2.0	0.43	ug/L			07/28/20 18:43	1
N-Propylbenzene	ND		3.0	0.50	ug/L			07/28/20 18:43	1
1,1,2,2-Tetrachloroethane	ND		3.0	0.52	ug/L			07/28/20 18:43	1
4-Chlorotoluene	ND		2.0	0.38	ug/L			07/28/20 18:43	1

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-334180/5
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
t-Butylbenzene	ND		3.0	0.58	ug/L			07/28/20 18:43	1
1,2,4-Trimethylbenzene	ND		3.0	0.61	ug/L			07/28/20 18:43	1
sec-Butylbenzene	ND		3.0	0.49	ug/L			07/28/20 18:43	1
1,3-Dichlorobenzene	ND		2.0	0.18	ug/L			07/28/20 18:43	1
4-Isopropyltoluene	ND		3.0	0.28	ug/L			07/28/20 18:43	1
1,4-Dichlorobenzene	ND		4.0	0.46	ug/L			07/28/20 18:43	1
n-Butylbenzene	ND		3.0	0.44	ug/L			07/28/20 18:43	1
1,2-Dichlorobenzene	ND		2.0	0.46	ug/L			07/28/20 18:43	1
1,2-Dibromo-3-Chloropropane	ND		10	0.57	ug/L			07/28/20 18:43	1
1,2,4-Trichlorobenzene	ND		2.0	0.33	ug/L			07/28/20 18:43	1
1,2,3-Trichlorobenzene	ND		5.0	0.43	ug/L			07/28/20 18:43	1
Hexachlorobutadiene	ND		6.0	0.79	ug/L			07/28/20 18:43	1
Naphthalene	ND		4.0	0.93	ug/L			07/28/20 18:43	1
Methyl tert-butyl ether	ND		2.0	0.44	ug/L			07/28/20 18:43	1
1,2,3-Trichloropropane	ND		2.0	0.41	ug/L			07/28/20 18:43	1
1,3,5-Trimethylbenzene	ND		3.0	0.55	ug/L			07/28/20 18:43	1
2-Chlorotoluene	ND		3.0	0.51	ug/L			07/28/20 18:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/28/20 18:43*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*07/28/20 18:43*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 120*		*07/28/20 18:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*		*07/28/20 18:43*	*1*

Lab Sample ID: LCS 580-334180/6
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	10.0	14.0	*	ug/L		140	47 - 133
Chloromethane	10.0	13.5	J	ug/L		135	52 - 135
Vinyl chloride	10.0	12.6		ug/L		126	65 - 130
Bromomethane	10.0	11.8		ug/L		118	66 - 125
Chloroethane	10.0	12.4		ug/L		124	65 - 132
Trichlorofluoromethane	10.0	12.3		ug/L		123	64 - 130
1,1-Dichloroethene	10.0	10.9		ug/L		109	70 - 129
Carbon disulfide	10.0	11.0		ug/L		110	63 - 129
Acetone	50.0	53.2		ug/L		106	57 - 150
Methylene Chloride	10.0	10.5		ug/L		105	77 - 120
trans-1,2-Dichloroethene	10.0	10.8		ug/L		108	70 - 130
1,1-Dichloroethane	10.0	10.5		ug/L		105	81 - 129
2,2-Dichloropropane	10.0	11.2		ug/L		112	53 - 150
2-Butanone	50.0	50.8		ug/L		102	73 - 137
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	76 - 129
Bromochloromethane	10.0	10.8		ug/L		108	78 - 120
Chloroform	10.0	10.2		ug/L		102	73 - 127
1,1,1-Trichloroethane	10.0	11.2		ug/L		112	74 - 130
Carbon tetrachloride	10.0	11.4		ug/L		114	72 - 129

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-334180/6
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloropropene	10.0	11.0		ug/L		110	74 - 131
Benzene	10.0	10.4		ug/L		104	82 - 122
1,2-Dichloroethane	10.0	10.9		ug/L		109	76 - 126
Trichloroethene	10.0	10.6		ug/L		106	81 - 125
1,2-Dichloropropane	10.0	10.4		ug/L		104	80 - 126
Dibromomethane	10.0	10.8		ug/L		108	80 - 120
Bromodichloromethane	10.0	10.0		ug/L		100	75 - 124
cis-1,3-Dichloropropene	10.0	9.84		ug/L		98	77 - 120
4-Methyl-2-pentanone	50.0	56.8		ug/L		114	59 - 150
Toluene	10.0	10.4		ug/L		104	80 - 120
trans-1,3-Dichloropropene	10.0	10.4		ug/L		104	70 - 122
1,1,2-Trichloroethane	10.0	10.6		ug/L		106	80 - 121
Tetrachloroethene	10.0	11.1		ug/L		111	76 - 120
1,3-Dichloropropane	10.0	10.4		ug/L		104	79 - 120
2-Hexanone	50.0	56.5		ug/L		113	65 - 144
Dibromochloromethane	10.0	10.3		ug/L		103	60 - 125
1,2-Dibromoethane	10.0	10.5		ug/L		105	79 - 120
Chlorobenzene	10.0	10.4		ug/L		104	80 - 120
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
1,1,1,2-Tetrachloroethane	10.0	10.5		ug/L		105	79 - 120
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120
o-Xylene	10.0	10.3		ug/L		103	80 - 125
Styrene	10.0	10.1		ug/L		101	76 - 127
Bromoform	10.0	11.1		ug/L		111	28 - 139
Isopropylbenzene	10.0	10.7		ug/L		107	75 - 129
Bromobenzene	10.0	10.1		ug/L		101	80 - 120
N-Propylbenzene	10.0	10.1		ug/L		101	80 - 128
1,1,2,2-Tetrachloroethane	10.0	10.6		ug/L		106	74 - 124
4-Chlorotoluene	10.0	10.1		ug/L		101	80 - 120
t-Butylbenzene	10.0	10.1		ug/L		101	80 - 129
1,2,4-Trimethylbenzene	10.0	10.2		ug/L		102	80 - 131
sec-Butylbenzene	10.0	10.2		ug/L		102	78 - 131
1,3-Dichlorobenzene	10.0	10.6		ug/L		106	69 - 127
4-Isopropyltoluene	10.0	10.1		ug/L		101	77 - 131
1,4-Dichlorobenzene	10.0	9.99		ug/L		100	80 - 120
n-Butylbenzene	10.0	10.1		ug/L		101	78 - 120
1,2-Dichlorobenzene	10.0	10.0		ug/L		100	80 - 120
1,2-Dibromo-3-Chloropropane	10.0	9.98	J	ug/L		100	65 - 125
1,2,4-Trichlorobenzene	10.0	10.4		ug/L		104	73 - 128
1,2,3-Trichlorobenzene	10.0	9.46		ug/L		95	74 - 139
Hexachlorobutadiene	10.0	10.3		ug/L		103	74 - 125
Naphthalene	10.0	10.0		ug/L		100	75 - 134
Methyl tert-butyl ether	10.0	11.1		ug/L		111	72 - 130
1,2,3-Trichloropropane	10.0	10.8		ug/L		108	76 - 124
1,3,5-Trimethylbenzene	10.0	10.0		ug/L		100	80 - 131
2-Chlorotoluene	10.0	10.0		ug/L		100	80 - 120

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-334180/6
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*

Lab Sample ID: LCSD 580-334180/7
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dichlorodifluoromethane			10.0	13.5	*	ug/L		135	47 - 133	4	15
Chloromethane			10.0	13.6	J *	ug/L		136	52 - 135	1	14
Vinyl chloride			10.0	12.8		ug/L		128	65 - 130	2	14
Bromomethane			10.0	11.9		ug/L		119	66 - 125	1	14
Chloroethane			10.0	11.8		ug/L		118	65 - 132	5	18
Trichlorofluoromethane			10.0	12.1		ug/L		121	64 - 130	1	14
1,1-Dichloroethene			10.0	11.1		ug/L		111	70 - 129	1	17
Carbon disulfide			10.0	11.2		ug/L		112	63 - 129	2	14
Acetone			50.0	54.2		ug/L		108	57 - 150	2	22
Methylene Chloride			10.0	10.4		ug/L		104	77 - 120	1	18
trans-1,2-Dichloroethene			10.0	10.8		ug/L		108	70 - 130	0	21
1,1-Dichloroethane			10.0	10.5		ug/L		105	81 - 129	0	15
2,2-Dichloropropane			10.0	10.9		ug/L		109	53 - 150	2	15
2-Butanone			50.0	54.3		ug/L		109	73 - 137	7	24
cis-1,2-Dichloroethene			10.0	10.1		ug/L		101	76 - 129	1	15
Bromochloromethane			10.0	10.6		ug/L		106	78 - 120	2	13
Chloroform			10.0	10.1		ug/L		101	73 - 127	1	14
1,1,1-Trichloroethane			10.0	11.3		ug/L		113	74 - 130	1	11
Carbon tetrachloride			10.0	11.6		ug/L		116	72 - 129	2	11
1,1-Dichloropropene			10.0	10.8		ug/L		108	74 - 131	1	14
Benzene			10.0	10.4		ug/L		104	82 - 122	0	14
1,2-Dichloroethane			10.0	11.0		ug/L		110	76 - 126	1	11
Trichloroethene			10.0	10.5		ug/L		105	81 - 125	1	13
1,2-Dichloropropane			10.0	10.5		ug/L		105	80 - 126	1	14
Dibromomethane			10.0	10.7		ug/L		107	80 - 120	1	11
Bromodichloromethane			10.0	10.3		ug/L		103	75 - 124	2	13
cis-1,3-Dichloropropene			10.0	10.0		ug/L		100	77 - 120	2	20
4-Methyl-2-pentanone			50.0	58.5		ug/L		117	59 - 150	3	22
Toluene			10.0	10.3		ug/L		103	80 - 120	1	13
trans-1,3-Dichloropropene			10.0	10.4		ug/L		104	70 - 122	0	14
1,1,2-Trichloroethane			10.0	10.6		ug/L		106	80 - 121	1	14
Tetrachloroethene			10.0	11.2		ug/L		112	76 - 120	0	13
1,3-Dichloropropane			10.0	10.7		ug/L		107	79 - 120	3	13
2-Hexanone			50.0	58.3		ug/L		117	65 - 144	3	19
Dibromochloromethane			10.0	10.6		ug/L		106	60 - 125	2	13
1,2-Dibromoethane			10.0	10.8		ug/L		108	79 - 120	2	12
Chlorobenzene			10.0	10.6		ug/L		106	80 - 120	1	10
Ethylbenzene			10.0	10.3		ug/L		103	80 - 120	2	14

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-334180/7
Matrix: Water
Analysis Batch: 334180

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	10.0	10.3		ug/L		103	79 - 120	2	10
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120	1	14
o-Xylene	10.0	10.2		ug/L		102	80 - 125	1	16
Styrene	10.0	9.93		ug/L		99	76 - 127	1	16
Bromoform	10.0	11.4		ug/L		114	28 - 139	3	15
Isopropylbenzene	10.0	10.6		ug/L		106	75 - 129	1	12
Bromobenzene	10.0	10.3		ug/L		103	80 - 120	2	13
N-Propylbenzene	10.0	10.4		ug/L		104	80 - 128	3	13
1,1,2,2-Tetrachloroethane	10.0	11.0		ug/L		110	74 - 124	4	18
4-Chlorotoluene	10.0	10.2		ug/L		102	80 - 120	1	14
t-Butylbenzene	10.0	10.1		ug/L		101	80 - 129	0	14
1,2,4-Trimethylbenzene	10.0	10.3		ug/L		103	80 - 131	1	16
sec-Butylbenzene	10.0	10.4		ug/L		104	78 - 131	2	15
1,3-Dichlorobenzene	10.0	10.7		ug/L		107	69 - 127	1	14
4-Isopropyltoluene	10.0	10.3		ug/L		103	77 - 131	2	20
1,4-Dichlorobenzene	10.0	10.3		ug/L		103	80 - 120	3	17
n-Butylbenzene	10.0	10.4		ug/L		104	78 - 120	2	14
1,2-Dichlorobenzene	10.0	10.3		ug/L		103	80 - 120	3	15
1,2-Dibromo-3-Chloropropane	10.0	10.7		ug/L		107	65 - 125	7	17
1,2,4-Trichlorobenzene	10.0	10.4		ug/L		104	73 - 128	0	20
1,2,3-Trichlorobenzene	10.0	10.0		ug/L		100	74 - 139	6	26
Hexachlorobutadiene	10.0	10.5		ug/L		105	74 - 125	1	22
Naphthalene	10.0	10.8		ug/L		108	75 - 134	7	23
Methyl tert-butyl ether	10.0	11.0		ug/L		110	72 - 130	0	18
1,2,3-Trichloropropane	10.0	10.7		ug/L		107	76 - 124	0	16
1,3,5-Trimethylbenzene	10.0	10.2		ug/L		102	80 - 131	2	14
2-Chlorotoluene	10.0	10.0		ug/L		100	80 - 120	0	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*103*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*104*		*80 - 126*

Lab Sample ID: MB 580-334450/9
Matrix: Water
Analysis Batch: 334450

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dichlorodifluoromethane	ND		10	0.53	ug/L			07/31/20 12:34	1
Chloromethane	ND		20	0.28	ug/L			07/31/20 12:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*		*07/31/20 12:34*	*1*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*		*07/31/20 12:34*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*		*07/31/20 12:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*80 - 126*		*07/31/20 12:34*	*1*

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-334450/10
Matrix: Water
Analysis Batch: 334450

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Dichlorodifluoromethane			10.0	15.1	*	ug/L		151	47 - 133		
Chloromethane			10.0	13.0	J	ug/L		130	52 - 135		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 126*

Lab Sample ID: LCSD 580-334450/11
Matrix: Water
Analysis Batch: 334450

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dichlorodifluoromethane			10.0	15.0	*	ug/L		150	47 - 133	1	15
Chloromethane			10.0	12.9	J	ug/L		129	52 - 135	1	14

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*100*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*
Dibromofluoromethane (Surr)	*101*		*80 - 120*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 126*

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 580-333866/1-A
Matrix: Water
Analysis Batch: 333902

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 333866

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.10	0.031	ug/L		07/24/20 10:03	07/24/20 19:57	1
2-Methylnaphthalene	ND		0.20	0.039	ug/L		07/24/20 10:03	07/24/20 19:57	1
1-Methylnaphthalene	ND		0.10	0.019	ug/L		07/24/20 10:03	07/24/20 19:57	1
Acenaphthylene	ND		0.050	0.0090	ug/L		07/24/20 10:03	07/24/20 19:57	1
Acenaphthene	ND		0.10	0.014	ug/L		07/24/20 10:03	07/24/20 19:57	1
Fluorene	ND		0.10	0.017	ug/L		07/24/20 10:03	07/24/20 19:57	1
Phenanthrene	ND		0.10	0.031	ug/L		07/24/20 10:03	07/24/20 19:57	1
Anthracene	ND		0.10	0.022	ug/L		07/24/20 10:03	07/24/20 19:57	1
Fluoranthene	ND		0.20	0.050	ug/L		07/24/20 10:03	07/24/20 19:57	1
Pyrene	ND		0.10	0.033	ug/L		07/24/20 10:03	07/24/20 19:57	1
Benzo[a]anthracene	ND		0.050	0.014	ug/L		07/24/20 10:03	07/24/20 19:57	1
Chrysene	ND		0.10	0.016	ug/L		07/24/20 10:03	07/24/20 19:57	1
Benzo[b]fluoranthene	ND		0.050	0.011	ug/L		07/24/20 10:03	07/24/20 19:57	1
Benzo[k]fluoranthene	ND		0.050	0.012	ug/L		07/24/20 10:03	07/24/20 19:57	1
Benzo[a]pyrene	ND		0.10	0.011	ug/L		07/24/20 10:03	07/24/20 19:57	1
Indeno[1,2,3-cd]pyrene	ND		0.050	0.014	ug/L		07/24/20 10:03	07/24/20 19:57	1
Dibenz(a,h)anthracene	ND		0.10	0.015	ug/L		07/24/20 10:03	07/24/20 19:57	1
Benzo[g,h,i]perylene	ND		0.050	0.012	ug/L		07/24/20 10:03	07/24/20 19:57	1

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: MB 580-333866/1-A
Matrix: Water
Analysis Batch: 333902

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 333866

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14	78		29 - 150	07/24/20 10:03	07/24/20 19:57	1

Lab Sample ID: LCS 580-333866/2-A
Matrix: Water
Analysis Batch: 333902

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 333866

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	4.00	3.22		ug/L		81	24 - 120
2-Methylnaphthalene	4.00	3.28		ug/L		82	33 - 120
1-Methylnaphthalene	4.00	3.25		ug/L		81	29 - 120
Acenaphthylene	4.00	3.16		ug/L		79	32 - 120
Acenaphthene	4.00	3.15		ug/L		79	33 - 120
Fluorene	4.00	3.25		ug/L		81	39 - 120
Phenanthrene	4.00	3.34		ug/L		83	37 - 120
Anthracene	4.00	3.58		ug/L		90	41 - 120
Fluoranthene	4.00	4.01		ug/L		100	41 - 137
Pyrene	4.00	4.02		ug/L		100	39 - 134
Benzo[a]anthracene	4.00	3.80		ug/L		95	45 - 129
Chrysene	4.00	3.43		ug/L		86	47 - 126
Benzo[b]fluoranthene	4.00	3.76		ug/L		94	33 - 142
Benzo[k]fluoranthene	4.00	3.07		ug/L		77	41 - 132
Benzo[a]pyrene	4.00	3.93		ug/L		98	43 - 130
Indeno[1,2,3-cd]pyrene	4.00	4.23		ug/L		106	51 - 135
Dibenz(a,h)anthracene	4.00	3.84		ug/L		96	47 - 133
Benzo[g,h,i]perylene	4.00	3.63		ug/L		91	45 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14	78		29 - 150

Lab Sample ID: LCSD 580-333866/3-A
Matrix: Water
Analysis Batch: 333902

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 333866

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	4.00	3.00		ug/L		75	24 - 120	7	35
2-Methylnaphthalene	4.00	3.04		ug/L		76	33 - 120	8	35
1-Methylnaphthalene	4.00	3.07		ug/L		77	29 - 120	6	34
Acenaphthylene	4.00	3.07		ug/L		77	32 - 120	3	34
Acenaphthene	4.00	3.03		ug/L		76	33 - 120	4	32
Fluorene	4.00	3.10		ug/L		78	39 - 120	4	29
Phenanthrene	4.00	3.21		ug/L		80	37 - 120	4	26
Anthracene	4.00	3.42		ug/L		85	41 - 120	5	29
Fluoranthene	4.00	3.83		ug/L		96	41 - 137	5	24
Pyrene	4.00	3.83		ug/L		96	39 - 134	5	24
Benzo[a]anthracene	4.00	3.72		ug/L		93	45 - 129	2	24
Chrysene	4.00	3.37		ug/L		84	47 - 126	2	23
Benzo[b]fluoranthene	4.00	3.66		ug/L		91	33 - 142	3	25
Benzo[k]fluoranthene	4.00	3.04		ug/L		76	41 - 132	1	25

Method: 8270E SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCSD 580-333866/3-A
Matrix: Water
Analysis Batch: 333902

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 333866

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[a]pyrene			4.00	3.85		ug/L		96	43 - 130	2	27
Indeno[1,2,3-cd]pyrene			4.00	4.38		ug/L		109	51 - 135	3	24
Dibenz(a,h)anthracene			4.00	3.75		ug/L		94	47 - 133	2	25
Benzo[g,h,i]perylene			4.00	3.59		ug/L		90	45 - 127	1	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Terphenyl-d14	*76*		*29 - 150*

Method: AK101 - Alaska - Gasoline Range Organics (GC)

Lab Sample ID: MB 580-334028/5
Matrix: Water
Analysis Batch: 334028

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		0.25	0.10	mg/L			07/27/20 12:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*50 - 150*		*07/27/20 12:18*	*1*

Lab Sample ID: LCS 580-334028/6
Matrix: Water
Analysis Batch: 334028

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO) -C6-C10			1.00	1.03		mg/L		103	60 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*105*		*50 - 150*

Lab Sample ID: LCSD 580-334028/7
Matrix: Water
Analysis Batch: 334028

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10			1.00	0.954		mg/L		95	60 - 120	8	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*50 - 150*

Method: AK102 & 103 - Alaska - Diesel Range Organics & Residual Range Organics (GC)

Lab Sample ID: MB 580-334142/1-A
Matrix: Water
Analysis Batch: 334190

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 334142

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (nC10-<nC25)	ND		0.11	0.075	mg/L		07/28/20 13:55	07/28/20 20:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*07/28/20 13:55*	*07/28/20 20:07*	*1*
n-Triacontane-d62	*84*		*50 - 150*	*07/28/20 13:55*	*07/28/20 20:07*	*1*

Lab Sample ID: LCS 580-334142/2-A
Matrix: Water
Analysis Batch: 334190

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 334142

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
DRO (nC10-<nC25)			2.00	1.55		mg/L		77	75 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*96*		*50 - 150*
n-Triacontane-d62	*85*		*50 - 150*

Lab Sample ID: LCSD 580-334142/3-A
Matrix: Water
Analysis Batch: 334190

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 334142

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (nC10-<nC25)			2.00	1.56		mg/L		78	75 - 125	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*100*		*50 - 150*
n-Triacontane-d62	*91*		*50 - 150*

Lab Chronicle

Client: Alaska Resources & Environment
Job ID: 580-96236-1
Project/Site: Kobuk Feed & Fuel

Client Sample ID: Kobuk-MW1-0720
Lab Sample ID: 580-96236-1
Date Collected: 07/22/20 12:30
Matrix: Water
Date Received: 07/23/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	333913	07/25/20 03:29	TL1	TAL SEA
Total/NA	Analysis	AK101		1	334028	07/27/20 19:33	DCV	TAL SEA
Total/NA	Prep	3510C			334142	07/28/20 13:55	APR	TAL SEA
Total/NA	Analysis	AK102 & 103		1	334190	07/29/20 02:52	T1W	TAL SEA

Client Sample ID: Kobuk-MW2-0720
Lab Sample ID: 580-96236-2
Date Collected: 07/22/20 13:45
Matrix: Water
Date Received: 07/23/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	334180	07/28/20 21:12	T1W	TAL SEA
Total/NA	Analysis	8260D	RA	1	334450	07/31/20 15:54	JSM	TAL SEA
Total/NA	Prep	3510C			333866	07/24/20 10:03	S1S	TAL SEA
Total/NA	Analysis	8270E SIM		1	333902	07/25/20 01:20	W1T	TAL SEA
Total/NA	Analysis	AK101		1	334028	07/27/20 19:57	DCV	TAL SEA
Total/NA	Prep	3510C			334142	07/28/20 13:55	APR	TAL SEA
Total/NA	Analysis	AK102 & 103		1	334190	07/29/20 02:32	T1W	TAL SEA

Client Sample ID: Kobuk-MW12-0720
Lab Sample ID: 580-96236-3
Date Collected: 07/22/20 14:00
Matrix: Water
Date Received: 07/23/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	334180	07/28/20 21:37	T1W	TAL SEA
Total/NA	Analysis	8260D	RA	1	334450	07/31/20 16:18	JSM	TAL SEA
Total/NA	Prep	3510C			333866	07/24/20 10:03	S1S	TAL SEA
Total/NA	Analysis	8270E SIM		1	333902	07/25/20 01:44	W1T	TAL SEA
Total/NA	Analysis	AK101		1	334028	07/27/20 20:21	DCV	TAL SEA
Total/NA	Prep	3510C			334142	07/28/20 13:55	APR	TAL SEA
Total/NA	Analysis	AK102 & 103		1	334190	07/29/20 02:12	T1W	TAL SEA

Client Sample ID: Trip Blank
Lab Sample ID: 580-96236-4
Date Collected: 07/22/20 12:00
Matrix: Water
Date Received: 07/23/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260D		1	334180	07/28/20 20:22	T1W	TAL SEA
Total/NA	Analysis	8260D	RA	1	334450	07/31/20 15:04	JSM	TAL SEA
Total/NA	Analysis	AK101		1	334028	07/27/20 20:45	DCV	TAL SEA

Laboratory References:
TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Alaska Resources & Environment
Job ID: 580-96236-1
Project/Site: Kobuk Feed & Fuel

Laboratory: Eurofins TestAmerica, Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-14-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260D		Water	1,1,1,2-Tetrachloroethane
8260D		Water	1,1,1-Trichloroethane
8260D		Water	1,1,2,2-Tetrachloroethane
8260D		Water	1,1,2-Trichloroethane
8260D		Water	1,1-Dichloroethane
8260D		Water	1,1-Dichloroethene
8260D		Water	1,1-Dichloropropene
8260D		Water	1,2,3-Trichlorobenzene
8260D		Water	1,2,3-Trichloropropane
8260D		Water	1,2,4-Trichlorobenzene
8260D		Water	1,2,4-Trimethylbenzene
8260D		Water	1,2-Dibromo-3-Chloropropane
8260D		Water	1,2-Dibromoethane
8260D		Water	1,2-Dichlorobenzene
8260D		Water	1,2-Dichloroethane
8260D		Water	1,2-Dichloropropane
8260D		Water	1,3,5-Trimethylbenzene
8260D		Water	1,3-Dichlorobenzene
8260D		Water	1,3-Dichloropropane
8260D		Water	1,4-Dichlorobenzene
8260D		Water	2,2-Dichloropropane
8260D		Water	2-Butanone
8260D		Water	2-Chlorotoluene
8260D		Water	2-Hexanone
8260D		Water	4-Chlorotoluene
8260D		Water	4-Isopropyltoluene
8260D		Water	4-Methyl-2-pentanone
8260D		Water	Acetone
8260D		Water	Benzene
8260D		Water	Bromobenzene
8260D		Water	Bromochloromethane
8260D		Water	Bromodichloromethane
8260D		Water	Bromoform
8260D		Water	Bromomethane
8260D		Water	Carbon disulfide
8260D		Water	Carbon tetrachloride
8260D		Water	Chlorobenzene
8260D		Water	Chloroethane
8260D		Water	Chloroform
8260D		Water	Chloromethane
8260D		Water	cis-1,2-Dichloroethene
8260D		Water	cis-1,3-Dichloropropene
8260D		Water	Dibromochloromethane
8260D		Water	Dibromomethane
8260D		Water	Dichlorodifluoromethane

Laboratory: Eurofins TestAmerica, Seattle (Continued)

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-14-22

8260D		Water	Ethylbenzene
8260D		Water	Hexachlorobutadiene
8260D		Water	Isopropylbenzene
8260D		Water	Methyl tert-butyl ether
8260D		Water	Methylene Chloride
8260D		Water	m-Xylene & p-Xylene
8260D		Water	Naphthalene
8260D		Water	n-Butylbenzene
8260D		Water	N-Propylbenzene
8260D		Water	o-Xylene
8260D		Water	sec-Butylbenzene
8260D		Water	Styrene
8260D		Water	t-Butylbenzene
8260D		Water	Tetrachloroethene
8260D		Water	Toluene
8260D		Water	trans-1,2-Dichloroethene
8260D		Water	trans-1,3-Dichloropropene
8260D		Water	Trichloroethene
8260D		Water	Trichlorofluoromethane
8260D		Water	Vinyl chloride
8270E SIM	3510C	Water	1-Methylnaphthalene
8270E SIM	3510C	Water	2-Methylnaphthalene
8270E SIM	3510C	Water	Acenaphthene
8270E SIM	3510C	Water	Acenaphthylene
8270E SIM	3510C	Water	Anthracene
8270E SIM	3510C	Water	Benzo[a]anthracene
8270E SIM	3510C	Water	Benzo[a]pyrene
8270E SIM	3510C	Water	Benzo[b]fluoranthene
8270E SIM	3510C	Water	Benzo[g,h,i]perylene
8270E SIM	3510C	Water	Benzo[k]fluoranthene
8270E SIM	3510C	Water	Chrysene
8270E SIM	3510C	Water	Dibenz(a,h)anthracene
8270E SIM	3510C	Water	Fluoranthene
8270E SIM	3510C	Water	Fluorene
8270E SIM	3510C	Water	Indeno[1,2,3-cd]pyrene
8270E SIM	3510C	Water	Naphthalene
8270E SIM	3510C	Water	Phenanthrene
8270E SIM	3510C	Water	Pyrene

Sample Summary

Client: Alaska Resources & Environment
Project/Site: Kobuk Feed & Fuel

Job ID: 580-96236-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-96236-1	Kobuk-MW1-0720	Water	07/22/20 12:30	07/23/20 09:20	
580-96236-2	Kobuk-MW2-0720	Water	07/22/20 13:45	07/23/20 09:20	
580-96236-3	Kobuk-MW12-0720	Water	07/22/20 14:00	07/23/20 09:20	
580-96236-4	Trip Blank	Water	07/22/20 12:00	07/23/20 09:20	

ALASKA RESOURCES AND ENVIRONMENTAL SERVICES

ARES
P.O. Box 83050
Fairbanks, Alaska 99708
Phone: 907.374.3226
Fax: 907.374.2319

Chain of Custody Report

Client: Alaska Resources and Environmental Services

Report To: Lyle Gresehover
Address: ARES, P.O. Box 83050
Email: lyle@ak-res.com
Phone: (907) 374-3226 Fax: (907)374-3219

Invoice To: ARES, P.O. Box 83050, Fairbanks, Alaska 99708

Laboratory Name: Test America, Inc
Address: 57755 8th St. East, Tacoma, WA 98424

P.O. Number:

Project Name: Kobuk Feed & Fuel
Project Number:
Sampled By: Josh Klynstra

Turnaround Request In Business Days

Organic & Inorganic Analyses: 15 | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 | 4 | 3 | 2 | 1 | <1

Specify Other:

Report Tier Levels: Tier II reporting requested (results + QC)

Loc: 580
96236

	Sample Identification	Sampling Date/ Time		Preservative															
				HCL	HCL	HCL	HCL	N/A											
				Requested Analyses															
				AK 101 GRO	AK 8260C BTEX	8260C VOC	AK 102 DRO	EPA 8270D SIM PAH									Matrix (W,S,O)	# of Cont.	Location / Comments	Lab ID
1	Kobuk-MW1-0720	7/22/2020	1230	X	X		X										W	8		
2	Kobuk-MW2-0720	7/22/2020	1345	X		X	X	X									W	10		
3	Kobuk-MW12-0720	7/22/2020	1400	X		X	X	X									W	10		
4	Trip Blank	7/22/2020	1200	X		X											W	6		
5																				
6																				
7																				
8																				
9																				
10																				

Released By: Dustin Stahl
Print Name: Dustin Stahl Firm: ARES Date: 07/22/2020 Time: ~~1530~~ 1730

Received By:
Print Name: Thea Hobbs Firm: TASea Date: 7-23-20 Time: 0920

Released By:
Print Name: Firm: Date: Time:

Received By:
Print Name: Firm: Date: Time:

Additional Remarks:

Temp:

Page 1 of 1

COC REV 02/2008

Therm. ID: 6 Cor: 3.8 ° Unc: 3.8 °
Cooler Dsc: 4 B
Packing: Bub
Cust. Seal: Yes A No
Blue Ice, Wet, Dry, None
FedEx:
UPS:
Lab Cour: X
Other:

580-96236 Chain of Custody

Login Sample Receipt Checklist

Client: Alaska Resources & Environment

Job Number: 580-96236-1

Login Number: 96236
List Number: 1
Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Laboratory Data Review Checklist

Completed By:

Richard Ranft

Title:

Environmental Geologist

Date:

03/09/2023

Consultant Firm:

Alaska Resources and Environmental Services

Laboratory Name:

Eurofins Seattle

Laboratory Report Number:

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

ADEC File Number:

100.26.137

Hazard Identification Number:

24434

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

   Eurofins Seattle is an ADEC CS approved laboratory.

   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☐ N/A☒ Comments:

   Samples were not transferred or subcontracted to another facility.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

   The cooler at the time of receipt in Seattle was 3.8 ° C.

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

   Yes☒ No☐ N/A☐ Comments:

   Four (4) samples consisting of three (3) groundwater samples (including one duplicate) and one (1) trip blank were received by Eurofins Seattle on July 23, 2020. The samples arrived in good condition and properly preserved.

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

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

Yes☒ No☐ N/A☐ Comments:

Samples arrived in good condition and were properly preserved.

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☐ N/A☒ Comments:

There weren't any discrepancies.

e. Data quality or usability affected?

Comments:

Data quality or usability are unaffected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

AK102 &103:
The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were later than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Kobuk-MW1-0720 (580-96236-1).

The following samples contained a hydrocarbon pattern in the diesel range; however, the elution pattern were earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: Kobuk-MW2-0720 (580-96236-2) and Kobuk-MW12-0720 (580-96236-3).

The laboratory reported LCS failures that will be addressed in the appropriate sections below.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

Corrective actions were not required.

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

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

Comments:

Data quality and usability are affected as stated in Section 4.b. above.

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Samples consisted of groundwater.

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

Yes☐ No☒ N/A☐ Comments:

8260D: 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,2,3-Trichloropropane, 1,2-Dibromoethane, 1,2-Dichloroethane, Bromodichloromethane, Chloroform, Hexachlorobutadiene, Naphthalene, Trichloroethene and Vinyl chloride have detection limits that exceed ADEC CUL's in one or more samples.

e. Data quality or usability affected?

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

All method blank results were non-detect.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

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

Yes☐ No☐ N/A☒ Comments:

v. Data quality or usability affected?

Comments:

See Section 6.a.ii. above.

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☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

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

Yes☐ No☒ N/A☐ Comments:

8260D: LCS 580-334180/6 exceeded recovery criteria for Dichlorodifluoromethane and Chloromethane. The analyte was biased high in the LCS and was not detected in associated samples; therefore, the data has been reported, and does not require qualification. Data quality and usability are not affected.

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

Yes☒ No☐ N/A☐ Comments:

All RPDs were within acceptable range.

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☐ N/A☒ Comments:

Qualification is not required; however the laboratory qualifiers remain in place in the associated summary table.

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

Comments:

Data quality and usability are not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

An MS/MSD was not required or requested for this sampling event.

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

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

Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

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

Yes☒ No☐ N/A☐ Comments:

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

All surrogate recoveries were within acceptable range.

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

Yes☐ No☐ N/A☒ Comments:

Qualification is not required.

iv. Data quality or usability affected?

Comments:

See Section 6.d.ii above

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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☐ N/A☒ Comments:

All samples were shipped within a single cooler.

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

8260D: Acetone (18 ug/L) was detected in the Trip Blank at concentrations below the LOQ and the project limits. All results in which the analyte was detected in both the sample and the blank have been qualified with the B data flag. Data quality is affected. Associated non-detect results are not affected. Cross-contamination between samples for these analytes may have occurred for this sampling event and associated results may be biased high. All affected results are below ADEC CULs. Data is usable.

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

v. Data quality or usability affected?

Comments:

See Section 6.e.ii above.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Sample Kobuk-MW12-0720 is the blind field duplicate to sample Kobuk-MW2-0720.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (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☒ N/A☐ Comments:

The following analyte had an RPD above recommended limits for samples Kobuk-MW12-0720 Kobuk-MW2-0720: 1,2-Dichloroethane (106.5%)

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

Comments:

Data quality for the analytes with RPDs exceeding control limits are affected. Associated results are considered estimated with an unknown bias and are qualified with the "QN" data flag. All associated results are less than ADEC CULs. Data is usable for the purpose of groundwater characterization.

580-96236-1

Laboratory Report Date:

CS Site Name:

Kobuk Feed & Fuel

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

Yes☐ No☐ N/A☒ Comments:

Dedicated disposable sampling equipment was used to collect the samples.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

iii. Data quality or usability affected?

Comments:

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Appendix C-3:

2021 Laboratory Report 1216322

&

ADEC Lab Quality Checklist

Laboratory Report of Analysis

To: Alaska Resources and Env. Svcs
P.O. Box 83050
Fairbanks, AK 99708

Report Number: **1216322**

Client Project: **Kobuk Feed and Fuel**

Dear Lyle Gresehover,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

_____

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

Case Narrative

SGS Client: **Alaska Resources and Env. Svcs**
SGS Project: **1216322**
Project Name/Site: **Kobuk Feed and Fuel**
Project Contact: **Lyle Gresehover**

Refer to sample receipt form for information on sample condition.

LCS for HBN 1826621 [VXX/37970 (1640393) LCS

8260D - LCS recovery for methyl iodide does not meet QC criteria, however this analyte is not being reported in the associated samples.

LCS for HBN 1826663 [VXX/37977 (1640602) LCS

8260D - LCS recoveries for trans 1,4-dichloro-2-butene and 1-chlorohexane do not meet QC criteria, however these analytes are not being reported in the associated samples.

LCSD for HBN 1826621 [VXX/3797 (1640394) LCSD

8260D - LCSD recovery for methyl iodide does not meet QC criteria, however this analyte is not being reported in the associated samples.

LCSD for HBN 1826663 [VXX/3797 (1640603) LCSD

8260D - LCSD recoveries for trans 1,4-dichloro-2-butene and 1-chlorohexane do not meet QC criteria, however these analytes are not being reported in the associated samples.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW1-0921	1216322001	09/24/2021	09/25/2021	Water (Surface, Eff., Ground)
MW2-0921	1216322002	09/24/2021	09/25/2021	Water (Surface, Eff., Ground)
MW12-0921	1216322003	09/24/2021	09/25/2021	Water (Surface, Eff., Ground)
Trip Blank	1216322004	09/24/2021	09/25/2021	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS LV
AK102	DRO Low Volume (W)
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W)
SW8260D	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW1-0921**
Lab Sample ID: 1216322001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	0.537J	mg/L
Volatile Fuels	Gasoline Range Organics	0.0581J	mg/L
Volatile GC/MS	Benzene	10.6	ug/L

Client Sample ID: **MW2-0921**
Lab Sample ID: 1216322002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.340	ug/L
	2-Methylnaphthalene	0.101	ug/L
	Fluorene	0.0200J	ug/L
	Naphthalene	2.57	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	1.33	mg/L
Volatile Fuels	Gasoline Range Organics	0.991	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	9.81	ug/L
	1,3,5-Trimethylbenzene	2.02	ug/L
	4-Isopropyltoluene	0.450J	ug/L
	Benzene	31.9	ug/L
	Dichlorodifluoromethane	0.460J	ug/L
	Ethylbenzene	9.21	ug/L
	Isopropylbenzene (Cumene)	3.00	ug/L
	Naphthalene	6.36	ug/L
	n-Propylbenzene	2.80	ug/L
	o-Xylene	10.3	ug/L
	P & M -Xylene	40.9	ug/L
	sec-Butylbenzene	0.540J	ug/L
	Toluene	1.75	ug/L
	Xylenes (total)	51.2	ug/L

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Detectable Results Summary

Client Sample ID: **MW12-0921**
Lab Sample ID: 1216322003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.317	ug/L
	2-Methylnaphthalene	0.0972	ug/L
	Fluorene	0.0232J	ug/L
	Naphthalene	2.40	ug/L
	Phenanthrene	0.0292J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	1.29	mg/L
Volatile Fuels	Gasoline Range Organics	0.842	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	10.0	ug/L
	1,3,5-Trimethylbenzene	2.04	ug/L
	4-Isopropyltoluene	0.470J	ug/L
	Benzene	31.0	ug/L
	Dichlorodifluoromethane	0.490J	ug/L
	Ethylbenzene	9.21	ug/L
	Isopropylbenzene (Cumene)	3.17	ug/L
	Naphthalene	5.84	ug/L
	n-Propylbenzene	3.06	ug/L
	o-Xylene	10.6	ug/L
	P & M -Xylene	41.1	ug/L
	sec-Butylbenzene	0.580J	ug/L
	Toluene	1.83	ug/L
	Xylenes (total)	51.7	ug/L

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Results of **MW1-0921**

Client Sample ID: **MW1-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322001
Lab Project ID: 1216322

Collection Date: 09/24/21 11:10
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.537	J	0.625	0.208	mg/L	1		10/02/21 20:39
Surrogates								
5a Androstane (surr)	75.8		50-150		%	1		10/02/21 20:39

Batch Information

Analytical Batch: XFC16097
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 10/02/21 20:39
Container ID: 1216322001-A

Prep Batch: XXX45650
Prep Method: SW3520C
Prep Date/Time: 09/30/21 16:00
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

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Results of **MW1-0921**

Client Sample ID: **MW1-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322001
Lab Project ID: 1216322

Collection Date: 09/24/21 11:10
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0581	J	0.100	0.0450	mg/L	1		09/28/21 00:24
Surrogates								
4-Bromofluorobenzene (surr)	83.1		50-150		%	1		09/28/21 00:24

Batch Information

Analytical Batch: VFC15847
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 09/28/21 00:24
Container ID: 1216322001-C

Prep Batch: VXX37918
Prep Method: SW5030B
Prep Date/Time: 09/27/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW1-0921**

Client Sample ID: **MW1-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322001
Lab Project ID: 1216322

Collection Date: 09/24/21 11:10
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	10.6		0.400	0.120	ug/L	1		10/05/21 17:45
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/05/21 17:45
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/05/21 17:45
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/05/21 17:45
Toluene	0.500	U	1.00	0.310	ug/L	1		10/05/21 17:45
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/05/21 17:45
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		81-118		%	1		10/05/21 17:45
4-Bromofluorobenzene (surr)	109		85-114		%	1		10/05/21 17:45
Toluene-d8 (surr)	93.8		89-112		%	1		10/05/21 17:45

Batch Information

Analytical Batch: VMS21248
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/05/21 17:45
Container ID: 1216322001-F

Prep Batch: VXX37970
Prep Method: SW5030B
Prep Date/Time: 10/05/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW2-0921**

Client Sample ID: **MW2-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322002
Lab Project ID: 1216322

Collection Date: 09/24/21 09:30
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.340		0.0500	0.0150	ug/L	1		10/02/21 17:41
2-Methylnaphthalene	0.101		0.0500	0.0150	ug/L	1		10/02/21 17:41
Acenaphthene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Acenaphthylene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Anthracene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Benzo(a)Anthracene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Benzo[a]pyrene	0.0100 U		0.0200	0.00620	ug/L	1		10/02/21 17:41
Benzo[b]Fluoranthene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Benzo[g,h,i]perylene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Benzo[k]fluoranthene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Chrysene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Dibenzo[a,h]anthracene	0.0100 U		0.0200	0.00620	ug/L	1		10/02/21 17:41
Fluoranthene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Fluorene	0.0200 J		0.0500	0.0150	ug/L	1		10/02/21 17:41
Indeno[1,2,3-c,d] pyrene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Naphthalene	2.57		0.100	0.0310	ug/L	1		10/02/21 17:41
Phenanthrene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Pyrene	0.0250 U		0.0500	0.0150	ug/L	1		10/02/21 17:41
Surrogates								
2-Methylnaphthalene-d10 (surr)	60.8		42-86		%	1		10/02/21 17:41
Fluoranthene-d10 (surr)	62		50-97		%	1		10/02/21 17:41

Batch Information

Analytical Batch: XMS12930
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/02/21 17:41
Container ID: 1216322002-C

Prep Batch: XXX45655
Prep Method: SW3535A
Prep Date/Time: 10/01/21 16:30
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW2-0921**

Client Sample ID: **MW2-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322002
Lab Project ID: 1216322

Collection Date: 09/24/21 09:30
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.33		0.600	0.200	mg/L	1		10/02/21 20:49
Surrogates								
5a Androstane (surr)	78.9		50-150		%	1		10/02/21 20:49

Batch Information

Analytical Batch: XFC16097
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 10/02/21 20:49
Container ID: 1216322002-A

Prep Batch: XXX45650
Prep Method: SW3520C
Prep Date/Time: 09/30/21 16:00
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW2-0921**

Client Sample ID: **MW2-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322002
Lab Project ID: 1216322

Collection Date: 09/24/21 09:30
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.991		0.100	0.0450	mg/L	1		09/28/21 00:42
Surrogates								
4-Bromofluorobenzene (surr)	96.8		50-150		%	1		09/28/21 00:42

Batch Information

Analytical Batch: VFC15847
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 09/28/21 00:42
Container ID: 1216322002-E

Prep Batch: VXX37918
Prep Method: SW5030B
Prep Date/Time: 09/27/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW2-0921**

Client Sample ID: **MW2-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322002
Lab Project ID: 1216322

Collection Date: 09/24/21 09:30
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/06/21 20:29
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,2,4-Trimethylbenzene	9.81		1.00	0.310	ug/L	1		10/06/21 20:29
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/06/21 20:29
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/06/21 20:29
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,3,5-Trimethylbenzene	2.02		1.00	0.310	ug/L	1		10/06/21 20:29
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
4-Isopropyltoluene	0.450	J	1.00	0.310	ug/L	1		10/06/21 20:29
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
Benzene	31.9		0.400	0.120	ug/L	1		10/06/21 20:29
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/06/21 20:29
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29

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J flagging is activated

Results of **MW2-0921**

Client Sample ID: **MW2-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322002
Lab Project ID: 1216322

Collection Date: 09/24/21 09:30
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:29
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Dichlorodifluoromethane	0.460	J	1.00	0.310	ug/L	1		10/06/21 20:29
Ethylbenzene	9.21		1.00	0.310	ug/L	1		10/06/21 20:29
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Isopropylbenzene (Cumene)	3.00		1.00	0.310	ug/L	1		10/06/21 20:29
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
Naphthalene	6.36		1.00	0.310	ug/L	1		10/06/21 20:29
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
n-Propylbenzene	2.80		1.00	0.310	ug/L	1		10/06/21 20:29
o-Xylene	10.3		1.00	0.310	ug/L	1		10/06/21 20:29
P & M -Xylene	40.9		2.00	0.620	ug/L	1		10/06/21 20:29
sec-Butylbenzene	0.540	J	1.00	0.310	ug/L	1		10/06/21 20:29
Styrene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Toluene	1.75		1.00	0.310	ug/L	1		10/06/21 20:29
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:29
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:29
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/06/21 20:29
Xylenes (total)	51.2		3.00	1.00	ug/L	1		10/06/21 20:29
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		81-118		%	1		10/06/21 20:29
4-Bromofluorobenzene (surr)	99.4		85-114		%	1		10/06/21 20:29
Toluene-d8 (surr)	99.2		89-112		%	1		10/06/21 20:29

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Results of **MW2-0921**

Client Sample ID: **MW2-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322002
Lab Project ID: 1216322

Collection Date: 09/24/21 09:30
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21251
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/06/21 20:29
Container ID: 1216322002-H

Prep Batch: VXX37977
Prep Method: SW5030B
Prep Date/Time: 10/06/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW12-0921**

Client Sample ID: **MW12-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322003
Lab Project ID: 1216322

Collection Date: 09/24/21 09:45
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.317		0.0510	0.0153	ug/L	1		10/02/21 18:01
2-Methylnaphthalene	0.0972		0.0510	0.0153	ug/L	1		10/02/21 18:01
Acenaphthene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Acenaphthylene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Anthracene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Benzo(a)Anthracene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Benzo[a]pyrene	0.0102	U	0.0204	0.00633	ug/L	1		10/02/21 18:01
Benzo[b]Fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Benzo[g,h,i]perylene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Benzo[k]fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Chrysene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Dibenzo[a,h]anthracene	0.0102	U	0.0204	0.00633	ug/L	1		10/02/21 18:01
Fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Fluorene	0.0232	J	0.0510	0.0153	ug/L	1		10/02/21 18:01
Indeno[1,2,3-c,d] pyrene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Naphthalene	2.40		0.102	0.0316	ug/L	1		10/02/21 18:01
Phenanthrene	0.0292	J	0.0510	0.0153	ug/L	1		10/02/21 18:01
Pyrene	0.0255	U	0.0510	0.0153	ug/L	1		10/02/21 18:01
Surrogates								
2-Methylnaphthalene-d10 (surr)	59.1		42-86		%	1		10/02/21 18:01
Fluoranthene-d10 (surr)	59.9		50-97		%	1		10/02/21 18:01

Batch Information

Analytical Batch: XMS12930
Analytical Method: 8270D SIM LV (PAH)
Analyst: LAW
Analytical Date/Time: 10/02/21 18:01
Container ID: 1216322003-C

Prep Batch: XXX45655
Prep Method: SW3535A
Prep Date/Time: 10/01/21 16:30
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW12-0921**

Client Sample ID: **MW12-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322003
Lab Project ID: 1216322

Collection Date: 09/24/21 09:45
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.29		0.600	0.200	mg/L	1		10/02/21 20:59
Surrogates								
5a Androstane (surr)	77.9		50-150		%	1		10/02/21 20:59

Batch Information

Analytical Batch: XFC16097
Analytical Method: AK102
Analyst: IVM
Analytical Date/Time: 10/02/21 20:59
Container ID: 1216322003-A

Prep Batch: XXX45650
Prep Method: SW3520C
Prep Date/Time: 09/30/21 16:00
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW12-0921**

Client Sample ID: **MW12-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322003
Lab Project ID: 1216322

Collection Date: 09/24/21 09:45
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.842		0.100	0.0450	mg/L	1		09/28/21 01:00
Surrogates								
4-Bromofluorobenzene (surr)	98.8		50-150		%	1		09/28/21 01:00

Batch Information

Analytical Batch: VFC15847
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 09/28/21 01:00
Container ID: 1216322003-E

Prep Batch: VXX37918
Prep Method: SW5030B
Prep Date/Time: 09/27/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 10/13/2021 10:25:41AM

J flagging is activated

Results of **MW12-0921**

Client Sample ID: **MW12-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322003
Lab Project ID: 1216322

Collection Date: 09/24/21 09:45
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/06/21 20:58
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,2,4-Trimethylbenzene	10.0		1.00	0.310	ug/L	1		10/06/21 20:58
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/06/21 20:58
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/06/21 20:58
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,3,5-Trimethylbenzene	2.04		1.00	0.310	ug/L	1		10/06/21 20:58
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
4-Isopropyltoluene	0.470	J	1.00	0.310	ug/L	1		10/06/21 20:58
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
Benzene	31.0		0.400	0.120	ug/L	1		10/06/21 20:58
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/06/21 20:58
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58

Print Date: 10/13/2021 10:25:41AM

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Results of **MW12-0921**

Client Sample ID: **MW12-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322003
Lab Project ID: 1216322

Collection Date: 09/24/21 09:45
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 20:58
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Dichlorodifluoromethane	0.490	J	1.00	0.310	ug/L	1		10/06/21 20:58
Ethylbenzene	9.21		1.00	0.310	ug/L	1		10/06/21 20:58
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Isopropylbenzene (Cumene)	3.17		1.00	0.310	ug/L	1		10/06/21 20:58
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
Naphthalene	5.84		1.00	0.310	ug/L	1		10/06/21 20:58
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
n-Propylbenzene	3.06		1.00	0.310	ug/L	1		10/06/21 20:58
o-Xylene	10.6		1.00	0.310	ug/L	1		10/06/21 20:58
P & M -Xylene	41.1		2.00	0.620	ug/L	1		10/06/21 20:58
sec-Butylbenzene	0.580	J	1.00	0.310	ug/L	1		10/06/21 20:58
Styrene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Toluene	1.83		1.00	0.310	ug/L	1		10/06/21 20:58
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 20:58
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/06/21 20:58
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/06/21 20:58
Xylenes (total)	51.7		3.00	1.00	ug/L	1		10/06/21 20:58
Surrogates								
1,2-Dichloroethane-D4 (surr)	97.3		81-118		%	1		10/06/21 20:58
4-Bromofluorobenzene (surr)	99.4		85-114		%	1		10/06/21 20:58
Toluene-d8 (surr)	101		89-112		%	1		10/06/21 20:58

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Results of **MW12-0921**

Client Sample ID: **MW12-0921**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322003
Lab Project ID: 1216322

Collection Date: 09/24/21 09:45
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21251
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/06/21 20:58
Container ID: 1216322003-H

Prep Batch: VXX37977
Prep Method: SW5030B
Prep Date/Time: 10/06/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322004
Lab Project ID: 1216322

Collection Date: 09/24/21 08:00
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		09/27/21 15:02
Surrogates								
4-Bromofluorobenzene (surr)	75		50-150		%	1		09/27/21 15:02

Batch Information

Analytical Batch: VFC15847
Analytical Method: AK101
Analyst: IJV
Analytical Date/Time: 09/27/21 15:02
Container ID: 1216322004-A

Prep Batch: VXX37917
Prep Method: SW5030B
Prep Date/Time: 09/27/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322004
Lab Project ID: 1216322

Collection Date: 09/24/21 08:00
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		10/06/21 18:46
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		10/06/21 18:46
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		10/06/21 18:46
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
Benzene	0.200	U	0.400	0.120	ug/L	1		10/06/21 18:46
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
Bromoform	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Bromomethane	3.00	U	6.00	3.00	ug/L	1		10/06/21 18:46
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
Chloroethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322004
Lab Project ID: 1216322

Collection Date: 09/24/21 08:00
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Chloromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		10/06/21 18:46
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Freon-113	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
Naphthalene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
o-Xylene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		10/06/21 18:46
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Styrene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Toluene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		10/06/21 18:46
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		10/06/21 18:46
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		10/06/21 18:46
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		10/06/21 18:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		81-118		%	1		10/06/21 18:46
4-Bromofluorobenzene (surr)	98		85-114		%	1		10/06/21 18:46
Toluene-d8 (surr)	99.5		89-112		%	1		10/06/21 18:46

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1216322004
Lab Project ID: 1216322

Collection Date: 09/24/21 08:00
Received Date: 09/25/21 11:13
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21251
Analytical Method: SW8260D
Analyst: MDT
Analytical Date/Time: 10/06/21 18:46
Container ID: 1216322004-D

Prep Batch: VXX37977
Prep Method: SW5030B
Prep Date/Time: 10/06/21 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1826214 [VXX/37917]
Blank Lab ID: 1638587

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	76.5	50-150		%

Batch Information

Analytical Batch: VFC15847
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: IJV
Analytical Date/Time: 9/27/2021 8:44:00AM

Prep Batch: VXX37917
Prep Method: SW5030B
Prep Date/Time: 9/27/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [VXX37917]
Blank Spike Lab ID: 1638588
Date Analyzed: 09/27/2021 09:20

Spike Duplicate ID: LCSD for HBN 1216322 [VXX37917]
Spike Duplicate Lab ID: 1638589
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322004

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.995	100	1.00	0.991	99	(60-120)	0.37	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		93	0.0500		92	(50-150)	1.30	

Batch Information

Analytical Batch: **VFC15847**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **IJV**

Prep Batch: **VXX37917**
Prep Method: **SW5030B**
Prep Date/Time: **09/27/2021 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1826215 [VXX/37918]
Blank Lab ID: 1638590

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322001, 1216322002, 1216322003

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	75.2	50-150		%

Batch Information

Analytical Batch: VFC15847
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: IJV
Analytical Date/Time: 9/27/2021 9:41:00PM

Prep Batch: VXX37918
Prep Method: SW5030B
Prep Date/Time: 9/27/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [VXX37918]
Blank Spike Lab ID: 1638591
Date Analyzed: 09/28/2021 01:36

Spike Duplicate ID: LCSD for HBN 1216322 [VXX37918]
Spike Duplicate Lab ID: 1638592
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322001, 1216322002, 1216322003

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.997	100	1.00	0.969	97	(60-120)	2.80	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		92	0.0500		91	(50-150)	1.40	

Batch Information

Analytical Batch: **VFC15847**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **IJV**

Prep Batch: **VXX37918**
Prep Method: **SW5030B**
Prep Date/Time: **09/27/2021 06:00**
Spike Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 1.00 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1826621 [VXX/37970]
Blank Lab ID: 1640392

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322001

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Benzene	0.200U	0.400	0.120	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
Toluene	0.500U	1.00	0.310	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	92.4	81-118		%
4-Bromofluorobenzene (surr)	96.1	85-114		%
Toluene-d8 (surr)	96.2	89-112		%

Batch Information

Analytical Batch: VMS21248
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: MDT
Analytical Date/Time: 10/5/2021 12:11:00PM

Prep Batch: VXX37970
Prep Method: SW5030B
Prep Date/Time: 10/5/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [VXX37970]
Blank Spike Lab ID: 1640393
Date Analyzed: 10/05/2021 12:26

Spike Duplicate ID: LCSD for HBN 1216322 [VXX37970]
Spike Duplicate Lab ID: 1640394
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322001

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Benzene	30	28.9	96	30	28.2	94	(79-120)	2.40	(< 20)
Ethylbenzene	30	29.8	100	30	28.8	96	(79-121)	3.50	(< 20)
o-Xylene	30	30.4	101	30	29.4	98	(78-122)	3.40	(< 20)
P & M -Xylene	60	59.2	99	60	58.0	97	(80-121)	2.10	(< 20)
Toluene	30	28.9	96	30	28.0	93	(80-121)	3.30	(< 20)
Xylenes (total)	90	89.5	100	90	87.3	97	(79-121)	2.50	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		105	30		106	(81-118)	1.30	
4-Bromofluorobenzene (surr)	30		102	30		104	(85-114)	1.40	
Toluene-d8 (surr)	30		97	30		95	(89-112)	1.20	

Batch Information

Analytical Batch: **VMS21248**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **MDT**

Prep Batch: **VXX37970**
Prep Method: **SW5030B**
Prep Date/Time: **10/05/2021 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

Method Blank

Blank ID: MB for HBN 1826663 [VXX/37977]
Blank Lab ID: 1640601

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322002, 1216322003, 1216322004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	3.00U	6.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1826663 [VXX/37977]
Blank Lab ID: 1640601

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322002, 1216322003, 1216322004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	106	81-118		%
4-Bromofluorobenzene (surr)	98.2	85-114		%
Toluene-d8 (surr)	99	89-112		%

Method Blank

Blank ID: MB for HBN 1826663 [VXX/37977]
Blank Lab ID: 1640601

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322002, 1216322003, 1216322004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21251
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: MDT
Analytical Date/Time: 10/6/2021 2:46:00PM

Prep Batch: VXX37977
Prep Method: SW5030B
Prep Date/Time: 10/6/2021 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [VXX37977]
Blank Spike Lab ID: 1640602
Date Analyzed: 10/06/2021 15:00

Spike Duplicate ID: LCSD for HBN 1216322 [VXX37977]
Spike Duplicate Lab ID: 1640603
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322002, 1216322003, 1216322004

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	31.2	104	30	31.9	106	(78-124)	2.20	(< 20)
1,1,1-Trichloroethane	30	31.1	104	30	31.2	104	(74-131)	0.16	(< 20)
1,1,2,2-Tetrachloroethane	30	28.5	95	30	30.0	100	(71-121)	5.00	(< 20)
1,1,2-Trichloroethane	30	30.0	100	30	31.2	104	(80-119)	3.70	(< 20)
1,1-Dichloroethane	30	29.9	100	30	30.4	101	(77-125)	1.50	(< 20)
1,1-Dichloroethene	30	30.6	102	30	30.6	102	(71-131)	0.07	(< 20)
1,1-Dichloropropene	30	30.7	102	30	30.7	102	(79-125)	0.00	(< 20)
1,2,3-Trichlorobenzene	30	29.3	98	30	30.6	102	(69-129)	4.20	(< 20)
1,2,3-Trichloropropane	30	28.8	96	30	30.1	100	(73-122)	4.30	(< 20)
1,2,4-Trichlorobenzene	30	29.6	99	30	30.4	101	(69-130)	2.70	(< 20)
1,2,4-Trimethylbenzene	30	30.6	102	30	30.5	102	(79-124)	0.29	(< 20)
1,2-Dibromo-3-chloropropane	30	28.1	94	30	30.2	101	(62-128)	7.20	(< 20)
1,2-Dibromoethane	30	30.0	100	30	31.4	105	(77-121)	4.70	(< 20)
1,2-Dichlorobenzene	30	29.4	98	30	29.7	99	(80-119)	0.88	(< 20)
1,2-Dichloroethane	30	29.7	99	30	30.9	103	(73-128)	4.00	(< 20)
1,2-Dichloropropane	30	31.0	103	30	31.4	105	(78-122)	1.20	(< 20)
1,3,5-Trimethylbenzene	30	30.8	103	30	30.0	100	(75-124)	2.60	(< 20)
1,3-Dichlorobenzene	30	30.0	100	30	29.9	100	(80-119)	0.33	(< 20)
1,3-Dichloropropane	30	29.9	100	30	31.0	103	(80-119)	3.70	(< 20)
1,4-Dichlorobenzene	30	29.7	99	30	30.1	100	(79-118)	1.40	(< 20)
2,2-Dichloropropane	30	30.9	103	30	30.9	103	(60-139)	0.00	(< 20)
2-Butanone (MEK)	90	90.8	101	90	97.0	108	(56-143)	6.60	(< 20)
2-Chlorotoluene	30	29.6	99	30	29.3	98	(79-122)	1.30	(< 20)
2-Hexanone	90	89.0	99	90	95.9	107	(57-139)	7.50	(< 20)
4-Chlorotoluene	30	29.6	99	30	29.4	98	(78-122)	0.54	(< 20)
4-Isopropyltoluene	30	30.8	103	30	30.3	101	(77-127)	1.90	(< 20)
4-Methyl-2-pentanone (MIBK)	90	97.3	108	90	105	117	(67-130)	7.70	(< 20)
Benzene	30	30.6	102	30	30.9	103	(79-120)	0.88	(< 20)
Bromobenzene	30	29.5	98	30	30.1	100	(80-120)	1.90	(< 20)
Bromochloromethane	30	31.4	105	30	32.3	108	(78-123)	2.70	(< 20)
Bromodichloromethane	30	31.5	105	30	32.3	108	(79-125)	2.40	(< 20)
Bromoform	30	31.6	105	30	33.5	112	(66-130)	6.00	(< 20)
Bromomethane	30	27.8	93	30	30.7	102	(53-141)	9.80	(< 20)
Carbon disulfide	45	45.4	101	45	44.8	100	(64-133)	1.30	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [VXX37977]
Blank Spike Lab ID: 1640602
Date Analyzed: 10/06/2021 15:00

Spike Duplicate ID: LCSD for HBN 1216322 [VXX37977]
Spike Duplicate Lab ID: 1640603
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322002, 1216322003, 1216322004

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	32.2	107	30	32.1	107	(72-136)	0.47	(< 20)
Chlorobenzene	30	30.1	100	30	30.5	102	(82-118)	1.60	(< 20)
Chloroethane	30	30.3	101	30	29.3	98	(60-138)	3.40	(< 20)
Chloroform	30	29.5	98	30	29.9	100	(79-124)	1.30	(< 20)
Chloromethane	30	28.7	96	30	28.2	94	(50-139)	1.40	(< 20)
cis-1,2-Dichloroethene	30	30.7	102	30	31.3	104	(78-123)	2.00	(< 20)
cis-1,3-Dichloropropene	30	30.0	100	30	31.2	104	(75-124)	3.70	(< 20)
Dibromochloromethane	30	31.6	105	30	33.1	110	(74-126)	4.80	(< 20)
Dibromomethane	30	29.7	99	30	32.1	107	(79-123)	7.90	(< 20)
Dichlorodifluoromethane	30	31.3	104	30	30.5	102	(32-152)	2.50	(< 20)
Ethylbenzene	30	30.2	101	30	30.5	102	(79-121)	1.10	(< 20)
Freon-113	45	47.1	105	45	46.6	103	(70-136)	1.10	(< 20)
Hexachlorobutadiene	30	29.9	100	30	29.7	99	(66-134)	0.54	(< 20)
Isopropylbenzene (Cumene)	30	31.5	105	30	31.3	104	(72-131)	0.73	(< 20)
Methylene chloride	30	30.0	100	30	30.4	101	(74-124)	1.50	(< 20)
Methyl-t-butyl ether	45	47.4	105	45	49.7	110	(71-124)	4.60	(< 20)
Naphthalene	30	28.7	96	30	31.1	104	(61-128)	8.00	(< 20)
n-Butylbenzene	30	29.8	99	30	29.7	99	(75-128)	0.57	(< 20)
n-Propylbenzene	30	29.4	98	30	28.9	96	(76-126)	1.80	(< 20)
o-Xylene	30	31.0	103	30	31.0	103	(78-122)	0.10	(< 20)
P & M -Xylene	60	60.4	101	60	61.0	102	(80-121)	0.99	(< 20)
sec-Butylbenzene	30	29.7	99	30	29.2	97	(77-126)	1.80	(< 20)
Styrene	30	32.4	108	30	32.7	109	(78-123)	0.92	(< 20)
tert-Butylbenzene	30	30.4	101	30	29.7	99	(78-124)	2.50	(< 20)
Tetrachloroethene	30	30.6	102	30	30.8	103	(74-129)	0.68	(< 20)
Toluene	30	29.8	100	30	29.8	99	(80-121)	0.13	(< 20)
trans-1,2-Dichloroethene	30	30.9	103	30	30.6	102	(75-124)	1.10	(< 20)
trans-1,3-Dichloropropene	30	30.9	103	30	31.9	106	(73-127)	3.10	(< 20)
Trichloroethene	30	30.0	100	30	30.1	100	(79-123)	0.43	(< 20)
Trichlorofluoromethane	30	31.6	105	30	30.9	103	(65-141)	2.20	(< 20)
Vinyl acetate	30	29.6	99	30	31.4	105	(54-146)	5.90	(< 20)
Vinyl chloride	30	30.6	102	30	30.2	101	(58-137)	1.30	(< 20)
Xylenes (total)	90	91.3	101	90	91.9	102	(79-121)	0.62	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [VXX37977]
Blank Spike Lab ID: 1640602
Date Analyzed: 10/06/2021 15:00

Spike Duplicate ID: LCSD for HBN 1216322 [VXX37977]
Spike Duplicate Lab ID: 1640603
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322002, 1216322003, 1216322004

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		100	30		102	(81-118)	1.30	
4-Bromofluorobenzene (surr)	30		97	30		98	(85-114)	0.10	
Toluene-d8 (surr)	30		101	30		100	(89-112)	0.20	

Batch Information

Analytical Batch: **VMS21251**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **MDT**

Prep Batch: **VXX37977**
Prep Method: **SW5030B**
Prep Date/Time: **10/06/2021 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1826373 [XXX/45650]
Blank Lab ID: 1639235

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322001, 1216322002, 1216322003

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.200	mg/L
Surrogates				
5a Androstane (surr)	70.8	60-120		%

Batch Information

Analytical Batch: XFC16097
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: IVM
Analytical Date/Time: 10/2/2021 8:00:00PM

Prep Batch: XXX45650
Prep Method: SW3520C
Prep Date/Time: 9/30/2021 4:00:06PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [XXX45650]
Blank Spike Lab ID: 1639236
Date Analyzed: 10/02/2021 20:10

Spike Duplicate ID: LCSD for HBN 1216322 [XXX45650]
Spike Duplicate Lab ID: 1639237
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322001, 1216322002, 1216322003

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	18.7	94	20	17.7	89	(75-125)	5.60	(< 20)
Surrogates									
5a Androstane (surr)	0.4		98	0.4		96	(60-120)	2.10	

Batch Information

Analytical Batch: **XFC16097**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **IVM**

Prep Batch: **XXX45650**
Prep Method: **SW3520C**
Prep Date/Time: **09/30/2021 16:00**
Spike Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 20 mg/L Extract Vol: 1 mL

Method Blank

Blank ID: MB for HBN 1826439 [XXX/45655]
Blank Lab ID: 1639560

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1216322002, 1216322003

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0250U	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0174J	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0181J	0.0500	0.0150	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	66.2	42-86		%
Fluoranthene-d10 (surr)	83	50-97		%

Batch Information

Analytical Batch: XMS12930
Analytical Method: 8270D SIM LV (PAH)
Instrument: SVA Agilent 780/5975 GC/MS
Analyst: LAW
Analytical Date/Time: 10/2/2021 4:19:00PM

Prep Batch: XXX45655
Prep Method: SW3535A
Prep Date/Time: 10/1/2021 4:30:45PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1216322 [XXX45655]
Blank Spike Lab ID: 1639561
Date Analyzed: 10/02/2021 16:39

Spike Duplicate ID: LCSD for HBN 1216322 [XXX45655]
Spike Duplicate Lab ID: 1639562
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1216322002, 1216322003

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.41	71	2	1.53	76	(41-115)	7.80	(< 20)
2-Methylnaphthalene	2	1.36	68	2	1.48	74	(39-114)	8.40	(< 20)
Acenaphthene	2	1.60	80	2	1.74	87	(48-114)	8.40	(< 20)
Acenaphthylene	2	1.63	82	2	1.80	90	(35-121)	10.00	(< 20)
Anthracene	2	1.65	83	2	1.79	90	(53-119)	8.30	(< 20)
Benzo(a)Anthracene	2	1.68	84	2	1.78	89	(59-120)	5.30	(< 20)
Benzo[a]pyrene	2	1.72	86	2	1.84	92	(53-120)	6.90	(< 20)
Benzo[b]Fluoranthene	2	1.74	87	2	1.81	90	(53-126)	3.90	(< 20)
Benzo[g,h,i]perylene	2	1.87	93	2	1.98	99	(44-128)	6.10	(< 20)
Benzo[k]fluoranthene	2	1.76	88	2	1.89	94	(54-125)	7.00	(< 20)
Chrysene	2	1.72	86	2	1.83	92	(57-120)	6.60	(< 20)
Dibenzo[a,h]anthracene	2	1.85	93	2	1.98	99	(44-131)	6.50	(< 20)
Fluoranthene	2	1.67	83	2	1.76	88	(58-120)	5.60	(< 20)
Fluorene	2	1.66	83	2	1.80	90	(50-118)	8.20	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.83	92	2	1.95	98	(48-130)	6.20	(< 20)
Naphthalene	2	1.38	69	2	1.51	76	(43-114)	9.50	(< 20)
Phenanthrene	2	1.66	83	2	1.77	89	(53-115)	6.60	(< 20)
Pyrene	2	1.69	85	2	1.79	89	(53-121)	5.30	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2		63	2		69	(42-86)	10.30	
Fluoranthene-d10 (surr)	2		76	2		81	(50-97)	6.90	

Batch Information

Analytical Batch: **XMS12930**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **SVA Agilent 780/5975 GC/MS**
Analyst: **LAW**

Prep Batch: **XXX45655**
Prep Method: **SW3535A**
Prep Date/Time: **10/01/2021 16:30**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Chain of Custody

Alaska Resources and Environmental Services
P.O. Box 83050, Fairbanks, Alaska 99708
Phone: 907.374.3226

Work Order No.: 1216322

SGS
200 W Potter Dr
Anchorage, AK 99518
1-907-562-2343

Project Manager:	Lyle Gresehover		**Bill to:**	Lyle Gresehover	
Client Name:	Alaska Resources and Environmental Services		**Company:**	Alaska Resources and Environmental Services	
Address:	PO Box 83050		**Address:**	PO Box 83050	
City, State ZIP:	Fairbanks, AK 99708		**City, State ZIP:**	Fairbanks, AK 99708	
Email:	Lyle@ak-res.com	**Phone:** 907.374.3226	**Email:**	Lyle@ak-res.com	
Project Name:	Kobuk Feed and Fuel				
Project Number:					
P.O. Number:	Date 9-24-2021				
Sampler's Name:	Josh Klynstra				

SAMPLE RECEIPT

Temperature (°C):	5.8	Temp Blank Present	Y
Received Intact:	(Yes) No N/A	Wet Ice / Blue Ice	
Cooler Custody Seals:	Yes No (N/A)	Total Containers:	
Sample Custody Seals:	Yes No (N/A)		

REQUESTED ANALYSIS

TAT

- [X] Routine
- [ ] Same Day ***
- [ ] Next Day ***
- [ ] 5 Day
- [ ] 7 Day

*** Please call for availability

Due Date:

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	VOCs 8260	GRO by AK101	DRO by AK102	BTEX 8260C	PAH 8270D SIM	Comments
(1A) MW1-0921	W	9/24/2021	1110		8		X	X	X	X	
(2A) MW2-0921	W	9/24/2021	0930		10	X	X	X		X	
(3A) MW12-0921	W	9/24/2021	0945		10	X	X	X		X	
(4AA) Trip Blank	W	9/24/2021	0800		6	X	X				

Dissolved	Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Tl, V, Zn, Zr
Total	Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Tl, V, Zn, Zr

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Josh Klynstra		9-24-21 1230	Jen Dawkins		9-24-21 1230
	Jen Dawkins	9-24-21 1400	Michelle Albarran		9/25/21 1113

ANC: IF, IB 1.9 D65

Revised: 9/24/2021

e-Sample Receipt Form FBK

SGS Workorder #: **ARES** | ARES

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
☐ **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 5.8 °C Therm. ID: D62
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If >6°C, were samples collected <8 hours ago?		
If <0°C, were sample containers ice free?		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	N/C	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were samples in good condition (no leaks/cracks/breakage)?	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/C	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	
For Rush/Short Hold Time, was RUSH/Short HT email sent?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

SGS Profile #	334646	334646

e-Sample Receipt Form

SGS Workorder #: **1216322** | 1216322

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F,1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?		
N/A **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: @ 1.9 °C Therm. ID: D65
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
	N/A	Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	Yes	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	No	COC states PAH for Sample 1 however containers are not present. PM Notified.
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
		N/A ***Exemption permitted for metals (e.g,200.8/6020B).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1216322001-A	HCL to pH < 2	OK			
1216322001-B	HCL to pH < 2	OK			
1216322001-C	HCL to pH < 2	OK			
1216322001-D	HCL to pH < 2	OK			
1216322001-E	HCL to pH < 2	OK			
1216322001-F	HCL to pH < 2	OK			
1216322001-G	HCL to pH < 2	OK			
1216322001-H	HCL to pH < 2	OK			
1216322002-A	HCL to pH < 2	OK			
1216322002-B	HCL to pH < 2	OK			
1216322002-C	No Preservative Required	OK			
1216322002-D	No Preservative Required	OK			
1216322002-E	HCL to pH < 2	OK			
1216322002-F	HCL to pH < 2	OK			
1216322002-G	HCL to pH < 2	OK			
1216322002-H	HCL to pH < 2	OK			
1216322002-I	HCL to pH < 2	OK			
1216322002-J	HCL to pH < 2	OK			
1216322003-A	HCL to pH < 2	OK			
1216322003-B	HCL to pH < 2	OK			
1216322003-C	No Preservative Required	OK			
1216322003-D	No Preservative Required	OK			
1216322003-E	HCL to pH < 2	OK			
1216322003-F	HCL to pH < 2	OK			
1216322003-G	HCL to pH < 2	OK			
1216322003-H	HCL to pH < 2	OK			
1216322003-I	HCL to pH < 2	OK			
1216322003-J	HCL to pH < 2	OK			
1216322004-A	HCL to pH < 2	OK			
1216322004-B	HCL to pH < 2	OK			
1216322004-C	HCL to pH < 2	OK			
1216322004-D	HCL to pH < 2	OK			
1216322004-E	HCL to pH < 2	OK			
1216322004-F	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Josh Klynstra

Title:

Environmental Chemist

Date:

22 October, 2021

Consultant Firm:

Alaska Resources and Environmental Services

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

ADEC File Number:

100.26.137

Hazard Identification Number:

24434

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

SGS North America is an ADEC CS approved laboratory.

   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☐ N/A☒ Comments:

All samples were analyzed by the SGS Anchorage laboratory.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

Sample received by laboratory at a temperature of 5.8° C at the SGS Fairbanks office and 1.9° C at the SGS Anchorage laboratory.

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

   Yes☒ No☐ N/A☐ Comments:

Four (4) samples consisting of three (3) groundwater samples (including one duplicate sample) were received by SGS on September 24, 2021. The samples arrived in good condition and properly preserved.

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

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

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

The laboratory stated that the COC included PAH analysis for sample MW1-0921, but a PAH container was not provided. The field technician mistakenly included PAH analysis for this sample, but it was not required for this sampling event.

e. Data quality or usability affected?

Comments:

Data not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

The laboratory did not note any discrepancies, errors or QC failures.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

No corrective actions were required.

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

Comments:

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

All samples for this project are groundwater samples.

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

Yes☐ No☒ N/A☐ Comments:

1,2,3-Trichloropropane has a detection limit that exceeds the ADEC CL in one or more samples.

e. Data quality or usability affected?

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☐ No☒ N/A☐ Comments:

8270D SIM – 2-Methylnaphthalene (0.0174 ug/L) and Phenanthrene (0.018 ug/L) were detected in Method Blank 1639560 above the MDL but less than half the LOQ (0.0500 ug/L). Data quality is affected. Analytes detected in both the samples and the blank are considered high biased estimates and are qualified with the B data flag. These analytes were detected in associated samples significantly below ADEC CULs and remain usable. Data usability is not affected.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

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

Yes☒ No☐ N/A☐ Comments:

Affected results are flagged B for possible MB cross contamination

v. Data quality or usability affected?

Comments:

See Section 6.a.ii. above.

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☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

Metals/inorganics were not requested for this sampling event.

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

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

Yes☒ No☐ N/A☐ Comments:

All percent recoveries were within acceptable limits.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

All recoveries were within acceptance limits. No samples affected.

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

Yes☐ No☐ N/A☒ Comments:

No data flagged.

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

Comments:

Data not affected.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

No MS/MSD required for this project.

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/inorganics were not requested for this sampling event.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?

Yes☐ No☐ N/A☒ Comments:

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate.

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

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

Yes☒ No☐ N/A☐ Comments:

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R for field samples and 60-120 %R for QC samples; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

All surrogate recoveries met acceptance criteria.

iv. Data quality or usability affected?

Comments:

No affect to data.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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☐ N/A☒ Comments:

All samples for this project were shipped in a single cooler.

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

v. Data quality or usability affected?

Comments:

Data not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Sample MW12-0921 is the blind field duplicate to sample MW2-0921.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (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☐ N/A☐ Comments:

All calculated RPDs were within control limit.

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

Comments:

Data not affected.

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

Yes☐ No☐ N/A☒ Comments:

All equipment used for this project are new and disposable

1216322

Laboratory Report Date:

10/13/2021

CS Site Name:

Kobuk Feed and Fuel

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected?

Comments:

N/A

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Appendix C-4:

2022 Laboratory Report 1225201

&

ADEC Lab Quality Checklist

Laboratory Report of Analysis

To: Alaska Resources and Env. Svcs
P.O. Box 83050
Fairbanks, AK 99708

Report Number: **1225201**

Client Project: **Kobuk Feed and Fuel**

Dear Lyle Gresehover,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

_____

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

Case Narrative

SGS Client: **Alaska Resources and Env. Svcs**
SGS Project: **1225201**
Project Name/Site: **Kobuk Feed and Fuel**
Project Contact: **Lyle Gresehover**

Refer to sample receipt form for information on sample condition.

MW1-0822 (1225201001) PS

AK102- LCSD recovery for DRO does not meet QC criteria. LCS and associated samples do meet QC criteria.

MW2-0822 (1225201002) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.
AK102- LCSD recovery for DRO does not meet QC criteria. LCS and associated samples do meet QC criteria.

MW12-0822 (1225201003) PS

AK102/103- Sample was lost due to lab error.
AK102/103 - Sample was not re-extracted due to insufficient remaining sample volume.

MW3-0822 (1225201004) PS

AK102- LCSD recovery for DRO does not meet QC criteria. LCS and associated samples do meet QC criteria.

LCSD for HBN 1842865 [XXX/4694 (1684239) LCSD

AK102- LCSD recovery for DRO does not meet QC criteria. LCS and associated samples do meet QC criteria.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Report of Manual Integrations

Laboratory ID	Client Sample ID	Analytical Batch	Analyte	Reason
SW8260D				
1225201002	MW2-0822	VMS21948	n-Butylbenzene	RP
1225201004	MW3-0822	VMS21948	4-Isopropyltoluene	SP

Manual Integration Reason Code Descriptions

Code	Description
O	Original Chromatogram
M	Modified Chromatogram
SS	Skimmed surrogate
BLG	Closed baseline gap
RP	Reassign peak name
PIR	Pattern integration required
IT	Included tail
SP	Split peak
RSP	Removed split peak
FPS	Forced peak start/stop
BLC	Baseline correction
PNF	Peak not found by software

All DRO/RRO analysis are integrated per SOP.

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020B, 7470A, 7471B, 8015C, 8021B, 8082A, 8260D, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
TNTC	Too Numerous To Count
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
MW1-0822	1225201001	08/26/2022	08/30/2022	Water (Surface, Eff., Ground)
MW2-0822	1225201002	08/26/2022	08/30/2022	Water (Surface, Eff., Ground)
MW12-0822	1225201003	08/26/2022	08/30/2022	Water (Surface, Eff., Ground)
MW3-0822	1225201004	08/26/2022	08/30/2022	Water (Surface, Eff., Ground)
Trip Blank	1225201005	08/26/2022	08/30/2022	Water (Surface, Eff., Ground)

Method	Method Description
8270D SIM LV (PAH)	8270 PAH SIM GC/MS LV
AK102	DRO Low Volume (W)
AK101	Gasoline Range Organics (W)
SW8260D	Volatile Organic Compounds (W)
SW8260D	Volatile Organic Compounds (W) FULL

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Detectable Results Summary

Client Sample ID: **MW1-0822**
Lab Sample ID: 1225201001

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	2-Methylnaphthalene	0.0183J	ug/L
	Naphthalene	0.0386J	ug/L
	Phenanthrene	0.0357J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	0.349J	mg/L
Volatile Fuels	Gasoline Range Organics	0.0846J	mg/L
Volatile GC/MS	Benzene	15.3	ug/L

Client Sample ID: **MW2-0822**
Lab Sample ID: 1225201002

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.474	ug/L
	2-Methylnaphthalene	0.203	ug/L
	Acenaphthene	0.0475J	ug/L
	Fluorene	0.0313J	ug/L
	Naphthalene	3.49	ug/L
	Phenanthrene	0.0580J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	1.87	mg/L
Volatile Fuels	Gasoline Range Organics	1.78	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	28.6	ug/L
	1,3,5-Trimethylbenzene	3.38	ug/L
	Benzene	26.2	ug/L
	Chloromethane	1.04	ug/L
	Dichlorodifluoromethane	0.658J	ug/L
	Ethylbenzene	12.1	ug/L
	Isopropylbenzene (Cumene)	7.92	ug/L
	Naphthalene	1.40	ug/L
	n-Butylbenzene	0.836J	ug/L
	n-Propylbenzene	9.77	ug/L
	o-Xylene	37.6	ug/L
	P & M -Xylene	78.2	ug/L
	sec-Butylbenzene	1.92	ug/L
	Toluene	3.18	ug/L
	Xylenes (total)	116	ug/L

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Detectable Results Summary

Client Sample ID: **MW12-0822**
Lab Sample ID: 1225201003

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	0.447	ug/L
	2-Methylnaphthalene	0.184	ug/L
	Acenaphthene	0.0376J	ug/L
	Fluorene	0.0243J	ug/L
	Naphthalene	3.20	ug/L
Volatile Fuels	Gasoline Range Organics	1.75	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	21.4	ug/L
	1,3,5-Trimethylbenzene	2.81	ug/L
	Benzene	30.2	ug/L
	Dichlorodifluoromethane	0.538J	ug/L
	Ethylbenzene	10.2	ug/L
	Isopropylbenzene (Cumene)	6.18	ug/L
	Naphthalene	4.30	ug/L
	n-Butylbenzene	0.662J	ug/L
	n-Propylbenzene	6.84	ug/L
	o-Xylene	30.1	ug/L
	P & M -Xylene	66.3	ug/L
	sec-Butylbenzene	1.36	ug/L
	Toluene	3.30	ug/L
	Xylenes (total)	96.4	ug/L

Client Sample ID: **MW3-0822**
Lab Sample ID: 1225201004

	Parameter	Result	Units
Polynuclear Aromatics GC/MS	1-Methylnaphthalene	1.79	ug/L
	2-Methylnaphthalene	1.05	ug/L
	Acenaphthene	0.0562	ug/L
	Fluorene	0.140	ug/L
	Naphthalene	2.08	ug/L
	Phenanthrene	0.0596J	ug/L
Semivolatile Organic Fuels	Diesel Range Organics	2.57	mg/L
Volatile Fuels	Gasoline Range Organics	0.0459J	mg/L
Volatile GC/MS	1,2,4-Trimethylbenzene	4.64	ug/L
	1,3,5-Trimethylbenzene	3.70	ug/L
	4-Isopropyltoluene	0.334J	ug/L
	Ethylbenzene	0.659J	ug/L
	Isopropylbenzene (Cumene)	0.438J	ug/L
	Naphthalene	4.20	ug/L
	n-Propylbenzene	0.516J	ug/L
	o-Xylene	2.04	ug/L
	P & M -Xylene	4.05	ug/L
	Xylenes (total)	6.09	ug/L

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Results of **MW1-0822**

Client Sample ID: **MW1-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201001
Lab Project ID: 1225201

Collection Date: 08/26/22 15:30
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
2-Methylnaphthalene	0.0183	J	0.0521	0.0156	ug/L	1		09/02/22 21:08
Acenaphthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Acenaphthylene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Benzo(a)Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Benzo[a]pyrene	0.0104	U	0.0208	0.00646	ug/L	1		09/02/22 21:08
Benzo[b]Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Benzo[g,h,i]perylene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Benzo[k]fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Chrysene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Dibenzo[a,h]anthracene	0.0104	U	0.0208	0.00646	ug/L	1		09/02/22 21:08
Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Fluorene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Indeno[1,2,3-c,d] pyrene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Naphthalene	0.0386	J	0.104	0.0323	ug/L	1		09/02/22 21:08
Phenanthrene	0.0357	J	0.104	0.0323	ug/L	1		09/02/22 21:08
Pyrene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:08
Surrogates								
2-Methylnaphthalene-d10 (surr)	64.6		42-86		%	1		09/02/22 21:08
Fluoranthene-d10 (surr)	68.7		50-97		%	1		09/02/22 21:08

Batch Information

Analytical Batch: XMS13328
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 09/02/22 21:08
Container ID: 1225201001-I

Prep Batch: XXX46913
Prep Method: SW3535A
Prep Date/Time: 09/01/22 10:04
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW1-0822**

Client Sample ID: **MW1-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201001
Lab Project ID: 1225201

Collection Date: 08/26/22 15:30
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	0.349	J	0.588	0.196	mg/L	1		09/09/22 20:40
Surrogates								
5a Androstane (surr)	66.6		50-150		%	1		09/09/22 20:40

Batch Information

Analytical Batch: XFC16336
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 09/09/22 20:40
Container ID: 1225201001-G

Prep Batch: XXX46949
Prep Method: SW3520C
Prep Date/Time: 09/08/22 16:13
Prep Initial Wt./Vol.: 255 mL
Prep Extract Vol: 1 mL

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW1-0822**

Client Sample ID: **MW1-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201001
Lab Project ID: 1225201

Collection Date: 08/26/22 15:30
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0846	J	0.100	0.0450	mg/L	1		09/07/22 04:21
Surrogates								
4-Bromofluorobenzene (surr)	87.7		50-150		%	1		09/07/22 04:21

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Analyst: PHK
Analytical Date/Time: 09/07/22 04:21
Container ID: 1225201001-A

Prep Batch: VXX39127
Prep Method: SW5030B
Prep Date/Time: 09/06/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW1-0822**

Client Sample ID: **MW1-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201001
Lab Project ID: 1225201

Collection Date: 08/26/22 15:30
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Benzene	15.3		0.400	0.120	ug/L	1		09/08/22 22:56
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 22:56
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/08/22 22:56
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/08/22 22:56
Toluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 22:56
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/08/22 22:56
Surrogates								
1,2-Dichloroethane-D4 (surr)	95.4		81-118		%	1		09/08/22 22:56
4-Bromofluorobenzene (surr)	104		85-114		%	1		09/08/22 22:56
Toluene-d8 (surr)	99.4		89-112		%	1		09/08/22 22:56

Batch Information

Analytical Batch: VMS21948
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/08/22 22:56
Container ID: 1225201001-B

Prep Batch: VXX39140
Prep Method: SW5030B
Prep Date/Time: 09/08/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW2-0822**

Client Sample ID: **MW2-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201002
Lab Project ID: 1225201

Collection Date: 08/26/22 17:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.474		0.0510	0.0153	ug/L	1		09/02/22 21:28
2-Methylnaphthalene	0.203		0.0510	0.0153	ug/L	1		09/02/22 21:28
Acenaphthene	0.0475	J	0.0510	0.0153	ug/L	1		09/02/22 21:28
Acenaphthylene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Anthracene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Benzo(a)Anthracene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Benzo[a]pyrene	0.0102	U	0.0204	0.00633	ug/L	1		09/02/22 21:28
Benzo[b]Fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Benzo[g,h,i]perylene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Benzo[k]fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Chrysene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Dibenzo[a,h]anthracene	0.0102	U	0.0204	0.00633	ug/L	1		09/02/22 21:28
Fluoranthene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Fluorene	0.0313	J	0.0510	0.0153	ug/L	1		09/02/22 21:28
Indeno[1,2,3-c,d] pyrene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Naphthalene	3.49		0.102	0.0316	ug/L	1		09/02/22 21:28
Phenanthrene	0.0580	J	0.102	0.0316	ug/L	1		09/02/22 21:28
Pyrene	0.0255	U	0.0510	0.0153	ug/L	1		09/02/22 21:28
Surrogates								
2-Methylnaphthalene-d10 (surr)	63		42-86		%	1		09/02/22 21:28
Fluoranthene-d10 (surr)	61.3		50-97		%	1		09/02/22 21:28

Batch Information

Analytical Batch: XMS13328
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 09/02/22 21:28
Container ID: 1225201002-I

Prep Batch: XXX46913
Prep Method: SW3535A
Prep Date/Time: 09/01/22 10:04
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW2-0822**

Client Sample ID: **MW2-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201002
Lab Project ID: 1225201

Collection Date: 08/26/22 17:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	1.87		0.612	0.204	mg/L	1		09/09/22 20:50
Surrogates								
5a Androstane (surr)	78.5		50-150		%	1		09/09/22 20:50

Batch Information

Analytical Batch: XFC16336
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 09/09/22 20:50
Container ID: 1225201002-A

Prep Batch: XXX46949
Prep Method: SW3520C
Prep Date/Time: 09/08/22 16:13
Prep Initial Wt./Vol.: 245 mL
Prep Extract Vol: 1 mL

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW2-0822**

Client Sample ID: **MW2-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201002
Lab Project ID: 1225201

Collection Date: 08/26/22 17:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.78		0.100	0.0450	mg/L	1		09/07/22 04:39
Surrogates								
4-Bromofluorobenzene (surr)	184	*	50-150		%	1		09/07/22 04:39

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Analyst: PHK
Analytical Date/Time: 09/07/22 04:39
Container ID: 1225201002-C

Prep Batch: VXX39127
Prep Method: SW5030B
Prep Date/Time: 09/06/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW2-0822**

Client Sample ID: **MW2-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201002
Lab Project ID: 1225201

Collection Date: 08/26/22 17:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 20:11
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 20:11
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/08/22 20:11
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,2,4-Trimethylbenzene	28.6		1.00	0.310	ug/L	1		09/08/22 20:11
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/08/22 20:11
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/08/22 20:11
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		09/08/22 20:11
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,3,5-Trimethylbenzene	3.38		1.00	0.310	ug/L	1		09/08/22 20:11
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/08/22 20:11
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 20:11
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 20:11
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/08/22 20:11
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 20:11
Benzene	26.2		0.400	0.120	ug/L	1		09/08/22 20:11
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 20:11
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
Bromomethane	3.00	U	6.00	3.00	ug/L	1		09/08/22 20:11
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/08/22 20:11
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 20:11
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 20:11

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW2-0822**

Client Sample ID: **MW2-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201002
Lab Project ID: 1225201

Collection Date: 08/26/22 17:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Chloromethane	1.04		1.00	0.310	ug/L	1		09/08/22 20:11
cis-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
cis-1,3-Dichloropropene	0.250 U		0.500	0.150	ug/L	1		09/08/22 20:11
Dibromochloromethane	0.250 U		0.500	0.150	ug/L	1		09/08/22 20:11
Dibromomethane	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Dichlorodifluoromethane	0.658 J		1.00	0.310	ug/L	1		09/08/22 20:11
Ethylbenzene	12.1		1.00	0.310	ug/L	1		09/08/22 20:11
Freon-113	5.00 U		10.0	3.10	ug/L	1		09/08/22 20:11
Hexachlorobutadiene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Isopropylbenzene (Cumene)	7.92		1.00	0.310	ug/L	1		09/08/22 20:11
Methylene chloride	5.00 U		10.0	3.10	ug/L	1		09/08/22 20:11
Methyl-t-butyl ether	5.00 U		10.0	3.10	ug/L	1		09/08/22 20:11
Naphthalene	1.40		1.00	0.310	ug/L	1		09/09/22 19:25
n-Butylbenzene	0.836 J		1.00	0.310	ug/L	1		09/08/22 20:11
n-Propylbenzene	9.77		1.00	0.310	ug/L	1		09/08/22 20:11
o-Xylene	37.6		1.00	0.310	ug/L	1		09/08/22 20:11
P & M -Xylene	78.2		2.00	0.620	ug/L	1		09/08/22 20:11
sec-Butylbenzene	1.92		1.00	0.310	ug/L	1		09/08/22 20:11
Styrene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
tert-Butylbenzene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Tetrachloroethene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Toluene	3.18		1.00	0.310	ug/L	1		09/08/22 20:11
trans-1,2-Dichloroethene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
trans-1,3-Dichloropropene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Trichloroethene	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Trichlorofluoromethane	0.500 U		1.00	0.310	ug/L	1		09/08/22 20:11
Vinyl acetate	5.00 U		10.0	3.10	ug/L	1		09/08/22 20:11
Vinyl chloride	0.0750 U		0.150	0.0500	ug/L	1		09/08/22 20:11
Xylenes (total)	116		3.00	1.00	ug/L	1		09/08/22 20:11
Surrogates								
1,2-Dichloroethane-D4 (surr)	98.9		81-118		%	1		09/08/22 20:11
4-Bromofluorobenzene (surr)	105		85-114		%	1		09/08/22 20:11
Toluene-d8 (surr)	97.5		89-112		%	1		09/08/22 20:11

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW2-0822**

Client Sample ID: **MW2-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201002
Lab Project ID: 1225201

Collection Date: 08/26/22 17:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21951
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/09/22 19:25
Container ID: 1225201002-D

Prep Batch: VXX39146
Prep Method: SW5030B
Prep Date/Time: 09/09/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS21948
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/08/22 20:11
Container ID: 1225201002-F

Prep Batch: VXX39140
Prep Method: SW5030B
Prep Date/Time: 09/08/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW12-0822**

Client Sample ID: **MW12-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201003
Lab Project ID: 1225201

Collection Date: 08/26/22 17:15
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	0.447		0.0521	0.0156	ug/L	1		09/02/22 21:49
2-Methylnaphthalene	0.184		0.0521	0.0156	ug/L	1		09/02/22 21:49
Acenaphthene	0.0376	J	0.0521	0.0156	ug/L	1		09/02/22 21:49
Acenaphthylene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Benzo(a)Anthracene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Benzo[a]pyrene	0.0104	U	0.0208	0.00646	ug/L	1		09/02/22 21:49
Benzo[b]Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Benzo[g,h,i]perylene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Benzo[k]fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Chrysene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Dibenzo[a,h]anthracene	0.0104	U	0.0208	0.00646	ug/L	1		09/02/22 21:49
Fluoranthene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Fluorene	0.0243	J	0.0521	0.0156	ug/L	1		09/02/22 21:49
Indeno[1,2,3-c,d] pyrene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Naphthalene	3.20		0.104	0.0323	ug/L	1		09/02/22 21:49
Phenanthrene	0.0520	U	0.104	0.0323	ug/L	1		09/02/22 21:49
Pyrene	0.0261	U	0.0521	0.0156	ug/L	1		09/02/22 21:49
Surrogates								
2-Methylnaphthalene-d10 (surr)	58.8		42-86		%	1		09/02/22 21:49
Fluoranthene-d10 (surr)	60		50-97		%	1		09/02/22 21:49

Batch Information

Analytical Batch: XMS13328
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 09/02/22 21:49
Container ID: 1225201003-I

Prep Batch: XXX46913
Prep Method: SW3535A
Prep Date/Time: 09/01/22 10:04
Prep Initial Wt./Vol.: 240 mL
Prep Extract Vol: 1 mL

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J flagging is activated

Results of **MW12-0822**

Client Sample ID: **MW12-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201003
Lab Project ID: 1225201

Collection Date: 08/26/22 17:15
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.75		0.100	0.0450	mg/L	1		09/07/22 04:58
Surrogates								
4-Bromofluorobenzene (surr)	143		50-150		%	1		09/07/22 04:58

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Analyst: PHK
Analytical Date/Time: 09/07/22 04:58
Container ID: 1225201003-C

Prep Batch: VXX39127
Prep Method: SW5030B
Prep Date/Time: 09/06/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW12-0822**

Client Sample ID: **MW12-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201003
Lab Project ID: 1225201

Collection Date: 08/26/22 17:15
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/08/22 23:25
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,2,4-Trimethylbenzene	21.4		1.00	0.310	ug/L	1		09/08/22 23:25
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/08/22 23:25
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		09/08/22 23:25
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,3,5-Trimethylbenzene	2.81		1.00	0.310	ug/L	1		09/08/22 23:25
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
Benzene	30.2		0.400	0.120	ug/L	1		09/08/22 23:25
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Bromomethane	3.00	U	6.00	3.00	ug/L	1		09/08/22 23:25
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW12-0822**

Client Sample ID: **MW12-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201003
Lab Project ID: 1225201

Collection Date: 08/26/22 17:15
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:25
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Dichlorodifluoromethane	0.538	J	1.00	0.310	ug/L	1		09/08/22 23:25
Ethylbenzene	10.2		1.00	0.310	ug/L	1		09/08/22 23:25
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Isopropylbenzene (Cumene)	6.18		1.00	0.310	ug/L	1		09/08/22 23:25
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
Naphthalene	4.30		1.00	0.310	ug/L	1		09/08/22 23:25
n-Butylbenzene	0.662	J	1.00	0.310	ug/L	1		09/08/22 23:25
n-Propylbenzene	6.84		1.00	0.310	ug/L	1		09/08/22 23:25
o-Xylene	30.1		1.00	0.310	ug/L	1		09/08/22 23:25
P & M -Xylene	66.3		2.00	0.620	ug/L	1		09/08/22 23:25
sec-Butylbenzene	1.36		1.00	0.310	ug/L	1		09/08/22 23:25
Styrene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Toluene	3.30		1.00	0.310	ug/L	1		09/08/22 23:25
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:25
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:25
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/08/22 23:25
Xylenes (total)	96.4		3.00	1.00	ug/L	1		09/08/22 23:25
Surrogates								
1,2-Dichloroethane-D4 (surr)	96.6		81-118		%	1		09/08/22 23:25
4-Bromofluorobenzene (surr)	100		85-114		%	1		09/08/22 23:25
Toluene-d8 (surr)	99		89-112		%	1		09/08/22 23:25

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW12-0822**

Client Sample ID: **MW12-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201003
Lab Project ID: 1225201

Collection Date: 08/26/22 17:15
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21948
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/08/22 23:25
Container ID: 1225201003-E

Prep Batch: VXX39140
Prep Method: SW5030B
Prep Date/Time: 09/08/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW3-0822**

Client Sample ID: **MW3-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201004
Lab Project ID: 1225201

Collection Date: 08/26/22 18:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Polynuclear Aromatics GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1-Methylnaphthalene	1.79		0.0556	0.0167	ug/L	1		09/02/22 22:10
2-Methylnaphthalene	1.05		0.0556	0.0167	ug/L	1		09/02/22 22:10
Acenaphthene	0.0562		0.0556	0.0167	ug/L	1		09/02/22 22:10
Acenaphthylene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Anthracene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Benzo(a)Anthracene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Benzo[a]pyrene	0.0111	U	0.0222	0.00689	ug/L	1		09/02/22 22:10
Benzo[b]Fluoranthene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Benzo[g,h,i]perylene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Benzo[k]fluoranthene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Chrysene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Dibenzo[a,h]anthracene	0.0111	U	0.0222	0.00689	ug/L	1		09/02/22 22:10
Fluoranthene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Fluorene	0.140		0.0556	0.0167	ug/L	1		09/02/22 22:10
Indeno[1,2,3-c,d] pyrene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Naphthalene	2.08		0.111	0.0344	ug/L	1		09/02/22 22:10
Phenanthrene	0.0596	J	0.111	0.0344	ug/L	1		09/02/22 22:10
Pyrene	0.0278	U	0.0556	0.0167	ug/L	1		09/02/22 22:10
Surrogates								
2-Methylnaphthalene-d10 (surr)	59		42-86		%	1		09/02/22 22:10
Fluoranthene-d10 (surr)	64.4		50-97		%	1		09/02/22 22:10

Batch Information

Analytical Batch: XMS13328
Analytical Method: 8270D SIM LV (PAH)
Analyst: NGG
Analytical Date/Time: 09/02/22 22:10
Container ID: 1225201004-I

Prep Batch: XXX46913
Prep Method: SW3535A
Prep Date/Time: 09/01/22 10:04
Prep Initial Wt./Vol.: 225 mL
Prep Extract Vol: 1 mL

Print Date: 09/29/2022 11:13:07AM

J flagging is activated

Results of **MW3-0822**

Client Sample ID: **MW3-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201004
Lab Project ID: 1225201

Collection Date: 08/26/22 18:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	2.57		0.667	0.222	mg/L	1		09/09/22 21:00
Surrogates								
5a Androstane (surr)	64.7		50-150		%	1		09/09/22 21:00

Batch Information

Analytical Batch: XFC16336
Analytical Method: AK102
Analyst: HMW
Analytical Date/Time: 09/09/22 21:00
Container ID: 1225201004-G

Prep Batch: XXX46949
Prep Method: SW3520C
Prep Date/Time: 09/08/22 16:13
Prep Initial Wt./Vol.: 225 mL
Prep Extract Vol: 1 mL

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Results of **MW3-0822**

Client Sample ID: **MW3-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201004
Lab Project ID: 1225201

Collection Date: 08/26/22 18:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0459	J	0.100	0.0450	mg/L	1		09/07/22 05:16
Surrogates								
4-Bromofluorobenzene (surr)	82.6		50-150		%	1		09/07/22 05:16

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Analyst: PHK
Analytical Date/Time: 09/07/22 05:16
Container ID: 1225201004-D

Prep Batch: VXX39127
Prep Method: SW5030B
Prep Date/Time: 09/06/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW3-0822**

Client Sample ID: **MW3-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201004
Lab Project ID: 1225201

Collection Date: 08/26/22 18:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/08/22 23:10
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,2,4-Trimethylbenzene	4.64		1.00	0.310	ug/L	1		09/08/22 23:10
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/08/22 23:10
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		09/08/22 23:10
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,3,5-Trimethylbenzene	3.70		1.00	0.310	ug/L	1		09/08/22 23:10
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
4-Isopropyltoluene	0.334	J	1.00	0.310	ug/L	1		09/08/22 23:10
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
Benzene	0.200	U	0.400	0.120	ug/L	1		09/08/22 23:10
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Bromomethane	3.00	U	6.00	3.00	ug/L	1		09/08/22 23:10
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10

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Results of **MW3-0822**

Client Sample ID: **MW3-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201004
Lab Project ID: 1225201

Collection Date: 08/26/22 18:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 23:10
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Ethylbenzene	0.659	J	1.00	0.310	ug/L	1		09/08/22 23:10
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Isopropylbenzene (Cumene)	0.438	J	1.00	0.310	ug/L	1		09/08/22 23:10
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
Naphthalene	4.20		1.00	0.310	ug/L	1		09/08/22 23:10
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
n-Propylbenzene	0.516	J	1.00	0.310	ug/L	1		09/08/22 23:10
o-Xylene	2.04		1.00	0.310	ug/L	1		09/08/22 23:10
P & M -Xylene	4.05		2.00	0.620	ug/L	1		09/08/22 23:10
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Styrene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Toluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 23:10
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/08/22 23:10
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/08/22 23:10
Xylenes (total)	6.09		3.00	1.00	ug/L	1		09/08/22 23:10
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		81-118		%	1		09/08/22 23:10
4-Bromofluorobenzene (surr)	99.4		85-114		%	1		09/08/22 23:10
Toluene-d8 (surr)	98.3		89-112		%	1		09/08/22 23:10

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Results of **MW3-0822**

Client Sample ID: **MW3-0822**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201004
Lab Project ID: 1225201

Collection Date: 08/26/22 18:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21948
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/08/22 23:10
Container ID: 1225201004-F

Prep Batch: VXX39140
Prep Method: SW5030B
Prep Date/Time: 09/08/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201005
Lab Project ID: 1225201

Collection Date: 08/26/22 08:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	0.0500	U	0.100	0.0450	mg/L	1		09/06/22 22:53
Surrogates								
4-Bromofluorobenzene (surr)	76		50-150		%	1		09/06/22 22:53

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Analyst: PHK
Analytical Date/Time: 09/06/22 22:53
Container ID: 1225201005-B

Prep Batch: VXX39126
Prep Method: SW5030B
Prep Date/Time: 09/06/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201005
Lab Project ID: 1225201

Collection Date: 08/26/22 08:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
1,1,1-Trichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,1,2,2-Tetrachloroethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
1,1,2-Trichloroethane	0.200	U	0.400	0.120	ug/L	1		09/08/22 18:27
1,1-Dichloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,1-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,1-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,2,3-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,2,3-Trichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,2,4-Trichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,2,4-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,2-Dibromo-3-chloropropane	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
1,2-Dibromoethane	0.0375	U	0.0750	0.0180	ug/L	1		09/08/22 18:27
1,2-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,2-Dichloroethane	0.250	U	0.500	0.200	ug/L	1		09/08/22 18:27
1,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,3,5-Trimethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,3-Dichlorobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
1,3-Dichloropropane	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
1,4-Dichlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
2,2-Dichloropropane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
2-Butanone (MEK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
2-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
2-Hexanone	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
4-Chlorotoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
4-Isopropyltoluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
4-Methyl-2-pentanone (MIBK)	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
Benzene	0.200	U	0.400	0.120	ug/L	1		09/08/22 18:27
Bromobenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Bromochloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Bromodichloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
Bromoform	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Bromomethane	3.00	U	6.00	3.00	ug/L	1		09/08/22 18:27
Carbon disulfide	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
Carbon tetrachloride	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Chlorobenzene	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
Chloroethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201005
Lab Project ID: 1225201

Collection Date: 08/26/22 08:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroform	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Chloromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
cis-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
cis-1,3-Dichloropropene	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
Dibromochloromethane	0.250	U	0.500	0.150	ug/L	1		09/08/22 18:27
Dibromomethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Dichlorodifluoromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Ethylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Freon-113	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
Hexachlorobutadiene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Isopropylbenzene (Cumene)	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Methylene chloride	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
Methyl-t-butyl ether	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
Naphthalene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
n-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
n-Propylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
o-Xylene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
P & M -Xylene	1.00	U	2.00	0.620	ug/L	1		09/08/22 18:27
sec-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Styrene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
tert-Butylbenzene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Tetrachloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Toluene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
trans-1,2-Dichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
trans-1,3-Dichloropropene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Trichloroethene	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Trichlorofluoromethane	0.500	U	1.00	0.310	ug/L	1		09/08/22 18:27
Vinyl acetate	5.00	U	10.0	3.10	ug/L	1		09/08/22 18:27
Vinyl chloride	0.0750	U	0.150	0.0500	ug/L	1		09/08/22 18:27
Xylenes (total)	1.50	U	3.00	1.00	ug/L	1		09/08/22 18:27
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		81-118		%	1		09/08/22 18:27
4-Bromofluorobenzene (surr)	102		85-114		%	1		09/08/22 18:27
Toluene-d8 (surr)	98.6		89-112		%	1		09/08/22 18:27

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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **Kobuk Feed and Fuel**
Lab Sample ID: 1225201005
Lab Project ID: 1225201

Collection Date: 08/26/22 08:00
Received Date: 08/30/22 09:55
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS21948
Analytical Method: SW8260D
Analyst: NRB
Analytical Date/Time: 09/08/22 18:27
Container ID: 1225201005-A

Prep Batch: VXX39140
Prep Method: SW5030B
Prep Date/Time: 09/08/22 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Method Blank

Blank ID: MB for HBN 1842802 [VXX/39126]
Blank Lab ID: 1683988

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201005

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	79.2	50-150		%

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: PHK
Analytical Date/Time: 9/6/2022 11:50:00AM

Prep Batch: VXX39126
Prep Method: SW5030B
Prep Date/Time: 9/6/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [VXX39126]
Blank Spike Lab ID: 1683991
Date Analyzed: 09/06/2022 12:45

Spike Duplicate ID: LCSD for HBN 1225201 [VXX39126]
Spike Duplicate Lab ID: 1683992
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201005

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	1.05	105	1.00	1.08	108	(60-120)	2.80	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		93	0.0500		108	(50-150)	14.40	

Batch Information

Analytical Batch: **VFC16244**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **PHK**

Prep Batch: **VXX39126**
Prep Method: **SW5030B**
Prep Date/Time: **09/06/2022 06:00**
Spike Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1842803 [VXX/39127]
Blank Lab ID: 1683993

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201001, 1225201002, 1225201003, 1225201004

Results by **AK101**

Parameter	Results	LOQ/CL	DL	Units
Gasoline Range Organics	0.0500U	0.100	0.0450	mg/L
Surrogates				
4-Bromofluorobenzene (surr)	75.4	50-150		%

Batch Information

Analytical Batch: VFC16244
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: PHK
Analytical Date/Time: 9/7/2022 1:38:00AM

Prep Batch: VXX39127
Prep Method: SW5030B
Prep Date/Time: 9/6/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [VXX39127]
Blank Spike Lab ID: 1683994
Date Analyzed: 09/07/2022 01:19

Spike Duplicate ID: LCSD for HBN 1225201 [VXX39127]
Spike Duplicate Lab ID: 1683995
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201001, 1225201002, 1225201003, 1225201004

Results by **AK101**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	1.00	0.975	98	1.00	0.966	97	(60-120)	1.00	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	0.0500		99	0.0500		88	(50-150)	11.50	

Batch Information

Analytical Batch: **VFC16244**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **PHK**

Prep Batch: **VXX39127**
Prep Method: **SW5030B**
Prep Date/Time: **09/06/2022 06:00**
Spike Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 0.0500 mg/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1842909 [VXX/39140]
Blank Lab ID: 1684470

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201001, 1225201002, 1225201003, 1225201004, 1225201005

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,1-Trichloroethane	0.500U	1.00	0.310	ug/L
1,1,2,2-Tetrachloroethane	0.250U	0.500	0.150	ug/L
1,1,2-Trichloroethane	0.200U	0.400	0.120	ug/L
1,1-Dichloroethane	0.500U	1.00	0.310	ug/L
1,1-Dichloroethene	0.500U	1.00	0.310	ug/L
1,1-Dichloropropene	0.500U	1.00	0.310	ug/L
1,2,3-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,3-Trichloropropane	0.500U	1.00	0.310	ug/L
1,2,4-Trichlorobenzene	0.500U	1.00	0.310	ug/L
1,2,4-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,2-Dibromo-3-chloropropane	5.00U	10.0	3.10	ug/L
1,2-Dibromoethane	0.0375U	0.0750	0.0180	ug/L
1,2-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,2-Dichloroethane	0.250U	0.500	0.200	ug/L
1,2-Dichloropropane	0.500U	1.00	0.310	ug/L
1,3,5-Trimethylbenzene	0.500U	1.00	0.310	ug/L
1,3-Dichlorobenzene	0.500U	1.00	0.310	ug/L
1,3-Dichloropropane	0.250U	0.500	0.150	ug/L
1,4-Dichlorobenzene	0.250U	0.500	0.150	ug/L
2,2-Dichloropropane	0.500U	1.00	0.310	ug/L
2-Butanone (MEK)	5.00U	10.0	3.10	ug/L
2-Chlorotoluene	0.500U	1.00	0.310	ug/L
2-Hexanone	5.00U	10.0	3.10	ug/L
4-Chlorotoluene	0.500U	1.00	0.310	ug/L
4-Isopropyltoluene	0.500U	1.00	0.310	ug/L
4-Methyl-2-pentanone (MIBK)	5.00U	10.0	3.10	ug/L
Benzene	0.200U	0.400	0.120	ug/L
Bromobenzene	0.500U	1.00	0.310	ug/L
Bromochloromethane	0.500U	1.00	0.310	ug/L
Bromodichloromethane	0.250U	0.500	0.150	ug/L
Bromoform	0.500U	1.00	0.310	ug/L
Bromomethane	3.00U	6.00	3.00	ug/L
Carbon disulfide	5.00U	10.0	3.10	ug/L
Carbon tetrachloride	0.500U	1.00	0.310	ug/L
Chlorobenzene	0.250U	0.500	0.150	ug/L
Chloroethane	0.500U	1.00	0.310	ug/L
Chloroform	0.500U	1.00	0.310	ug/L

Method Blank

Blank ID: MB for HBN 1842909 [VXX/39140]
Blank Lab ID: 1684470

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201001, 1225201002, 1225201003, 1225201004, 1225201005

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Chloromethane	0.500U	1.00	0.310	ug/L
cis-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
cis-1,3-Dichloropropene	0.250U	0.500	0.150	ug/L
Dibromochloromethane	0.250U	0.500	0.150	ug/L
Dibromomethane	0.500U	1.00	0.310	ug/L
Dichlorodifluoromethane	0.500U	1.00	0.310	ug/L
Ethylbenzene	0.500U	1.00	0.310	ug/L
Freon-113	5.00U	10.0	3.10	ug/L
Hexachlorobutadiene	0.500U	1.00	0.310	ug/L
Isopropylbenzene (Cumene)	0.500U	1.00	0.310	ug/L
Methylene chloride	5.00U	10.0	3.10	ug/L
Methyl-t-butyl ether	5.00U	10.0	3.10	ug/L
Naphthalene	0.500U	1.00	0.310	ug/L
n-Butylbenzene	0.500U	1.00	0.310	ug/L
n-Propylbenzene	0.500U	1.00	0.310	ug/L
o-Xylene	0.500U	1.00	0.310	ug/L
P & M -Xylene	1.00U	2.00	0.620	ug/L
sec-Butylbenzene	0.500U	1.00	0.310	ug/L
Styrene	0.500U	1.00	0.310	ug/L
tert-Butylbenzene	0.500U	1.00	0.310	ug/L
Tetrachloroethene	0.500U	1.00	0.310	ug/L
Toluene	0.500U	1.00	0.310	ug/L
trans-1,2-Dichloroethene	0.500U	1.00	0.310	ug/L
trans-1,3-Dichloropropene	0.500U	1.00	0.310	ug/L
Trichloroethene	0.500U	1.00	0.310	ug/L
Trichlorofluoromethane	0.500U	1.00	0.310	ug/L
Vinyl acetate	5.00U	10.0	3.10	ug/L
Vinyl chloride	0.0750U	0.150	0.0500	ug/L
Xylenes (total)	1.50U	3.00	1.00	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	108	81-118		%
4-Bromofluorobenzene (surr)	101	85-114		%
Toluene-d8 (surr)	99.3	89-112		%

Method Blank

Blank ID: MB for HBN 1842909 [VXX/39140]
Blank Lab ID: 1684470

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201001, 1225201002, 1225201003, 1225201004, 1225201005

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS21948
Analytical Method: SW8260D
Instrument: Agilent 7890-75MS
Analyst: NRB
Analytical Date/Time: 9/8/2022 2:43:00PM

Prep Batch: VXX39140
Prep Method: SW5030B
Prep Date/Time: 9/8/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [VXX39140]
Blank Spike Lab ID: 1684471
Date Analyzed: 09/08/2022 14:58

Spike Duplicate ID: LCSD for HBN 1225201 [VXX39140]
Spike Duplicate Lab ID: 1684472
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201001, 1225201002, 1225201003, 1225201004, 1225201005

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	30	29.2	97	30	28.6	95	(78-124)	2.00	(< 20)
1,1,1-Trichloroethane	30	31.5	105	30	31.1	104	(74-131)	1.20	(< 20)
1,1,2,2-Tetrachloroethane	30	28.3	94	30	28.3	94	(71-121)	0.03	(< 20)
1,1,2-Trichloroethane	30	29.3	98	30	28.8	96	(80-119)	1.60	(< 20)
1,1-Dichloroethane	30	29.9	100	30	30.0	100	(77-125)	0.23	(< 20)
1,1-Dichloroethene	30	31.6	105	30	31.0	103	(71-131)	2.10	(< 20)
1,1-Dichloropropene	30	32.3	108	30	31.6	105	(79-125)	2.20	(< 20)
1,2,3-Trichlorobenzene	30	27.1	90	30	30.1	100	(69-129)	10.60	(< 20)
1,2,3-Trichloropropane	30	28.1	94	30	28.2	94	(73-122)	0.23	(< 20)
1,2,4-Trichlorobenzene	30	28.2	94	30	29.4	98	(69-130)	4.10	(< 20)
1,2,4-Trimethylbenzene	30	30.9	103	30	31.0	103	(79-124)	0.18	(< 20)
1,2-Dibromo-3-chloropropane	30	27.9	93	30	28.6	95	(62-128)	2.30	(< 20)
1,2-Dibromoethane	30	27.3	91	30	26.7	89	(77-121)	2.20	(< 20)
1,2-Dichlorobenzene	30	29.3	98	30	29.4	98	(80-119)	0.16	(< 20)
1,2-Dichloroethane	30	27.8	93	30	28.2	94	(73-128)	1.40	(< 20)
1,2-Dichloropropane	30	29.5	98	30	29.7	99	(78-122)	0.66	(< 20)
1,3,5-Trimethylbenzene	30	31.2	104	30	31.0	103	(75-124)	0.52	(< 20)
1,3-Dichlorobenzene	30	30.2	101	30	30.3	101	(80-119)	0.21	(< 20)
1,3-Dichloropropane	30	29.3	98	30	28.8	96	(80-119)	1.80	(< 20)
1,4-Dichlorobenzene	30	30.4	101	30	30.5	102	(79-118)	0.20	(< 20)
2,2-Dichloropropane	30	33.9	113	30	33.6	112	(60-139)	0.88	(< 20)
2-Butanone (MEK)	90	76.7	85	90	84.9	94	(56-143)	10.20	(< 20)
2-Chlorotoluene	30	30.6	102	30	30.3	101	(79-122)	1.00	(< 20)
2-Hexanone	90	82.1	91	90	84.2	94	(57-139)	2.60	(< 20)
4-Chlorotoluene	30	29.9	100	30	30.3	101	(78-122)	1.30	(< 20)
4-Isopropyltoluene	30	31.8	106	30	31.5	105	(77-127)	0.95	(< 20)
4-Methyl-2-pentanone (MIBK)	90	81.6	91	90	85.4	95	(67-130)	4.50	(< 20)
Benzene	30	30.3	101	30	30.3	101	(79-120)	0.10	(< 20)
Bromobenzene	30	29.2	97	30	29.4	98	(80-120)	0.71	(< 20)
Bromochloromethane	30	28.4	95	30	28.8	96	(78-123)	1.30	(< 20)
Bromodichloromethane	30	28.7	96	30	29.1	97	(79-125)	1.40	(< 20)
Bromoform	30	27.2	91	30	26.5	88	(66-130)	2.70	(< 20)
Bromomethane	30	29.8	99	30	30.5	102	(53-141)	2.40	(< 20)
Carbon disulfide	45	47.5	106	45	46.3	103	(64-133)	2.60	(< 20)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [VXX39140]
Blank Spike Lab ID: 1684471
Date Analyzed: 09/08/2022 14:58

Spike Duplicate ID: LCSD for HBN 1225201 [VXX39140]
Spike Duplicate Lab ID: 1684472
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201001, 1225201002, 1225201003, 1225201004, 1225201005

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Carbon tetrachloride	30	31.6	105	30	31.2	104	(72-136)	1.20	(< 20)
Chlorobenzene	30	29.5	98	30	29.0	97	(82-118)	1.80	(< 20)
Chloroethane	30	31.0	103	30	31.4	105	(60-138)	1.10	(< 20)
Chloroform	30	27.1	90	30	27.4	91	(79-124)	1.10	(< 20)
Chloromethane	30	29.9	100	30	29.3	98	(50-139)	1.90	(< 20)
cis-1,2-Dichloroethene	30	28.9	96	30	29.7	99	(78-123)	2.80	(< 20)
cis-1,3-Dichloropropene	30	30.2	101	30	30.4	101	(75-124)	0.79	(< 20)
Dibromochloromethane	30	29.2	97	30	28.6	95	(74-126)	2.10	(< 20)
Dibromomethane	30	28.3	94	30	28.7	96	(79-123)	1.30	(< 20)
Dichlorodifluoromethane	30	33.1	110	30	32.1	107	(32-152)	3.20	(< 20)
Ethylbenzene	30	30.5	102	30	29.9	100	(79-121)	1.90	(< 20)
Freon-113	45	48.3	107	45	47.1	105	(70-136)	2.50	(< 20)
Hexachlorobutadiene	30	30.5	102	30	31.0	103	(66-134)	1.70	(< 20)
Isopropylbenzene (Cumene)	30	31.6	105	30	30.7	102	(72-131)	2.90	(< 20)
Methylene chloride	30	29.0	97	30	29.4	98	(74-124)	1.40	(< 20)
Methyl-t-butyl ether	45	44.1	98	45	44.6	99	(71-124)	1.10	(< 20)
Naphthalene	30	24.6	82	30	27.4	91	(61-128)	11.00	(< 20)
n-Butylbenzene	30	29.3	98	30	28.5	95	(75-128)	2.60	(< 20)
n-Propylbenzene	30	31.6	105	30	30.9	103	(76-126)	2.30	(< 20)
o-Xylene	30	30.3	101	30	29.7	99	(78-122)	2.10	(< 20)
P & M -Xylene	60	61.4	102	60	60.4	101	(80-121)	1.50	(< 20)
sec-Butylbenzene	30	32.6	109	30	31.8	106	(77-126)	2.40	(< 20)
Styrene	30	29.8	99	30	29.2	97	(78-123)	2.20	(< 20)
tert-Butylbenzene	30	31.7	106	30	31.4	105	(78-124)	1.00	(< 20)
Tetrachloroethene	30	31.6	105	30	30.1	100	(74-129)	4.80	(< 20)
Toluene	30	29.4	98	30	28.5	95	(80-121)	3.10	(< 20)
trans-1,2-Dichloroethene	30	30.7	102	30	30.4	101	(75-124)	1.10	(< 20)
trans-1,3-Dichloropropene	30	27.8	93	30	27.4	91	(73-127)	1.60	(< 20)
Trichloroethene	30	31.2	104	30	30.6	102	(79-123)	1.80	(< 20)
Trichlorofluoromethane	30	31.6	105	30	30.8	103	(65-141)	2.70	(< 20)
Vinyl acetate	30	29.7	99	30	30.3	101	(54-146)	2.00	(< 20)
Vinyl chloride	30	32.6	109	30	31.7	106	(58-137)	2.80	(< 20)
Xylenes (total)	90	91.7	102	90	90.1	100	(79-121)	1.70	(< 20)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [VXX39140]
Blank Spike Lab ID: 1684471
Date Analyzed: 09/08/2022 14:58

Spike Duplicate ID: LCSD for HBN 1225201 [VXX39140]
Spike Duplicate Lab ID: 1684472
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201001, 1225201002, 1225201003, 1225201004, 1225201005

Results by **SW8260D**

	Blank Spike (%)			Spike Duplicate (%)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		96	30		98	(81-118)	1.70	
4-Bromofluorobenzene (surr)	30		100	30		100	(85-114)	0.15	
Toluene-d8 (surr)	30		99	30		98	(89-112)	1.10	

Batch Information

Analytical Batch: **VMS21948**
Analytical Method: **SW8260D**
Instrument: **Agilent 7890-75MS**
Analyst: **NRB**

Prep Batch: **VXX39140**
Prep Method: **SW5030B**
Prep Date/Time: **09/08/2022 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1843046 [VXX/39146]
Blank Lab ID: 1684747

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201002

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Naphthalene	0.500U	1.00	0.310	ug/L
Surrogates				
1,2-Dichloroethane-D4 (surr)	99.5	81-118		%
4-Bromofluorobenzene (surr)	102	85-114		%
Toluene-d8 (surr)	98.6	89-112		%

Batch Information

Analytical Batch: VMS21951
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 9/9/2022 4:28:00PM

Prep Batch: VXX39146
Prep Method: SW5030B
Prep Date/Time: 9/9/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Anti-Foam Blank

Blank ID: AFB for HBN 1843046 [VXX/39146
Blank Lab ID: 1684750

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201002

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	Units
Naphthalene	0.500U	1.00	0.310	ug/L

Batch Information

Analytical Batch: VMS21951
Analytical Method: SW8260D
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 9/9/2022 11:35:00PM

Prep Batch: VXX39146
Prep Method: SW5030B
Prep Date/Time: 9/9/2022 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [VXX39146]
Blank Spike Lab ID: 1684748
Date Analyzed: 09/09/2022 16:43

Spike Duplicate ID: LCSD for HBN 1225201 [VXX39146]
Spike Duplicate Lab ID: 1684749
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201002

Results by **SW8260D**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Naphthalene	30	32.5	108	30	33.1	110	(61-128)	1.90	(< 20)
Surrogates									
1,2-Dichloroethane-D4 (surr)	30		96	30		97	(81-118)	1.40	
4-Bromofluorobenzene (surr)	30		100	30		100	(85-114)	0.08	
Toluene-d8 (surr)	30		99	30		99	(89-112)	0.73	

Batch Information

Analytical Batch: **VMS21951**
Analytical Method: **SW8260D**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX39146**
Prep Method: **SW5030B**
Prep Date/Time: **09/09/2022 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL

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Method Blank

Blank ID: MB for HBN 1842574 [XXX/46913]
Blank Lab ID: 1682978

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201001, 1225201002, 1225201003, 1225201004

Results by **8270D SIM LV (PAH)**

Parameter	Results	LOQ/CL	DL	Units
1-Methylnaphthalene	0.0234J	0.0500	0.0150	ug/L
2-Methylnaphthalene	0.0315J	0.0500	0.0150	ug/L
Acenaphthene	0.0250U	0.0500	0.0150	ug/L
Acenaphthylene	0.0250U	0.0500	0.0150	ug/L
Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo(a)Anthracene	0.0250U	0.0500	0.0150	ug/L
Benzo[a]pyrene	0.0100U	0.0200	0.00620	ug/L
Benzo[b]Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Benzo[g,h,i]perylene	0.0250U	0.0500	0.0150	ug/L
Benzo[k]fluoranthene	0.0250U	0.0500	0.0150	ug/L
Chrysene	0.0250U	0.0500	0.0150	ug/L
Dibenzo[a,h]anthracene	0.0100U	0.0200	0.00620	ug/L
Fluoranthene	0.0250U	0.0500	0.0150	ug/L
Fluorene	0.0250U	0.0500	0.0150	ug/L
Indeno[1,2,3-c,d] pyrene	0.0250U	0.0500	0.0150	ug/L
Naphthalene	0.0500U	0.100	0.0310	ug/L
Phenanthrene	0.0500U	0.100	0.0310	ug/L
Pyrene	0.0250U	0.0500	0.0150	ug/L
Surrogates				
2-Methylnaphthalene-d10 (surr)	65.4	42-86		%
Fluoranthene-d10 (surr)	70.6	50-97		%

Batch Information

Analytical Batch: XMS13328
Analytical Method: 8270D SIM LV (PAH)
Instrument: Agilent GC 7890B/5977A SWA
Analyst: NGG
Analytical Date/Time: 9/2/2022 7:25:00PM

Prep Batch: XXX46913
Prep Method: SW3535A
Prep Date/Time: 9/1/2022 10:04:14AM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [XXX46913]
Blank Spike Lab ID: 1682979
Date Analyzed: 09/02/2022 19:45

Spike Duplicate ID: LCSD for HBN 1225201 [XXX46913]
Spike Duplicate Lab ID: 1682980
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201001, 1225201002, 1225201003, 1225201004

Results by **8270D SIM LV (PAH)**

	Blank Spike (ug/L)			Spike Duplicate (ug/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1-Methylnaphthalene	2	1.50	75	2	1.36	68	(41-115)	9.70	(< 20)
2-Methylnaphthalene	2	1.43	72	2	1.30	65	(39-114)	9.40	(< 20)
Acenaphthene	2	1.55	78	2	1.44	72	(48-114)	7.30	(< 20)
Acenaphthylene	2	1.61	81	2	1.50	75	(35-121)	7.10	(< 20)
Anthracene	2	1.67	83	2	1.53	77	(53-119)	8.40	(< 20)
Benzo(a)Anthracene	2	1.54	77	2	1.47	73	(59-120)	4.90	(< 20)
Benzo[a]pyrene	2	1.64	82	2	1.56	78	(53-120)	5.30	(< 20)
Benzo[b]Fluoranthene	2	1.67	84	2	1.50	75	(53-126)	10.60	(< 20)
Benzo[g,h,i]perylene	2	1.83	92	2	1.74	87	(44-128)	5.00	(< 20)
Benzo[k]fluoranthene	2	1.66	83	2	1.66	83	(54-125)	0.06	(< 20)
Chrysene	2	1.61	81	2	1.56	78	(57-120)	3.20	(< 20)
Dibenzo[a,h]anthracene	2	1.81	90	2	1.73	87	(44-131)	4.30	(< 20)
Fluoranthene	2	1.53	77	2	1.47	73	(58-120)	4.20	(< 20)
Fluorene	2	1.64	82	2	1.56	78	(50-118)	5.30	(< 20)
Indeno[1,2,3-c,d] pyrene	2	1.80	90	2	1.71	86	(48-130)	5.10	(< 20)
Naphthalene	2	1.45	73	2	1.34	67	(43-114)	7.70	(< 20)
Phenanthrene	2	1.74	87	2	1.66	83	(53-115)	4.90	(< 20)
Pyrene	2	1.54	77	2	1.49	74	(53-121)	3.80	(< 20)
Surrogates									
2-Methylnaphthalene-d10 (surr)	2		67	2		61	(42-86)	9.60	
Fluoranthene-d10 (surr)	2		70	2		68	(50-97)	2.80	

Batch Information

Analytical Batch: **XMS13328**
Analytical Method: **8270D SIM LV (PAH)**
Instrument: **Agilent GC 7890B/5977A SWA**
Analyst: **NGG**

Prep Batch: **XXX46913**
Prep Method: **SW3535A**
Prep Date/Time: **09/01/2022 10:04**
Spike Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 2 ug/L Extract Vol: 1 mL

Print Date: 09/29/2022 11:13:27AM

Method Blank

Blank ID: MB for HBN 1842865 [XXX/46949]
Blank Lab ID: 1684237

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1225201001, 1225201002, 1225201004

Results by **AK102**

Parameter	Results	LOQ/CL	DL	Units
Diesel Range Organics	0.300U	0.600	0.200	mg/L
Surrogates				
5a Androstane (surr)	66.4	60-120		%

Batch Information

Analytical Batch: XFC16336
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: HMW
Analytical Date/Time: 9/9/2022 7:30:00PM

Prep Batch: XXX46949
Prep Method: SW3520C
Prep Date/Time: 9/8/2022 4:13:41PM
Prep Initial Wt./Vol.: 250 mL
Prep Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1225201 [XXX46949]
Blank Spike Lab ID: 1684238
Date Analyzed: 09/09/2022 19:40

Spike Duplicate ID: LCSD for HBN 1225201 [XXX46949]
Spike Duplicate Lab ID: 1684239
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1225201001, 1225201002, 1225201004

Results by **AK102**

	Blank Spike (mg/L)			Spike Duplicate (mg/L)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range Organics	20	17.1	86	20	14.8	74	* (75-125)	14.80	(< 20)
Surrogates									
5a Androstane (surr)	0.4		85	0.4		73	(60-120)	15.70	

Batch Information

Analytical Batch: **XFC16336**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **HMW**

Prep Batch: **XXX46949**
Prep Method: **SW3520C**
Prep Date/Time: **09/08/2022 16:13**
Spike Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL
Dupe Init Wt./Vol.: 0.4 mg/L Extract Vol: 1 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Chain of Custody

1225201

Alaska Resources and Environmental Services
P.O. Box 83050, Fairbanks, Alaska 99708
Phone: 907.374.3226

Work Order No.:

Project Manager:	Lyle Gresehover		**Bill to:**	Lyle Gresehover	
Client Name:	Alaska Resources and Environmental Services		**Company:**	Alaska Resources and Environmental Services	
Address:	PO Box 83050		**Address:**	PO Box 83050	
City, State ZIP:	Fairbanks, AK 99708		**City, State ZIP:**	Fairbanks, AK 99708	
Email:	Lyle@ak-res.com	**Phone:** 907.374.3226	**Email:**	Lyle@ak-res.com	
Project Name:	Kobuk Feed and Fuel				
Project Number:					
P.O. Number:	Date 8-26-2022				
Sampler's Name:	Josh Klynstra				

SAMPLE RECEIPT

Temperature (°C):		Temp Blank Present		
Received Intact:	Yes	No	N/A	Wet Ice / Blue Ice
Cooler Custody Seals:	Yes	No	N/A	Total Containers:
Sample Custody Seals:	Yes	No	N/A	

REQUESTED ANALYSIS

TAT

- [X] Routine
- [ ] Same Day ***
- [ ] Next Day ***
- [ ] 5 Day
- [ ] 7 Day

*** Please call for availability

Due Date:

Comments

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	VOCs 8260	GRO by AK101	DRO by AK102	BTEX 8260C	PAH 8270D SIM
MW1-0822	W	8/26/2022	1530	1AJ	8		X	X	X	X
MW2-0822	W	8/26/2022	1700	2AJ	10	X	X	X		X
MW12-0822	W	8/26/2022	1715	3AJ	10	X	X	X		X
MW3-0822	W	8/26/2022	1800	4AJ	6	X	X			
Trip Blank	W	8/26/2022	0800	SAC	6	X	X			

Dissolved	Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Tl, V, Zn, Zr
Total	Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Tl, V, Zn, Zr

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Josh Klynstra		8-29-22 0830	Alexandra Johnston-Cornes		8/29/22 830 @ 2.6°C
Alexandra Johnston-Cornes		8/29/22 1515	Tamara Davis		08/30/22 9:55

6.3 Dsg

Seal 1 F LB

Revised: 8/29/2022

e-Sample Receipt Form FBK

SGS Workorder #:	ARES	ARES

Review Criteria	Condition (Yes, No, N/A	Exceptions Noted below
Chain of Custody / Temperature Requirements		Yes Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	

**Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required

Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID:	1	@	3.6	°C	Therm. ID:	D53
		Cooler ID:		@		°C	Therm. ID:	
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID:		@		°C	Therm. ID:	
		Cooler ID:		@		°C	Therm. ID:	

If >6°C, were samples collected <8 hours ago?		
If <0°C, were sample containers ice free?		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		

Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	N/C	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were samples in good condition (no leaks/cracks/breakage)?	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/C	
Were all soil VOAs field extracted with MeOH+BFB?	N/A	
For Rush/Short Hold Time, was RUSH/Short HT email sent?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

SGS Profile #	334646	334646

e-Sample Receipt Form

SGS Workorder #:	1225201	1225201

Review Criteria	Condition (Yes, No, N/A	Exceptions Noted below
Chain of Custody / Temperature Requirements	*Note:* Temperature and COC seal information is found on the chain of custody form	
DOD only: Did all sample coolers have a corresponding COC?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note containers received with ice:		
Identify any containers received at non-compliant temperature: *(Use form FS-0029 if more space is needed)*		
Holding Time / Documentation / Sample Condition Requirements	*Note:* Refer to form F-083 "Sample Guide" for specific holding times and sample containers.	
Were samples received within analytical holding time?	Yes	
Do sample labels match COC? Record discrepancies. ***Note:*** *If information on containers differs from COC, default to COC information for login. If times differ <1hr, record details & login per COC.*	No	Received 10 containers for sample 1 instead of 8 mentioned on COC.Received containers for DRO & PAH analysis for sample 4. Will be ran per client although not noted on COC. Received 3 containers for trip blank instead of 6 that were mentioned on COC.
Were analytical requests clear? *(i.e. method is specified for analyses with multiple option for method (Eg, BTEX 8021 vs 8260, Metals 6020 vs 200.8)*	Yes	
Were proper containers (type/mass/volume/preservative)used? Note: Exemption for metals analysis by 200.8/6020 in water.	Yes	
Volatile Analysis Requirements (VOC, GRO, LL-Hg, etc.)		
Were all soil VOAs received with a corresponding % solids container?	N/A	
Were Trip Blanks (e.g., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (e.g., bubbles ≤ 6mm)?	Yes	
Were all soil VOAs field extracted with Methanol+BFB?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1225201001-A	HCL to pH < 2	OK			
1225201001-B	HCL to pH < 2	OK			
1225201001-C	HCL to pH < 2	OK			
1225201001-D	HCL to pH < 2	OK			
1225201001-E	HCL to pH < 2	OK			
1225201001-F	HCL to pH < 2	OK			
1225201001-G	HCL to pH < 2	OK			
1225201001-H	HCL to pH < 2	OK			
1225201001-I	No Preservative Required	OK			
1225201001-J	No Preservative Required	OK			
1225201002-A	HCL to pH < 2	OK			
1225201002-B	HCL to pH < 2	OK			
1225201002-C	HCL to pH < 2	OK			
1225201002-D	HCL to pH < 2	OK			
1225201002-E	HCL to pH < 2	OK			
1225201002-F	HCL to pH < 2	OK			
1225201002-G	HCL to pH < 2	OK			
1225201002-H	HCL to pH < 2	OK			
1225201002-I	No Preservative Required	OK			
1225201002-J	No Preservative Required	OK			
1225201003-A	HCL to pH < 2	OK			
1225201003-B	HCL to pH < 2	OK			
1225201003-C	HCL to pH < 2	OK			
1225201003-D	HCL to pH < 2	OK			
1225201003-E	HCL to pH < 2	OK			
1225201003-F	HCL to pH < 2	OK			
1225201003-G	HCL to pH < 2	OK			
1225201003-H	HCL to pH < 2	OK			
1225201003-I	No Preservative Required	OK			
1225201003-J	No Preservative Required	OK			
1225201004-A	HCL to pH < 2	OK			
1225201004-B	HCL to pH < 2	OK			
1225201004-C	HCL to pH < 2	OK			
1225201004-D	HCL to pH < 2	OK			
1225201004-E	HCL to pH < 2	OK			
1225201004-F	HCL to pH < 2	OK			
1225201004-G	HCL to pH < 2	OK			
1225201004-H	HCL to pH < 2	OK			
1225201004-I	No Preservative Required	OK			
1225201004-J	No Preservative Required	OK			
1225201005-A	HCL to pH < 2	OK			
1225201005-B	HCL to pH < 2	OK			
1225201005-C	HCL to pH < 2	OK			
1225201005-D	HCL to pH < 2	OK			
1225201005-E	HCL to pH < 2	OK			
1225201005-F	HCL to pH < 2	OK			

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

Laboratory Data Review Checklist

Completed By:

Josh Klynstra

Title:

Environmental Chemist

Date:

11-16-2022

Consultant Firm:

Alaska Resources and Environmental Services

Laboratory Name:

SGS North America Inc.

Laboratory Report Number:

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

ADEC File Number:

Hazard Identification Number:

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

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

   Yes☒ No☐ N/A☐ Comments:

SGS North America is an ADEC CS approved laboratory.

   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☐ N/A☒ Comments:

No samples were sub-contracted.

2. Chain of Custody (CoC)

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

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☐ No☒ N/A☐ Comments:

The laboratory received 10 containers for sample 1 instead of 8 mentioned on COC. Received containers for DRO & PAH analysis for sample 4. Will be ran per client although not noted on COC. Received 3 containers for trip blank instead of 6 that were mentioned on COC.

3. Laboratory Sample Receipt Documentation

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

   Yes☒ No☐ N/A☐ Comments:

Cooler temperature upon receipt in Anchorage was 3.6° C.

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

   Yes☒ No☐ N/A☐ Comments:

Five (5) sample consisting of four (4) groundwater samples (including one duplicate) and one (1) trip blank were received by SGS on August 20, 2022. The samples arrived in good condition and were property preserved.

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

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

Yes☒ No☐ N/A☐ Comments:

Samples arrived in good condition.

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☐ N/A☐ Comments:

No discrepancies noted in the case narrative.

e. Data quality or usability affected?

Comments:

Data not affected.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

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

Yes☒ No☐ N/A☐ Comments:

AK102 - Sample MW12-0822 was lost due to lab error. Sample was not re-extracted due to insufficient remaining sample volume.

c. Were all corrective actions documented?

Yes☐ No☐ N/A☒ Comments:

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

Comments:

AK102 – No sample data is reported for MW12-0822 due to lab error.

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

5. Samples Results

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

Yes☒ No☐ N/A☐ Comments:

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

Sample matrix for this project is groundwater.

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

Yes☐ No☒ N/A☐ Comments:

8260 – 1,2,3-Trichloropropane has a detection limit that exceeds ADEC CUL's in one or more samples.

e. Data quality or usability affected?

Data quality is affected. Analytes with elevated detection limits could be present at concentrations that exceed ADEC cleanup levels. Data is still usable. Sample results with detection limits that exceed ADEC CUL's are highlighted in blue in the analytical summary table.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☐ No☒ N/A☐ Comments:

8270 – 1-Methylnaphthalene and 2-Methylnaphthalene were detected in MB 1682978 at concentrations (0.0234 ug/L and 0.0315 ug/L) that were above the method detection limit but below the LOQ (0.0250 ug/L). Data quality is affected. Analytes detected in both the sample and the blank are considered high biased estimates and are qualified with the B data flag. 1-Methylnaphthalene and 2-Methylnaphthalene were detected in associated samples at concentrations below ADEC CULs. Data usability is not affected.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Samples MW1-0822, MW2-0822, MW12-0822 and MW3-0822 are associated.

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

Yes☒ No☐ N/A☐ Comments:

Affected results are qualified with B data flags.

v. Data quality or usability affected?

Comments:

See note 6.a.ii

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☐ N/A☐ Comments:

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

Yes☐ No☐ N/A☒ Comments:

Metals/inorganics were not requested for this sampling event.

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

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

Yes☐ No☒ N/A☐ Comments:

AK102 – The LCSD for batch 1684238 recovered below acceptance criteria for DRO. Data quality is affected. Associated detected results for DRO in samples MW1-0822, MW2-0822 and MW3-0822 are considered low biased estimates and are qualified with the QL data flag. The associated low biased detected results are significantly above or below ADEC CLs and remain usable.

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

Yes☒ No☐ N/A☐ Comments:

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

Comments:

Samples MW1-0822, MW2-0822 and MW3-0822 are associated.

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

Yes☒ No☐ N/A☐ Comments:

Affected results are qualified with QL data flags.

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

Comments:

See note 6.b.iii

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

MS/MSD not required for this project.

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Metals/inorganics were not requested for this sampling event.

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

Yes☐ No☐ N/A☒ Comments:

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

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

Yes☐ No☐ N/A☒ Comments:

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

Comments:

N/A

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

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

Yes☒ No☐ N/A☐ Comments:

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

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

Yes☐ No☒ N/A☐ Comments:

AK101 – Surrogate 4-Bromofluorobenzene exceeded acceptance criteria for sample MW2-0822 for Analysis Batch VFC16244. Data quality is affected. Detected results may be biased high and are qualified with QH data flags in the associated samples. Non-detect results are not affected. Associated detected results for GRO were significantly below ADEC cleanup levels and remain usable.

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

Yes☒ No☐ N/A☐ Comments:

See note 6.d.ii.

iv. Data quality or usability affected?

Comments:

See note 6.d.ii.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

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☐ N/A☐ Comments:

All samples delivered to the laboratory in a single cooler.

iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A

v. Data quality or usability affected?

Comments:

N/A

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Sample MW12-0822 is a blind field duplicate of sample MW2-0822.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (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☒ N/A☐ Comments:

8260 – The following analyte had an RPDs above recommended limits for samples MW2-0822 and MW12-0822: Naphthalene (101.8%), Chloromethane (70.1%), n-Propylbenzene (35.3%), sec-Butylbenzene (34.1%)

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

Comments:

Data quality for the analytes with RPDs exceeding control limits are affected. Associated results are considered estimated with an unknown bias and are qualified with the "QN" data flag. All associated results are less than ADEC CULs. Data remains usable.

1225201

Laboratory Report Date:

9-29-2022

CS Site Name:

Kobuk Feed and Fuel

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

Yes☐ No☐ N/A☒ Comments:

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected?

Comments:

N/A

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

a. Defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Appendix D:
Analytical Results Summary Tables

Appendix D-1:

2019 Analytical Results Summary Table:
580-89500-1

Former Kobuk Feed and Fuel 2019 Groundwater Analytical Results Summary Table, 580-895001-1

			Sample ID	Kobuk-MW1-919	Kobuk-MW2-919	Kobuk-MW3-919	Kobuk-MW12-919
			Location ID	Kobuk-MW1-919	Kobuk-MW2-919	Kobuk-MW3-919	Kobuk-MW12-919
			Collection Date/Time	9/23/2019 1330	9/23/2019 1230	9/23/2019 1030	9/23/2019 1245
			Lab Sample ID	580-89500-1	580-89500-2	580-89500-3	580-89500-4
			Matrix	Water	Water	Water	Water
			Description	Primary	Primary	Primary	Duplicate to MW-2-919
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
AK 101	µg/L	GRO	2200	ND [100]	**360 [100]**	**180 [100] J**	**210 [100] J**
AK 102	µg/L	DRO	1500	ND [9.8]	**360 [9.8]**	**1700 [100]**	**380 [100]**
8260C	µg/L	Benzene	4.6	ND [0.53]			
8260C	µg/L	Ethylbenzene	15	ND [0.5]			
8260C	µg/L	m-Xylene & p-Xylene	190	ND [0.75]			
8260C	µg/L	o-Xylene	190	ND [0.39]			
8260C	µg/L	Toluene	1100	ND [0.39]			
EPA 8270D SIM	µg/L	1-Methylnaphthalene	11		**0.62 [0.023]**	**16 [0.029]**	**0.56 [0.023]**
EPA 8270D SIM	µg/L	2-Methylnaphthalene	36		**0.24 [0.044]**	**14 [0.056]**	**0.19 [0.044]**
EPA 8270D SIM	µg/L	Acenaphthene	530		**0.022 [0.022] J**	**0.41 [0.028]**	ND [0.022]
EPA 8270D SIM	µg/L	Acenaphthylene	260		ND [0.016]	**0.089 [0.02] J**	ND [0.016]
EPA 8270D SIM	µg/L	Anthracene	43		ND [0.025]	**0.046 [0.032] J**	ND [0.025]
EPA 8270D SIM	µg/L	Benzo[a]anthracene	0.30		ND [0.012]	ND [0.015]	ND [0.012]
EPA 8270D SIM	µg/L	Benzo[a]pyrene	0.25		ND [0.012]	ND [0.015]	ND [0.012]
EPA 8270D SIM	µg/L	Benzo[b]fluoranthene	2.5		ND [0.011]	ND [0.014]	ND [0.011]
EPA 8270D SIM	µg/L	Benzo[g,h,i]perylene	0.26		ND [0.021]	ND [0.027]	ND [0.021]
EPA 8270D SIM	µg/L	Benzo[k]fluoranthene	0.80		ND [0.015]	ND [0.019]	ND [0.015]
EPA 8270D SIM	µg/L	Chrysene	2.0		ND [0.01]	ND [0.013]	ND [0.01]
EPA 8270D SIM	µg/L	Dibenz(a,h)anthracene	0.25		ND [0.013]	ND [0.017]	ND [0.013]
EPA 8270D SIM	µg/L	Fluoranthene	260		ND [0.017]	ND [0.022]	ND [0.017]
EPA 8270D SIM	µg/L	Fluorene	290		**0.023 [0.016] J**	**1.1 [0.02]**	**0.022 [0.016] J**
EPA 8270D SIM	µg/L	Indeno[1,2,3-cd]pyrene	0.19		ND [0.022]	ND [0.028]	ND [0.022]
EPA 8270D SIM	µg/L	Naphthalene	1.7		**4.1 [0.053]**	**14 [0.068]**	**3.7 [0.053]**
EPA 8270D SIM	µg/L	Phenanthrene	170		ND [0.056]	**0.35 [0.071]**	ND [0.056]
EPA 8270D SIM	µg/L	Pyrene	120		ND [0.026]	ND [0.033]	ND [0.026]
8260C	µg/L	1,1,1-Trichloroethane	8000		ND [0.39]	ND [0.39]	ND [0.39]
8260C	µg/L	1,1-Dichloroethane	28		ND [0.22]	ND [0.22]	ND [0.22]
8260C	µg/L	1,1-Dichloropropene	NS		ND [0.29]	ND [0.29]	ND [0.29]
8260C	µg/L	1,2,3-Trichlorobenzene	7.0		ND [1.1]	ND [1.1]	ND [1.1]
8260C	µg/L	1,2,3-Trichloropropane	0.0075		ND [0.41]	ND [0.41]	ND [0.41]
8260C	µg/L	1,2,4-Trichlorobenzene	4.0		ND [0.33]	ND [0.33]	ND [0.33]
8260C	µg/L	1,2,4-Trimethylbenzene	56		**7.1 [0.61]**	**48 [0.61]**	**7.1 [0.61]**
8260C	µg/L	1,2-Dibromo-3-Chloropropane	NS		ND [1.8]	ND [1.8]	ND [1.8]
8260C	µg/L	1,2-Dichlorobenzene	300		ND [0.46]	ND [0.46]	ND [0.46]
8260C	µg/L	1,2-Dichloropropane	4.4		ND [0.18]	ND [0.18]	ND [0.18]
8260C	µg/L	1,3,5-Trimethylbenzene	120		**2.7 [0.55] J**	**23 [0.55]**	**2.8 [0.55] J**
8260C	µg/L	1,3-Dichlorobenzene	300		ND [0.18]	ND [0.18]	ND [0.18]
8260C	µg/L	1,3-Dichloropropane	NS		ND [0.35]	ND [0.35]	ND [0.35]
8260C	µg/L	2,2-Dichloropropane	NS		ND [0.32]	ND [0.32]	ND [0.32]
8260C	µg/L	2-Chlorotoluene	NS		ND [0.51]	ND [0.51]	ND [0.51]
8260C	µg/L	4-Chlorotoluene	NS		ND [0.51]	ND [0.51]	ND [0.51]
8260C	µg/L	4-Isopropyltoluene	NS		ND [0.28]	**3 [0.28]**	**0.62 [0.28] J**
8260C	µg/L	Bromobenzene	62		ND [0.43]	ND [0.43]	ND [0.43]
8260C	µg/L	Bromochloromethane	NS		ND [0.29]	ND [0.29]	ND [0.29]
8260C	µg/L	Carbon tetrachloride	4.6		ND [0.3]	ND [0.3]	ND [0.3]
8260C	µg/L	Chlorobenzene	78		ND [0.44]	ND [0.44]	ND [0.44]
8260C	µg/L	Chloroethane	21000		ND [1.1]	ND [1.1]	ND [1.1]
8260C	µg/L	Chloromethane	190		ND [5.4]	ND [5.4]	ND [5.4]
8260C	µg/L	cis-1,2-Dichloroethene	36		ND [0.69]	ND [0.69]	ND [0.69]
8260C	µg/L	Dichlorodifluoromethane	200		ND [2.3]	ND [2.3]	ND [2.3]
8260C	µg/L	Ethylbenzene	15		**9.8 [0.5]**	**9.3 [0.5]**	**9.2 [0.5]**
8260C	µg/L	Isopropylbenzene	450		**1.9 [0.51] J**	**6.6 [0.51]**	**2.1 [0.51]**
8260C	µg/L	Methyl tert-butyl ether	140		ND [0.44]	ND [0.44]	ND [0.44]
8260C	µg/L	Methylene Chloride	110		ND [1.4]	ND [1.4]	ND [1.4]
8260C	µg/L	m-Xylene & p-Xylene	190		**31 [0.75]**	**38 [0.75]**	**31 [0.75]**
8260C	µg/L	n-Butylbenzene	1000		ND [0.44]	ND [0.44]	**0.48 [0.44] J**
8260C	µg/L	N-Propylbenzene	660		**2 [0.5] J**	**9.7 [0.5]**	**2.1 [0.5] J**

Table Notes and Data Flags are defined at the end of the table

Blue shade indicates ND result has LOD that exceeds ADEC cleanup level

Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel 2019 Groundwater Analytical Results Summary Table, 580-895001-1

			Sample ID	Kobuk-MW1-919	Kobuk-MW2-919	Kobuk-MW3-919	Kobuk-MW12-919
			Location ID	Kobuk-MW1-919	Kobuk-MW2-919	Kobuk-MW3-919	Kobuk-MW12-919
			Collection Date/Time	9/23/2019 1330	9/23/2019 1230	9/23/2019 1030	9/23/2019 1245
			Lab Sample ID	580-89500-1	580-89500-2	580-89500-3	580-89500-4
			Matrix	Water	Water	Water	Water
			Description	Primary	Primary	Primary	Duplicate to MW-2-919
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
8260C	µg/L	o-Xylene	190		**6.7 [0.39]**	**12 [0.39]**	**6.5 [0.39]**
8260C	µg/L	sec-Butylbenzene	2000		ND [0.49]	**2.2 [0.49] J**	ND [0.49]
8260C	µg/L	Styrene	1200		ND [1]	ND [1]	ND [1]
8260C	µg/L	t-Butylbenzene	690		ND [0.58]	ND [0.58]	ND [0.58]
8260C	µg/L	Toluene	1100		**1.5 [0.39] J**	**0.79 [0.39] J**	**1.8 [0.39] J**
8260C	µg/L	trans-1,2-Dichloroethene	360		ND [0.39]	ND [0.39]	ND [0.39]
8260C	µg/L	Trichlorofluoromethane	5200		ND [0.63]	ND [0.63]	ND [0.63]
8260C	µg/L	Xylenes Total	190		**37.7 [1.14]**	**50.0 [1.14]**	**37.5 [1.14]**
8260C SIM	µg/L	1,1,1,2-Tetrachloroethane	5.7		ND [0.009]	ND [0.009]	ND [0.009]
8260C SIM	µg/L	1,1,2,2-Tetrachloroethane	0.76		ND [0.049]	ND [0.049]	ND [0.049]
8260C SIM	µg/L	1,1,2-Trichloroethane	0.41		ND [0.017]	ND [0.017]	ND [0.017]
8260C SIM	µg/L	1,1-Dichloroethene	280		**0.12 [0.014] J**	ND [0.014]	**0.11 [0.014] J**
8260C SIM	µg/L	1,2-Dibromoethane	0.075		ND [0.014]	ND [0.014]	ND [0.014]
8260C SIM	µg/L	1,2-Dichloroethane	1.7		ND [0.024]	ND [0.024]	**0.17 [0.024] J**
8260C SIM	µg/L	1,4-Dichlorobenzene	4.8		ND [0.014]	ND [0.014]	ND [0.014]
8260C SIM	µg/L	2-Hexanone	38		ND [0.098]	ND [0.098]	ND [0.098]
8260C SIM	µg/L	Benzene	4.6		**13 [0.009]**	**0.17 [0.009] J**	**14 [0.009]**
8260C SIM	µg/L	Bromodichloromethane	1.3		ND [0.006]	ND [0.006]	ND [0.006]
8260C SIM	µg/L	Bromoform	33		ND [0.013]	ND [0.013]	ND [0.013]
8260C SIM	µg/L	Bromomethane	7.5		ND [0.012]	ND [0.012]	ND [0.012]
8260C SIM	µg/L	Chloroform	2.2		ND [0.009]	ND [0.009]	ND [0.009]
8260C SIM	µg/L	cis-1,3-Dichloropropene	NS		ND [0.026]	ND [0.026]	ND [0.026]
8260C SIM	µg/L	Dibromochloromethane	8.7		ND [0.016]	ND [0.016]	ND [0.016]
8260C SIM	µg/L	Dibromomethane	8.3		ND [0.017]	ND [0.017]	ND [0.017]
8260C SIM	µg/L	Hexachlorobutadiene	1.4		ND [0.026]	ND [0.026]	ND [0.026]
8260C SIM	µg/L	Naphthalene	1.7		**6.8 [0.013] B**	**35 [0.013] B**	**8 [0.013] B**
8260C SIM	µg/L	Tetrachloroethene	41		**0.15 [0.017] J**	ND [0.017]	**0.15 [0.017] J**
8260C SIM	µg/L	trans-1,3-Dichloropropene	NS		ND [0.027]	ND [0.027]	ND [0.027]
8260C SIM	µg/L	Trichloroethene	2.8		ND [0.009]	ND [0.009]	ND [0.009]
8260C SIM	µg/L	Vinyl chloride	0.19		ND [0.013]	ND [0.013]	ND [0.013]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel 2019 Groundwater Analytical Results Summary Table, 580-895001-1

			Sample ID	Trip Blank
			Location ID	Trip Blank
			Collection Date/Time	9/23/2019 0800
			Lab Sample ID	580-89500-5
			Matrix	Other
			Description	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**
AK 101	µg/L	GRO	2200	ND [100]
AK 102	µg/L	DRO	1500	
8260C	µg/L	Benzene	4.6	
8260C	µg/L	Ethylbenzene	15	
8260C	µg/L	m-Xylene & p-Xylene	190	
8260C	µg/L	o-Xylene	190	
8260C	µg/L	Toluene	1100	
EPA 8270D SIM	µg/L	1-Methylnaphthalene	11	
EPA 8270D SIM	µg/L	2-Methylnaphthalene	36	
EPA 8270D SIM	µg/L	Acenaphthene	530	
EPA 8270D SIM	µg/L	Acenaphthylene	260	
EPA 8270D SIM	µg/L	Anthracene	43	
EPA 8270D SIM	µg/L	Benzo[a]anthracene	0.30	
EPA 8270D SIM	µg/L	Benzo[a]pyrene	0.25	
EPA 8270D SIM	µg/L	Benzo[b]fluoranthene	2.5	
EPA 8270D SIM	µg/L	Benzo[g,h,i]perylene	0.26	
EPA 8270D SIM	µg/L	Benzo[k]fluoranthene	0.80	
EPA 8270D SIM	µg/L	Chrysene	2.0	
EPA 8270D SIM	µg/L	Dibenz(a,h)anthracene	0.25	
EPA 8270D SIM	µg/L	Fluoranthene	260	
EPA 8270D SIM	µg/L	Fluorene	290	
EPA 8270D SIM	µg/L	Indeno[1,2,3-cd]pyrene	0.19	
EPA 8270D SIM	µg/L	Naphthalene	1.7	
EPA 8270D SIM	µg/L	Phenanthrene	170	
EPA 8270D SIM	µg/L	Pyrene	120	
8260C	µg/L	1,1,1-Trichloroethane	8000	ND [0.39]
8260C	µg/L	1,1-Dichloroethane	28	ND [0.22]
8260C	µg/L	1,1-Dichloropropene	NS	ND [0.29]
8260C	µg/L	1,2,3-Trichlorobenzene	7.0	ND [1.1]
8260C	µg/L	1,2,3-Trichloropropane	0.0075	ND [0.41]
8260C	µg/L	1,2,4-Trichlorobenzene	4.0	ND [0.33]
8260C	µg/L	1,2,4-Trimethylbenzene	56	ND [0.61]
8260C	µg/L	1,2-Dibromo-3-Chloropropane	NS	ND [1.8]
8260C	µg/L	1,2-Dichlorobenzene	300	ND [0.46]
8260C	µg/L	1,2-Dichloropropane	4.4	ND [0.18]
8260C	µg/L	1,3,5-Trimethylbenzene	120	ND [0.55]
8260C	µg/L	1,3-Dichlorobenzene	300	ND [0.18]
8260C	µg/L	1,3-Dichloropropane	NS	ND [0.35]
8260C	µg/L	2,2-Dichloropropane	NS	ND [0.32]
8260C	µg/L	2-Chlorotoluene	NS	ND [0.51]
8260C	µg/L	4-Chlorotoluene	NS	ND [0.51]
8260C	µg/L	4-Isopropyltoluene	NS	ND [0.28]
8260C	µg/L	Bromobenzene	62	ND [0.43]
8260C	µg/L	Bromochloromethane	NS	ND [0.29]
8260C	µg/L	Carbon tetrachloride	4.6	ND [0.3]
8260C	µg/L	Chlorobenzene	78	ND [0.44]
8260C	µg/L	Chloroethane	21000	ND [1.1]
8260C	µg/L	Chloromethane	190	ND [5.4]
8260C	µg/L	cis-1,2-Dichloroethene	36	ND [0.69]
8260C	µg/L	Dichlorodifluoromethane	200	ND [2.3]
8260C	µg/L	Ethylbenzene	15	ND [0.5]
8260C	µg/L	Isopropylbenzene	450	ND [0.51]
8260C	µg/L	Methyl tert-butyl ether	140	ND [0.44]
8260C	µg/L	Methylene Chloride	110	ND [1.4]
8260C	µg/L	m-Xylene & p-Xylene	190	ND [0.75]
8260C	µg/L	n-Butylbenzene	1000	ND [0.44]
8260C	µg/L	N-Propylbenzene	660	ND [0.5]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel 2019 Groundwater Analytical Results Summary Table, 580-895001-1

			Sample ID	Trip Blank
			Location ID	Trip Blank
			Collection Date/Time	9/23/2019 0800
			Lab Sample ID	580-89500-5
			Matrix	Other
			Description	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**
8260C	µg/L	o-Xylene	190	ND [0.39]
8260C	µg/L	sec-Butylbenzene	2000	ND [0.49]
8260C	µg/L	Styrene	1200	ND [1]
8260C	µg/L	t-Butylbenzene	690	ND [0.58]
8260C	µg/L	Toluene	1100	ND [0.39]
8260C	µg/L	trans-1,2-Dichloroethene	360	ND [0.39]
8260C	µg/L	Trichlorofluoromethane	5200	ND [0.63]
8260C	µg/L	Xylenes Total	190	ND [1.14]
8260C SIM	µg/L	1,1,1,2-Tetrachloroethane	5.7	ND [0.009]
8260C SIM	µg/L	1,1,2,2-Tetrachloroethane	0.76	ND [0.049]
8260C SIM	µg/L	1,1,2-Trichloroethane	0.41	ND [0.017]
8260C SIM	µg/L	1,1-Dichloroethene	280	ND [0.014]
8260C SIM	µg/L	1,2-Dibromoethane	0.075	ND [0.014]
8260C SIM	µg/L	1,2-Dichloroethane	1.7	ND [0.024]
8260C SIM	µg/L	1,4-Dichlorobenzene	4.8	ND [0.014]
8260C SIM	µg/L	2-Hexanone	38	ND [0.098]
8260C SIM	µg/L	Benzene	4.6	ND [0.009]
8260C SIM	µg/L	Bromodichloromethane	1.3	ND [0.006]
8260C SIM	µg/L	Bromoform	33	ND [0.013]
8260C SIM	µg/L	Bromomethane	7.5	ND [0.012]
8260C SIM	µg/L	Chloroform	2.2	ND [0.009]
8260C SIM	µg/L	cis-1,3-Dichloropropene	NS	ND [0.026]
8260C SIM	µg/L	Dibromochloromethane	8.7	ND [0.016]
8260C SIM	µg/L	Dibromomethane	8.3	ND [0.017]
8260C SIM	µg/L	Hexachlorobutadiene	1.4	ND [0.026]
8260C SIM	µg/L	Naphthalene	1.7	**0.12 [0.013] J B**
8260C SIM	µg/L	Tetrachloroethene	41	ND [0.017]
8260C SIM	µg/L	trans-1,3-Dichloropropene	NS	ND [0.027]
8260C SIM	µg/L	Trichloroethene	2.8	ND [0.009]
8260C SIM	µg/L	Vinyl chloride	0.19	ND [0.013]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel 2019 Groundwater Analytical Results Summary Table, 580-89500-1

Data Flag / Abbreviation	Definition
B	Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank. ND results are not flagged.
D	The reported value is from a dilution.
DL	Detection Limit
H	Analyte result is considered a low estimate due to a hold time exceedance.
J	Analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL
LL	(Low Level) Analysis with lower reporting limits than standard methanol preservative analysis.
LOD	Limit of Detection
LOQ	Limit of Quantitation (equivalent to Method Reporting Limit)
M	Manual integrated compound.
ND	(Not Detected) Analyte not detected above the Method Detection Limit.
NS	(Not Stipulated) Cleanup level not stipulated by ADEC.
NA	Not Analyzed
QH, QL, QN	Analyte result is considered an estimated value biased (high, low, uncertain) due to a quality control failure.
R	Analyte result is rejected; the result is not usable. Note that "R" replaces the chemical result (no result shall be reported with an "R" flag).
RL	Reporting Limit
*	RPD of the LCS/LCSD Exceeds Control Limits

Notes
ADEC regulatory limits / cleanup levels for soil samples are the most stringent of 18 AAC 75.341 Method 2 Table B1 and B2 Cleanup Level for under 40 Inches. 18 AAC 75.341 Revison Dated February 2023.
Results column consists of the results if the compound is detected above the method detection limit. Otherwise it gives the ND symbol. The number in brackets is the LOD.

Appendix D-2:

2020 Analytical Results Summary Table:
580-96236-1

Former Kobuk Feed Fuel, 2020 Analytical Groundwater Results Summary Table, 580-96236-1

				Sample ID	Kobuk-MW1-0720	Kobuk-MW2-0720	Kobuk-MW12-0720	Trip Blank
				Location ID	MW-1	MW-2	MW-12	Trip Blank
				Collection Date/Time	7/22/2020 12:30:00 PM	7/22/2020 1:45:00 PM	7/22/2020 2:00:00 PM	7/22/2020 12:00:00 PM
				Lab Sample ID	580-96236-1	580-96236-2	580-96236-3	580-96236-4
				Matrix	Water	Water	Water	Other
				Description	Primary	Primary	Duplicate ov MW-2	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**		**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
AK101	ug/L	Gasoline Range Organics (GRO)-C6-C10	2200		ND [250]	**2100 [250]**	**2100 [250]**	ND [250]
AK102	ug/L	Diesel Range Organics (DRO) (C10-C25)	1500		**380 [120]**	**1800 [120]**	**1900 [120]**	
8260D	ug/L	1,1,1,2-Tetrachloroethane	5.7			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,1,1-Trichloroethane	8000			ND [3]	ND [3]	ND [3]
8260D	ug/L	1,1,2,2-Tetrachloroethane	0.76			ND [3]	ND [3]	ND [3]
8260D	ug/L	1,1,2-Trichloroethane	0.41			ND [1]	ND [1]	ND [1]
8260D	ug/L	1,1-Dichloroethane	28			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,1-Dichloroethene	280			ND [4]	ND [4]	ND [4]
8260D	ug/L	1,1-Dichloropropene	NS			ND [3]	ND [3]	ND [3]
8260D	ug/L	1,2,3-Trichlorobenzene	7.0			ND [5]	ND [5]	ND [5]
8260D	ug/L	1,2,3-Trichloropropane	0.0075			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,2,4-Trichlorobenzene	4.0			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,2,4-Trimethylbenzene	56			**15 [3]**	**15 [3]**	ND [3]
8260D	ug/L	1,2-Dibromo-3-Chloropropane	NS			ND [10]	ND [10]	ND [10]
8260D	ug/L	1,2-Dibromoethane	0.075			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,2-Dichlorobenzene	300			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,2-Dichloroethane	1.7			ND [2] QN	**0.61 [2] J QN**	ND [2]
8260D	ug/L	1,2-Dichloropropane	8.2			ND [1]	ND [1]	ND [1]
8260D	ug/L	1,3,5-Trimethylbenzene	60			**5.5 [3]**	**6 [3]**	ND [3]
8260D	ug/L	1,3-Dichlorobenzene	300			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,3-Dichloropropane	NS			ND [2]	ND [2]	ND [2]
8260D	ug/L	1,4-Dichlorobenzene	4.8			ND [4]	ND [4]	ND [4]
8260D	ug/L	2,2-Dichloropropane	NS			ND [3]	ND [3]	ND [3]
8260D	ug/L	2-Butanone	5600			ND [20]	ND [20]	ND [20]
8260D	ug/L	2-Chlorotoluene	NS			ND [3]	ND [3]	ND [3]
8260D	ug/L	2-Hexanone	38			ND [20]	ND [20]	ND [20]
8260D	ug/L	4-Chlorotoluene	NS			ND [2]	ND [2]	ND [2]
8260D	ug/L	4-Isopropyltoluene	NS			ND [3]	ND [3]	ND [3]
8260D	ug/L	4-Methyl-2-pentanone	6300			ND [15]	ND [15]	ND [15]
8260D	ug/L	Acetone	14000			ND [50]	**52 [50] B**	**18 [50] J B**
8260D	ug/L	Benzene	4.6		**6.7 [3]**	**90 [3]**	**88 [3]**	ND [3]
8260D	ug/L	Bromobenzene	62			ND [2]	ND [2]	ND [2]
8260D	ug/L	Bromochloromethane	NS			ND [2]	ND [2]	ND [2]
8260D	ug/L	Bromodichloromethane	1.3			ND [2]	ND [2]	ND [2]
8260D	ug/L	Bromoform	33			ND [3]	ND [3]	ND [3]
8260D	ug/L	Bromomethane	7.5			ND [6]	ND [6]	ND [6]
8260D	ug/L	Carbon disulfide	810			ND [3]	ND [3]	ND [3]
8260D	ug/L	Carbon tetrachloride	4.6			ND [3]	ND [3]	ND [3]
8260D	ug/L	Chlorobenzene	78			ND [2]	ND [2]	ND [2]
8260D	ug/L	Chloroethane	21000			ND [5]	ND [5]	ND [5]
8260D	ug/L	Chloroform	2.2			ND [5]	ND [5]	ND [5]
8260D	ug/L	Chloromethane	190			ND [20] *	ND [20] *	ND [20]
8260D	ug/L	cis-1,2-Dichloroethene	36			ND [3]	ND [3]	ND [3]
8260D	ug/L	cis-1,3-Dichloropropene	NS			ND [1]	ND [1]	ND [1]
8260D	ug/L	Dibromochloromethane	8.7			ND [2]	ND [2]	ND [2]
8260D	ug/L	Dibromomethane	8.3			ND [2]	ND [2]	ND [2]
8260D	ug/L	Dichlorodifluoromethane	200			ND [10] *	ND [10] *	ND [10] *
8260D	ug/L	Ethylbenzene	15		ND [3]	**22 [3]**	**22 [3]**	ND [3]
8260D	ug/L	Hexachlorobutadiene	1.4			ND [6]	ND [6]	ND [6]
8260D	ug/L	Isopropylbenzene	450			**4.5 [2]**	**4.5 [2]**	ND [2]
8260D	ug/L	Methyl tert-butyl ether	140			ND [2]	ND [2]	ND [2]
8260D	ug/L	Methylene Chloride	110			ND [5]	ND [5]	ND [5]
8260D	ug/L	m-Xylene & p-Xylene	190		ND [3]	**59 [3]**	**60 [3]**	ND [3]
8260D	ug/L	Naphthalene	1.7			**7.2 [4]**	**7.1 [4]**	ND [4]
8260D	ug/L	n-Butylbenzene	1000			ND [3]	ND [3]	ND [3]
8260D	ug/L	N-Propylbenzene	660			**4 [3]**	**4.5 [3]**	ND [3]
8260D	ug/L	o-Xylene	190		ND [2]	**18 [2]**	**19 [2]**	ND [2]
8260D	ug/L	sec-Butylbenzene	2000			**0.7 [3] J**	**0.76 [3] J**	ND [3]
8260D	ug/L	Styrene	1200			ND [5]	ND [5]	ND [5]

Table Notes and Data Flags are defined at the end of the table

Blue shade indicates ND result has LOD that exceeds ADEC cleanup level

Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed Fuel, 2020 Analytical Groundwater Results Summary Table, 580-96236-1

			Sample ID	Kobuk-MW1-0720	Kobuk-MW2-0720	Kobuk-MW12-0720	Trip Blank
			Location ID	MW-1	MW-2	MW-12	Trip Blank
			Collection Date/Time	7/22/2020 12:30:00 PM	7/22/2020 1:45:00 PM	7/22/2020 2:00:00 PM	7/22/2020 12:00:00 PM
			Lab Sample ID	580-96236-1	580-96236-2	580-96236-3	580-96236-4
			Matrix	Water	Water	Water	Other
			Description	Primary	Primary	Duplicate ov MW-2	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
8260D	ug/L	t-Butylbenzene	690		ND [3]	ND [3]	ND [3]
8260D	ug/L	Tetrachloroethene	41		ND [3]	ND [3]	ND [3]
8260D	ug/L	Toluene	1100	ND [2]	**4 [2]**	**4 [2]**	ND [2]
8260D	ug/L	trans-1,2-Dichloroethene	360		ND [3]	ND [3]	ND [3]
8260D	ug/L	trans-1,3-Dichloropropene	NS		ND [1]	ND [1]	ND [1]
8260D	ug/L	Trichloroethene	2.8		ND [3]	ND [3]	ND [3]
8260D	ug/L	Trichlorofluoromethane	5200		ND [3]	ND [3]	ND [3]
8260D	ug/L	Vinyl chloride	0.19		ND [1]	ND [1]	ND [1]
8270E SIM	ug/L	1-Methylnaphthalene	11		**0.52 [0.11]**	**0.48 [0.12]**	
8270E SIM	ug/L	2-Methylnaphthalene	36		**0.29 [0.22]**	**0.22 [0.23] J**	
8270E SIM	ug/L	Acenaphthene	530		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Acenaphthylene	260		ND [0.056]	ND [0.058]	
8270E SIM	ug/L	Anthracene	43		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Benzo[a]anthracene	0.30		ND [0.056]	ND [0.058]	
8270E SIM	ug/L	Benzo[a]pyrene	0.25		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Benzo[b]fluoranthene	2.5		ND [0.056]	ND [0.058]	
8270E SIM	ug/L	Benzo[g,h,i]perylene	0.26		ND [0.056]	ND [0.058]	
8270E SIM	ug/L	Benzo[k]fluoranthene	0.80		ND [0.056]	ND [0.058]	
8270E SIM	ug/L	Chrysene	2.0		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Dibenz(a,h)anthracene	0.25		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Fluoranthene	260		ND [0.22]	ND [0.23]	
8270E SIM	ug/L	Fluorene	290		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Indeno[1,2,3-cd]pyrene	0.19		ND [0.056]	ND [0.058]	
8270E SIM	ug/L	Naphthalene	1.7		**3.6 [0.11]**	**3.3 [0.12]**	
8270E SIM	ug/L	Phenanthrene	170		ND [0.11]	ND [0.12]	
8270E SIM	ug/L	Pyrene	120		ND [0.11]	ND [0.12]	

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed Fuel, 2020 Analytical Groundwater Results Summary Table, 580-96236-1

Data Flag / Abbreviation	Definition
B	Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank. ND results are not flagged.
D	The reported value is from a dilution.
DL	Detection Limit
H	Analyte result is considered a low estimate due to a hold time exceedance.
J	Analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL
LL	(Low Level) Analysis with lower reporting limits than standard methanol preservative analysis.
LOD	Limit of Detection
LOQ	Limit of Quantitation (equivalent to Method Reporting Limit)
M	Manual integrated compound.
ND	(Not Detected) Analyte not detected above the Method Detection Limit.
NS	(Not Stipulated) Cleanup level not stipulated by ADEC.
NA	Not Analyzed
QH, QL, QN	Analyte result is considered an estimated value biased (high, low, uncertain) due to a quality control failure.
R	Analyte result is rejected; the result is not usable. Note that "R" replaces the chemical result (no result shall be reported with an "R" flag).
RL	Reporting Limit
*	RPD of the LCS/LCSD Exceeds Control Limits

Notes
ADEC regulatory limits / cleanup levels for soil samples are the most stringent of 18 AAC 75.341 Method 2 Table B1 and B2 Cleanup Level for under 40 Inches. 18 AAC 75.341 Revison Dated February 2023.
Results column consists of the results if the compound is detected above the method detection limit. Otherwise it gives the ND symbol. The number in brackets is the LOD.

Appendix D-3:

2021 Analytical Results Summary Table:
1216322-1

Former Kobuk Feed and Fuel, 2021 Analytical Groundwater Results Summary Table, 1216322

			Sample ID	MW1-0921	MW2-0921	MW12-0921	Trip Blank
			Location ID	MW-1	MW-2	MW-2	Trip Blank
			Collection Date/Time	9/24/2021 11:10 AM	9/24/2021 9:30 AM	9/24/2021 9:45 AM	9/24/2021 8:00 AM
			Lab Sample ID	1216322001	1216322002	1216322003	1216322004
			Matrix	Water	Water	Water	Other
			Description	Primary	Primary	Duplicate of MW2-0921	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
AK101	ug/L	Gasoline Range Organics	2200	**58.1 [45.0] J**	**991 [45.0]**	**842 [45.0]**	ND [50.0]
AK102 LV	ug/L	Diesel Range Organics	1500	**537 [208.0] J**	**1330 [200]**	**1290 [200]**	
8270D SIM LV (PAH)	ug/L	1-Methylnaphthalene	11		**0.34 [0.0150]**	**0.317 [0.0150]**	
8270D SIM LV (PAH)	ug/L	2-Methylnaphthalene	36		**0.101 [0.0150] B**	**0.0972 [0.0150] B**	
8270D SIM LV (PAH)	ug/L	Acenaphthene	530		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Acenaphthylene	260		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Anthracene	43		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Benzo(a)Anthracene	0.30		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Benzo[a]pyrene	0.25		ND [0.0100]	ND [0.0102]	
8270D SIM LV (PAH)	ug/L	Benzo[b]Fluoranthene	2.5		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Benzo[g,h,i]perylene	0.26		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Benzo[k]fluoranthene	0.80		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Chrysene	2.0		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Dibenzo[a,h]anthracene	0.25		ND [0.0100]	ND [0.0102]	
8270D SIM LV (PAH)	ug/L	Fluoranthene	260		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Fluorene	290		**0.0200 [0.0150] J**	**0.0232 [0.0150] J**	
8270D SIM LV (PAH)	ug/L	Indeno[1,2,3-c,d] pyrene	0.19		ND [0.0250]	ND [0.0255]	
8270D SIM LV (PAH)	ug/L	Naphthalene	1.7		**2.57 [0.0310]**	**2.4 [0.0310]**	
8270D SIM LV (PAH)	ug/L	Phenanthrene	170		ND [0.0250]	**0.0292 [0.0150] J B**	
8270D SIM LV (PAH)	ug/L	Pyrene	120		ND [0.0250]	ND [0.0255]	
SW8260D	ug/L	1,1,1,2-Tetrachloroethane	5.7		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,1,1-Trichloroethane	8000		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1,2,2-Tetrachloroethane	0.76		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,1,2-Trichloroethane	0.41		ND [0.200]	ND [0.200]	ND [0.200]
SW8260D	ug/L	1,1-Dichloroethane	28		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1-Dichloroethene	280		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1-Dichloropropene	NS		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,3-Trichlorobenzene	7.0		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,3-Trichloropropane	0.0075		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,4-Trichlorobenzene	4.0		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,4-Trimethylbenzene	56		**9.81 [0.310]**	**10 [0.310]**	ND [0.500]
SW8260D	ug/L	1,2-Dibromo-3-chloropropane	NS		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	1,2-Dibromoethane	0.075		ND [0.0375]	ND [0.0375]	ND [0.0375]
SW8260D	ug/L	1,2-Dichlorobenzene	300		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2-Dichloroethane	1.7		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,2-Dichloropropane	8.2		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,3,5-Trimethylbenzene	60		**2.02 [0.310]**	**2.04 [0.310]**	ND [0.500]
SW8260D	ug/L	1,3-Dichlorobenzene	300		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,3-Dichloropropane	NS		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,4-Dichlorobenzene	4.8		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	2,2-Dichloropropane	NS		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	2-Butanone (MEK)	5600		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	2-Chlorotoluene	NS		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	2-Hexanone	38		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	4-Chlorotoluene	NS		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	4-Isopropyltoluene	NS		**0.450 [0.310] J**	**0.470 [0.310] J**	ND [0.500]
SW8260D	ug/L	4-Methyl-2-pentanone (MIBK)	6300		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	Benzene	4.6	**10.6 [0.120]**	**31.9 [0.120]**	**31 [0.120]**	ND [0.200]
SW8260D	ug/L	Bromobenzene	62		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromochloromethane	NS		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromodichloromethane	1.3		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	Bromoform	33		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromomethane	7.5		ND [3.00]	ND [3.00]	ND [3.00]
SW8260D	ug/L	Carbon disulfide	810		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	Carbon tetrachloride	4.6		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Chlorobenzene	78		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	Chloroethane	21000		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Chloroform	2.2		ND [0.500]	ND [0.500]	ND [0.500]

Table Notes and Data Flags are defined at the end of the table

Blue shade indicates ND result has LOD that exceeds ADEC cleanup level

Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel, 2021 Analytical Groundwater Results Summary Table, 1216322

			Sample ID	MW1-0921	MW2-0921	MW12-0921	Trip Blank
			Location ID	MW-1	MW-2	MW-2	Trip Blank
			Collection Date/Time	9/24/2021 11:10 AM	9/24/2021 9:30 AM	9/24/2021 9:45 AM	9/24/2021 8:00 AM
			Lab Sample ID	1216322001	1216322002	1216322003	1216322004
			Matrix	Water	Water	Water	Other
			Description	Primary	Primary	Duplicate of MW2-0921	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
SW8260D	ug/L	Chloromethane	190		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	cis-1,2-Dichloroethene	36		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	cis-1,3-Dichloropropene	NS		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	Dibromochloromethane	8.7		ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	ug/L	Dibromomethane	8.3		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Dichlorodifluoromethane	200		**0.460 [0.310] J**	**0.490 [0.310] J**	ND [0.500]
SW8260D	ug/L	Ethylbenzene	15	ND [0.500]	**9.21 [0.310]**	**9.21 [0.310]**	ND [0.500]
SW8260D	ug/L	Freon-113	10000		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	Hexachlorobutadiene	1.4		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Isopropylbenzene (Cumene)	450		**3 [0.310]**	**3.17 [0.310]**	ND [0.500]
SW8260D	ug/L	Methylene chloride	110		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	Methyl-t-butyl ether	140		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	Naphthalene	1.7		**6.36 [0.310]**	**5.84 [0.310]**	ND [0.500]
SW8260D	ug/L	n-Butylbenzene	1000		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	n-Propylbenzene	660		**2.8 [0.310]**	**3.06 [0.310]**	ND [0.500]
SW8260D	ug/L	o-Xylene	190	ND [0.500]	**10.3 [0.310]**	**10.6 [0.310]**	ND [0.500]
SW8260D	ug/L	P & M -Xylene	190	ND [1.00]	**40.9 [0.620]**	**41.1 [0.620]**	ND [1.00]
SW8260D	ug/L	sec-Butylbenzene	2000		**0.540 [0.310] J**	**0.580 [0.310] J**	ND [0.500]
SW8260D	ug/L	Styrene	1200		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	tert-Butylbenzene	690		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Tetrachloroethene	41		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Toluene	1100	ND [0.500]	**1.75 [0.310]**	**1.83 [0.310]**	ND [0.500]
SW8260D	ug/L	trans-1,2-Dichloroethene	360		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	trans-1,3-Dichloropropene	NS		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Trichloroethene	2.8		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Trichlorofluoromethane	5200		ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	ug/L	Vinyl acetate	410		ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	ug/L	Vinyl chloride	0.19		ND [0.0750]	ND [0.0750]	ND [0.0750]
SW8260D	ug/L	Xylenes (total)	190	ND [1.50]	**51.2 [1.00]**	**51.7 [1.00]**	ND [1.50]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel, 2021 Analytical Groundwater Results Summary Table, 1216322

Data Flag / Abbreviation	Definition
B	Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank. ND results are not flagged.
D	The reported value is from a dilution.
DL	Detection Limit
H	Analyte result is considered a low estimate due to a hold time exceedance.
J	Analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL
LL	(Low Level) Analysis with lower reporting limits than standard methanol preservative analysis.
LOD	Limit of Detection
LOQ	Limit of Quantitation (equivalent to Method Reporting Limit)
M	Manual integrated compound.
ND	(Not Detected) Analyte not detected above the Method Detection Limit.
NS	(Not Stipulated) Cleanup level not stipulated by ADEC.
NA	Not Analyzed
QH, QL, QN	Analyte result is considered an estimated value biased (high, low, uncertain) due to a quality control failure.
R	Analyte result is rejected; the result is not usable. Note that "R" replaces the chemical result (no result shall be reported with an "R" flag).
RL	Reporting Limit
*	RPD of the LCS/LCSD Exceeds Control Limits

Notes
ADEC regulatory limits / cleanup levels for soil samples are the most stringent of 18 AAC 75.341 Method 2 Table B1 and B2 Cleanup Level for under 40 Inches. 18 AAC 75.341 Revison Dated February 2023.
Results column consists of the results if the compound is detected above the method detection limit. Otherwise it gives the ND symbol. The number in brackets is the LOD.

Appendix D-4:

2022 Analytical Results Summary Table:
1225201-1

Former Kobuk Feed and Fuel, 2022 Analytical Groundwater Results Summary Table, 1225201

				Sample ID Location ID Collection Date/Time Lab Sample ID Matrix Description	MW1-0822 MW1-0822 8/26/2022 3:30 PM 1225201001 Water Field Sample	MW2-0822 MW2-0822 8/26/2022 5:00 PM 1225201002 Water Field Sample	MW12-0822 MW12-0822 8/26/2022 5:15 PM 1225201003 Water Duplicate sample to MW2
Method	**Units**	**Analyte**	**ADEC Cleanup Level**		**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
AK101	ug/L	Gasoline Range Organics (GRO)-C6-C10	2200		**84.6 [50.0] J**	**1780 [50.0] QH**	**1750 [50.0]**
AK102	ug/L	Diesel Range Organics (DRO) (C10-C25)	1500		**349 [294] J QL**	**1870 [294] QL**	
8270D SIM LV (PAH)	ug/L	1-Methylnaphthalene	11		ND [0.0261]	**0.474 [0.0255] B**	**0.447 [0.0261] B**
8270D SIM LV (PAH)	ug/L	2-Methylnaphthalene	36		**0.0183 [0.0261] J B**	**0.203 [0.0255] B**	**0.184 [0.0261] B**
8270D SIM LV (PAH)	ug/L	Acenaphthene	530		ND [0.0261]	**0.0475 [0.0255] J**	**0.0376 [0.0261] J**
8270D SIM LV (PAH)	ug/L	Acenaphthylene	260		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Anthracene	43		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Benzo(a)Anthracene	0.3		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Benzo[a]pyrene	0.25		ND [0.0104]	ND [0.0102]	ND [0.0104]
8270D SIM LV (PAH)	ug/L	Benzo[b]Fluoranthene	2.5		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Benzo[g,h,i]perylene	0.26		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Benzo[k]fluoranthene	0.8		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Chrysene	2		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Dibenzo[a,h]anthracene	0.25		ND [0.0104]	ND [0.0102]	ND [0.0104]
8270D SIM LV (PAH)	ug/L	Fluoranthene	260		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Fluorene	290		ND [0.0261]	**0.0313 [0.0255] J**	**0.0243 [0.0261] J**
8270D SIM LV (PAH)	ug/L	Indeno[1,2,3-c,d] pyrene	0.19		ND [0.0261]	ND [0.0255]	ND [0.0261]
8270D SIM LV (PAH)	ug/L	Naphthalene	1.7		**0.0386 [0.0521] J**	**3.49 [0.0510]**	**3.2 [0.0521]**
8270D SIM LV (PAH)	ug/L	Phenanthrene	170		**0.0357 [0.0521] J**	**0.0580 [0.0510] J**	ND [0.0520]
8270D SIM LV (PAH)	ug/L	Pyrene	120		ND [0.0261]	ND [0.0255]	ND [0.0261]
SW8260D	ug/L	1,1,1,2-Tetrachloroethane	5.7			ND [0.250]	ND [0.250]
SW8260D	ug/L	1,1,1-Trichloroethane	8000			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1,2,2-Tetrachloroethane	0.76			ND [0.250]	ND [0.250]
SW8260D	ug/L	1,1,2-Trichloroethane	0.41			ND [0.200]	ND [0.200]
SW8260D	ug/L	1,1-Dichloroethane	28			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1-Dichloroethene	280			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1-Dichloropropene	NS			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,3-Trichlorobenzene	7			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,3-Trichloropropane	0.0075			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,4-Trichlorobenzene	4			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,4-Trimethylbenzene	56			**28.6 [5.0]**	**21.4 [0.500]**
SW8260D	ug/L	1,2-Dibromo-3-chloropropane	NS			ND [5.00]	ND [5.00]
SW8260D	ug/L	1,2-Dibromoethane	0.075			ND [0.0375]	ND [0.0375]
SW8260D	ug/L	1,2-Dichlorobenzene	300			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2-Dichloroethane	1.7			ND [0.250]	ND [0.250]
SW8260D	ug/L	1,2-Dichloropropane	8.2			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,3,5-Trimethylbenzene	60			**3.38 [0.50]**	**2.81 [0.500]**
SW8260D	ug/L	1,3-Dichlorobenzene	300			ND [0.500]	ND [0.500]
SW8260D	ug/L	1,3-Dichloropropane	NS			ND [0.250]	ND [0.250]
SW8260D	ug/L	1,4-Dichlorobenzene	4.8			ND [0.250]	ND [0.250]
SW8260D	ug/L	2,2-Dichloropropane	NS			ND [0.500]	ND [0.500]
SW8260D	ug/L	2-Butanone (MEK)	5600			ND [5.00]	ND [5.00]
SW8260D	ug/L	2-Chlorotoluene	NS			ND [0.500]	ND [0.500]
SW8260D	ug/L	2-Hexanone	38			ND [5.00]	ND [5.00]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel, 2022 Analytical Groundwater Results Summary Table, 1225201

				Sample ID Location ID Collection Date/Time Lab Sample ID Matrix Description	MW1-0822 MW1-0822 8/26/2022 3:30 PM 1225201001 Water Field Sample	MW2-0822 MW2-0822 8/26/2022 5:00 PM 1225201002 Water Field Sample	MW12-0822 MW12-0822 8/26/2022 5:15 PM 1225201003 Water Duplicate sample to MW2
Method	**Units**	**Analyte**	**ADEC Cleanup Level**		**Analytical Results [LOD]**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
SW8260D	ug/L	4-Chlorotoluene	NS			ND [0.500]	ND [0.500]
SW8260D	ug/L	4-Isopropyltoluene	NS			ND [0.500]	ND [0.500]
SW8260D	ug/L	4-Methyl-2-pentanone (MIBK)	6300			ND [5.00]	ND [5.00]
SW8260D	ug/L	Benzene	4.6		**15.3 [0.200]**	**26.2 [0.200]**	**30.2 [0.200]**
SW8260D	ug/L	Bromobenzene	62			ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromochloromethane	NS			ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromodichloromethane	1.3			ND [0.250]	ND [0.250]
SW8260D	ug/L	Bromoform	33			ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromomethane	7.5			ND [3.00]	ND [3.00]
SW8260D	ug/L	Carbon disulfide	810			ND [5.00]	ND [5.00]
SW8260D	ug/L	Carbon tetrachloride	4.6			ND [0.500]	ND [0.500]
SW8260D	ug/L	Chlorobenzene	78			ND [0.250]	ND [0.250]
SW8260D	ug/L	Chloroethane	21000			ND [0.500]	ND [0.500]
SW8260D	ug/L	Chloroform	2.2			ND [0.500]	ND [0.500]
SW8260D	ug/L	Chloromethane	190			**1.04 [0.500] QN**	ND [0.500] QN
SW8260D	ug/L	Dibromochloromethane	8.7			ND [0.250]	ND [0.250]
SW8260D	ug/L	Dibromomethane	8.3			ND [0.500]	ND [0.500]
SW8260D	ug/L	Dichlorodifluoromethane	200			**0.658 [0.500] J**	**0.538 [0.500] J**
SW8260D	ug/L	Ethylbenzene	15		ND [0.500]	**12.1 [0.500]**	**10.2 [0.500]**
SW8260D	ug/L	Freon-113	10000			ND [5.00]	ND [5.00]
SW8260D	ug/L	Hexachlorobutadiene	1.4			ND [0.500]	ND [0.500]
SW8260D	ug/L	Isopropylbenzene (Cumene)	450			**7.92 [0.500]**	**6.18 [0.500]**
SW8260D	ug/L	Methyl-t-butyl ether	140			ND [5.00]	ND [5.00]
SW8260D	ug/L	Methylene chloride	110			ND [5.00]	ND [5.00]
SW8260D	ug/L	Naphthalene	1.7			**1.40 [0.500] QN**	**4.3 [0.500] QN**
SW8260D	ug/L	P & M -Xylene	190		ND [1.00]	**78.2 [1.00]**	**66.3 [1.00]**
SW8260D	ug/L	Styrene	1200			ND [0.500]	ND [0.500]
SW8260D	ug/L	Tetrachloroethene	41			ND [0.500]	ND [0.500]
SW8260D	ug/L	Toluene	1100		ND [0.500]	**3.18 0.500]**	**3.30 [0.500]**
SW8260D	ug/L	Trichloroethene	2.8			ND [0.500]	ND [0.500]
SW8260D	ug/L	Trichlorofluoromethane	5200			ND [0.500]	ND [0.500]
SW8260D	ug/L	Vinyl acetate	410			ND [5.00]	ND [5.00]
SW8260D	ug/L	Vinyl chloride	0.19			ND [0.0750]	ND [0.0750]
SW8260D	ug/L	Xylenes (total)	190		ND [1.50]	**116 [1.50]**	**96.4 [1.50]**
SW8260D	ug/L	cis-1,2-Dichloroethene	36			ND [0.500]	ND [0.500]
SW8260D	ug/L	cis-1,3-Dichloropropene	NS			ND [0.250]	ND [0.250]
SW8260D	ug/L	n-Butylbenzene	1000			**0.836 [0.500] J**	**0.662 [0.500] J**
SW8260D	ug/L	n-Propylbenzene	660			**9.77 [0.500] QN**	**6.84 [0.500] QN**
SW8260D	ug/L	o-Xylene	190		ND [0.500]	**37.6 [0.500]**	**30.1 [0.500]**
SW8260D	ug/L	sec-Butylbenzene	2000			**1.92 [0.500] QN**	**1.36 [0.500] QN**
SW8260D	ug/L	tert-Butylbenzene	690			ND [0.500]	ND [0.500]
SW8260D	ug/L	trans-1,2-Dichloroethene	360			ND [0.500]	ND [0.500]
SW8260D	ug/L	trans-1,3-Dichloropropene	NS			ND [0.500]	ND [0.500]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel, 2022 Analytical Groundwater Results Summary Table, 1225201

			Sample ID	MW3-0822	Trip Blank
			Location ID	MW3-0822	Trip Blank
			Collection Date/Time	8/26/2022 6:00 PM	8/26/2022 8:00 AM
			Lab Sample ID	1225201004	1225201005
			Matrix	Water	Other
			Description	Field Sample	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
AK101	ug/L	Gasoline Range Organics (GRO)-C6-C10	2200	**45.9 [50.0] J**	ND [0.0500]
AK102	ug/L	Diesel Range Organics (DRO) (C10-C25)	1500	**2570 [294] QL**	
8270D SIM LV (PAH)	ug/L	1-Methylnaphthalene	11	**1.79 0.0278] B**	
8270D SIM LV (PAH)	ug/L	2-Methylnaphthalene	36	**1.05 [0.0278] B**	
8270D SIM LV (PAH)	ug/L	Acenaphthene	530	**0.0562 [0.0278]**	
8270D SIM LV (PAH)	ug/L	Acenaphthylene	260	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Anthracene	43	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Benzo(a)Anthracene	0.3	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Benzo[a]pyrene	0.25	ND [0.0111]	
8270D SIM LV (PAH)	ug/L	Benzo[b]Fluoranthene	2.5	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Benzo[g,h,i]perylene	0.26	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Benzo[k]fluoranthene	0.8	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Chrysene	2	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Dibenzo[a,h]anthracene	0.25	ND [0.0111]	
8270D SIM LV (PAH)	ug/L	Fluoranthene	260	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Fluorene	290	**0.14 [0.0278]**	
8270D SIM LV (PAH)	ug/L	Indeno[1,2,3-c,d] pyrene	0.19	ND [0.0278]	
8270D SIM LV (PAH)	ug/L	Naphthalene	1.7	**2.08 [0.0556]**	
8270D SIM LV (PAH)	ug/L	Phenanthrene	170	**0.0596 [0.0556] J**	
8270D SIM LV (PAH)	ug/L	Pyrene	120	ND [0.0278]	
SW8260D	ug/L	1,1,1,2-Tetrachloroethane	5.7	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,1,1-Trichloroethane	8000	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1,2,2-Tetrachloroethane	0.76	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,1,2-Trichloroethane	0.41	ND [0.200]	ND [0.200]
SW8260D	ug/L	1,1-Dichloroethane	28	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1-Dichloroethene	280	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,1-Dichloropropene	NS	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,3-Trichlorobenzene	7	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,3-Trichloropropane	0.0075	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,4-Trichlorobenzene	4	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2,4-Trimethylbenzene	56	**4.64 [0.500]**	ND [0.500]
SW8260D	ug/L	1,2-Dibromo-3-chloropropane	NS	ND [5.00]	ND [5.00]
SW8260D	ug/L	1,2-Dibromoethane	0.075	ND [0.0375]	ND [0.0375]
SW8260D	ug/L	1,2-Dichlorobenzene	300	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,2-Dichloroethane	1.7	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,2-Dichloropropane	8.2	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,3,5-Trimethylbenzene	60	**3.70 [0.500]**	ND [0.500]
SW8260D	ug/L	1,3-Dichlorobenzene	300	ND [0.500]	ND [0.500]
SW8260D	ug/L	1,3-Dichloropropane	NS	ND [0.250]	ND [0.250]
SW8260D	ug/L	1,4-Dichlorobenzene	4.8	ND [0.250]	ND [0.250]
SW8260D	ug/L	2,2-Dichloropropane	NS	ND [0.500]	ND [0.500]
SW8260D	ug/L	2-Butanone (MEK)	5600	ND [5.00]	ND [5.00]
SW8260D	ug/L	2-Chlorotoluene	NS	ND [0.500]	ND [0.500]
SW8260D	ug/L	2-Hexanone	38	ND [5.00]	ND [5.00]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel, 2022 Analytical Groundwater Results Summary Table, 1225201

			Sample ID	MW3-0822	Trip Blank
			Location ID	MW3-0822	Trip Blank
			Collection Date/Time	8/26/2022 6:00 PM	8/26/2022 8:00 AM
			Lab Sample ID	1225201004	1225201005
			Matrix	Water	Other
			Description	Field Sample	Trip Blank
Method	**Units**	**Analyte**	**ADEC Cleanup Level**	**Analytical Results [LOD]**	**Analytical Results [LOD]**
SW8260D	ug/L	4-Chlorotoluene	NS	ND [0.500]	ND [0.500]
SW8260D	ug/L	4-Isopropyltoluene	NS	**0.334 [0.500] J**	ND [0.500]
SW8260D	ug/L	4-Methyl-2-pentanone (MIBK)	6300	ND [5.00]	ND [5.00]
SW8260D	ug/L	Benzene	4.6	ND [0.200]	ND [0.200]
SW8260D	ug/L	Bromobenzene	62	ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromochloromethane	NS	ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromodichloromethane	1.3	ND [0.250]	ND [0.250]
SW8260D	ug/L	Bromoform	33	ND [0.500]	ND [0.500]
SW8260D	ug/L	Bromomethane	7.5	ND [3.00]	ND [3.00]
SW8260D	ug/L	Carbon disulfide	810	ND [5.00]	ND [5.00]
SW8260D	ug/L	Carbon tetrachloride	4.6	ND [0.500]	ND [0.500]
SW8260D	ug/L	Chlorobenzene	78	ND [0.250]	ND [0.250]
SW8260D	ug/L	Chloroethane	21000	ND [0.500]	ND [0.500]
SW8260D	ug/L	Chloroform	2.2	ND [0.500]	ND [0.500]
SW8260D	ug/L	Chloromethane	190	ND [0.500]	ND [0.500]
SW8260D	ug/L	Dibromochloromethane	8.7	ND [0.250]	ND [0.250]
SW8260D	ug/L	Dibromomethane	8.3	ND [0.500]	ND [0.500]
SW8260D	ug/L	Dichlorodifluoromethane	200	ND [0.500]	ND [0.500]
SW8260D	ug/L	Ethylbenzene	15	**0.659 [0.500] J**	ND [0.500]
SW8260D	ug/L	Freon-113	10000	ND [5.00]	ND [5.00]
SW8260D	ug/L	Hexachlorobutadiene	1.4	ND [0.500]	ND [0.500]
SW8260D	ug/L	Isopropylbenzene (Cumene)	450	**0.438 [0.500] J**	ND [0.500]
SW8260D	ug/L	Methyl-t-butyl ether	140	ND [5.00]	ND [5.00]
SW8260D	ug/L	Methylene chloride	110	ND [5.00]	ND [5.00]
SW8260D	ug/L	Naphthalene	1.7	**4.2 [0.500]**	ND [0.500]
SW8260D	ug/L	P & M -Xylene	190	**4.05 [1.00]**	ND [1.00]
SW8260D	ug/L	Styrene	1200	ND [0.500]	ND [0.500]
SW8260D	ug/L	Tetrachloroethene	41	ND [0.500]	ND [0.500]
SW8260D	ug/L	Toluene	1100	ND [0.500]	ND [0.500]
SW8260D	ug/L	Trichloroethene	2.8	ND [0.500]	ND [0.500]
SW8260D	ug/L	Trichlorofluoromethane	5200	ND [0.500]	ND [0.500]
SW8260D	ug/L	Vinyl acetate	410	ND [5.00]	ND [5.00]
SW8260D	ug/L	Vinyl chloride	0.19	ND [0.0750]	ND [0.0750]
SW8260D	ug/L	Xylenes (total)	190	**6.09 [1.50]**	ND [1.50]
SW8260D	ug/L	cis-1,2-Dichloroethene	36	ND [0.500]	ND [0.500]
SW8260D	ug/L	cis-1,3-Dichloropropene	NS	ND [0.250]	ND [0.250]
SW8260D	ug/L	n-Butylbenzene	1000	ND [0.500]	ND [0.500]
SW8260D	ug/L	n-Propylbenzene	660	**0.516 [0.500] J**	ND [0.500]
SW8260D	ug/L	o-Xylene	190	**2.04 [0.500]**	ND [0.500]
SW8260D	ug/L	sec-Butylbenzene	2000	ND [0.500]	ND [0.500]
SW8260D	ug/L	tert-Butylbenzene	690	ND [0.500]	ND [0.500]
SW8260D	ug/L	trans-1,2-Dichloroethene	360	ND [0.500]	ND [0.500]
SW8260D	ug/L	trans-1,3-Dichloropropene	NS	ND [0.500]	ND [0.500]

Table Notes and Data Flags are defined at the end of the table
Blue shade indicates ND result has LOD that exceeds ADEC cleanup level
Gray shade indicates ADEC cleanup level exceedance

Former Kobuk Feed and Fuel, 2022 Analytical Groundwater Results Summary Table, 1225201

Data Flag / Abbreviation	Definition
B	Analyte result is considered a high estimated value due to contamination present in the method, trip, or equipment blank. ND results are not flagged.
D	The reported value is from a dilution.
DL	Detection Limit
H	Analyte result is considered a low estimate due to a hold time exceedance.
J	Analyte result is considered an estimated value because the level is below the laboratory LOQ but above the DL
LL	(Low Level) Analysis with lower reporting limits than standard methanol preservative analysis.
LOD	Limit of Detection
LOQ	Limit of Quantitation (equivalent to Method Reporting Limit)
M	Manual integrated compound.
ND	(Not Detected) Analyte not detected above the Method Detection Limit.
NS	(Not Stipulated) Cleanup level not stipulated by ADEC.
NA	Not Analyzed
QH, QL, QN	Analyte result is considered an estimated value biased (high, low, uncertain) due to a quality control failure.
R	Analyte result is rejected; the result is not usable. Note that "R" replaces the chemical result (no result shall be reported with an "R" flag).
RL	Reporting Limit
*	RPD of the LCS/LCSD Exceeds Control Limits

Notes
ADEC regulatory limits / cleanup levels for soil samples are the most stringent of 18 AAC 75.341 Method 2 Table B1 and B2 Cleanup Level for under 40 Inches. 18 AAC 75.341 Revison Dated February 2023.
Results column consists of the results if the compound is detected above the method detection limit. Otherwise it gives the ND symbol. The number in brackets is the LOD.

Appendix D-5:

Historical Analytical Results Summary Tables

MW1 Historical Results

Sample Location	Sample ID	Date Sampled	EPA Method 8021B or 8260B				Alaska Method AK 101	Alaska Method AK 102
			Benzene in µg/L*	Toluene in µg/L*	Ethylbenzene in µg/L*	Total xylenes in in µg/L*	GRO in µg/L*	DRO in µg/L*
MW-1	MW1-K-1008	10/22/2008	ND	ND	ND	ND	ND	ND
	MW1-K-0809	8/20/2009	ND	ND	ND	ND	N/A	**480**
	MW1-911	9/14/2011	**1.24**	ND	ND	ND	ND	ND
	MW1-1012	10/17/2012	**1.77**	ND	ND	ND	ND	ND
	MW1-K-0713	7/22/2013	**0.772**	ND	ND	ND	ND	ND
	MW1-K-0814	8/13/2014	ND	ND	ND	ND	**68 B**	**38 B**
	MW1-K-0915	9/22/2015	**3.92**	ND	**5.20 J**	**2.23 J**	**40.0 J**	**439 J**
	MW1-1016	10/25/2016	**1.69**	ND	ND	ND	ND	**283**
	MW1-0817	8/16/2017	ND	ND	ND	ND	ND	**270**
	MW1-718	7/20/2018	ND [3.0]	ND [2.0]	ND [3.0]	ND [5.0]	**100 J QH**	ND [250]
	Kobuk-MW1-919	9/23/2019	ND [0.53]	ND [0.39]	ND [0.5]	ND [1.14]	ND [100]	ND [9.8]
	Kobuk-MW-0720	7/22/2020	**6.7 [3]**	ND [2]	ND [3]	ND [5.0]	ND [250]	**380 [120]**
	MW1-0921	9/24/2021	**10.6 [0.120]**	ND [0.500]	ND [0.500]	ND [1.5]	**58.1 [45.0] J**	**537 [208.0] J**
	MW1-0822	8/26/2022	**15.3 [0.200]**	ND [0.500]	ND [0.500]	ND [1.5]	**84.6 [50.0] J**	**349 [294] J QL**
ADEC Cleanup Level			**4.6**	**1100**	**15**	**190**	**2200**	**1500**

MW-2 Historical Results

Method	Analyte	ADEC CULs (ug/L)	MW2-K-1008 (2008)	DUP-K-1008 (2008)	MW2-K-0809 (2009)	MW2-911 (2011)	DUP1-911 (2011)	MW2-1012 (2012)	MW2-K-0713 (2013)	MW2-K-0814 (2014)	MW2-K-0915 (2015)	MW2-1016 (2016)	MW2-0817 (2017)	DUP-0817 (2017)	MW2-718 (2018)	Kobuk-MW2-919 (2019)	Kobuk-MW12-919 (2019)	Kobuk-MW2-0720 (2020)	Kobuk-MW12-0720 (2020)	MW2-0921 (2021)	MW12-0921 (2021)	MW2-0822 (2022)	MW12-0822 (2022)
AK 101	GRO	2200	5410	5020	N/A	1930	2160	2830	1500	2200 B	808	656	840 J	1100	790 H	360 [100]	210 [100] J	2100 [250]	2100 [250]	991 [45.0]	842 [45.0]	1780 [50.0] QH	1750 [50.0]
AK 102	DRO	1500	1310	1670	460	444	549	631	859	1200 B	785	2750	940	930	460 QN	360 [9.8]	380 [100]	1800 [120]	1900 [120]	1330 [200]	1290 [200]	1870 [294] QL	
EPA 8270D SIM	1-Methylnaphthalene	11														0.62 [0.023]	0.56 [0.023]	0.52 [0.11]	0.48 [0.12]	0.34 [0.0150]	0.317 [0.0150]	0.474 [0.0255] B	0.447 [0.0261] B
EPA 8270D SIM	2-Methylnaphthalene	36														0.24 [0.044]	0.19 [0.044]	0.29 [0.22]	0.22 [0.23] J	0.101 [0.0150] B	0.0972 [0.0150] B	0.203 [0.0255] B	0.184 [0.0261] B
EPA 8270D SIM	Acenaphthene	530														0.022 [0.022] J	ND [0.022]	ND [0.11]	ND [0.12]	ND [0.0250]	ND [0.0255]	0.0475 [0.0255] J	0.0376 [0.0261] J
EPA 8270D SIM	Acenaphthylene	260														ND [0.016]	ND [0.016]	ND [0.056]	ND [0.058]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Anthracene	43														ND [0.025]	ND [0.025]	ND [0.11]	ND [0.12]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Benzo[a]anthracene	0.30														ND [0.012]	ND [0.012]	ND [0.056]	ND [0.058]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Benzo[a]pyrene	0.25														ND [0.012]	ND [0.012]	ND [0.11]	ND [0.12]	ND [0.0100]	ND [0.0102]	ND [0.0102]	ND [0.0104]
EPA 8270D SIM	Benzo[b]fluoranthene	2.5														ND [0.011]	ND [0.011]	ND [0.056]	ND [0.058]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Benzo[a,h,i]perylene	0.26														ND [0.021]	ND [0.021]	ND [0.056]	ND [0.058]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Benzo[k]fluoranthene	0.80														ND [0.015]	ND [0.015]	ND [0.056]	ND [0.058]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Chrysene	2.0														ND [0.01]	ND [0.01]	ND [0.11]	ND [0.12]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Dibenz(a,h)anthracene	0.25														ND [0.013]	ND [0.013]	ND [0.11]	ND [0.12]	ND [0.0100]	ND [0.0102]	ND [0.0102]	ND [0.0104]
EPA 8270D SIM	Fluoranthene	260														ND [0.017]	ND [0.017]	ND [0.22]	ND [0.23]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Fluorene	290														0.023 [0.016] J	0.022 [0.016] J	ND [0.11]	ND [0.12]	0.0200 [0.0150] J	0.0232 [0.0150] J	0.0313 [0.0255] J	0.0243 [0.0261] J
EPA 8270D SIM	Indeno[1,2,3-cd]pyrene	0.19														ND [0.022]	ND [0.022]	ND [0.056]	ND [0.058]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
EPA 8270D SIM	Naphthalene	1.7														4.1 [0.053]	3.7 [0.053]	3.6 [0.11]	3.3 [0.12]	2.57 [0.0310]	2.4 [0.0310]	3.49 [0.0510]	3.2 [0.0521]
EPA 8270D SIM	Phenanthrene	170														ND [0.056]	ND [0.056]	ND [0.11]	ND [0.12]	ND [0.0250]	0.0292 [0.0150] J B	0.0580 [0.0510] J	ND [0.0520]
EPA 8270D SIM	Pyrene	120														ND [0.026]	ND [0.026]	ND [0.11]	ND [0.12]	ND [0.0250]	ND [0.0255]	ND [0.0255]	ND [0.0261]
SW8260D	1,1,1,2-Tetrachloroethane	5.7														ND [0.009]	ND [0.009]	ND [2]	ND [2]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	1,1,1-Trichloroethane	8000														ND [0.39]	ND [0.39]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,1,2,2-Tetrachloroethane	0.76														ND [0.049]	ND [0.049]	ND [3]	ND [3]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	1,1,2-Trichloroethane	0.41														ND [0.017]	ND [0.017]	ND [1]	ND [1]	ND [0.200]	ND [0.200]	ND [0.200]	ND [0.200]
SW8260D	1,1-Dichloroethane	28														ND [0.22]	ND [0.22]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,1-Dichloroethene	280														0.12 [0.014] J	0.11 [0.014] J	ND [4]	ND [4]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,1-Dichloropropene	NS														ND [0.29]	ND [0.29]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,2,3-Trichlorobenzene	7														ND [1.1]	ND [1.1]	ND [5]	ND [5]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,2,3-Trichloropropane	0.0075														ND [0.41]	ND [0.41]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,2,4-Trichlorobenzene	4														ND [0.33]	ND [0.33]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,2,4-Trimethylbenzene	56														7.1 [0.61]	7.1 [0.61]	15 [3]	15 [3]	9.81 [0.310]	10 [0.310]	28.6 [5.0]	21.4 [0.500]
SW8260D	1,2-Dibromo-3-chloropropane	NS														ND [1.8]	ND [1.8]	ND [10]	ND [10]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	1,2-Dibromoethane	0.075														ND [0.014]	ND [0.014]	ND [2]	ND [2]	ND [0.0375]	ND [0.0375]	ND [0.0375]	ND [0.0375]
SW8260D	1,2-Dichlorobenzene	300														ND [0.46]	ND [0.46]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,2-Dichloroethane	1.7														ND [0.024]	0.17 [0.024] J	ND [2] QN	0.61 [2] J QN	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	1,2-Dichloropropane	8.2														ND [0.18]	ND [0.18]	ND [1]	ND [1]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,3,5-Trimethylbenzene	60														2.7 [0.55] J	2.8 [0.55] J	5.5 [3]	6 [3]	2.02 [0.310]	2.04 [0.310]	3.38 [0.50]	2.81 [0.500]
SW8260D	1,3-Dichlorobenzene	300														ND [0.18]	ND [0.18]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	1,3-Dichloropropane	NS														ND [0.35]	ND [0.35]	ND [2]	ND [2]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	1,4-Dichlorobenzene	4.8														ND [0.014]	ND [0.014]	ND [4]	ND [4]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	2,2-Dichloropropane	NS														ND [0.32]	ND [0.32]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	2-Butanone (MEK)	5600																ND [20]	ND [20]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	2-Chlorotoluene	NS														ND [0.51]	ND [0.51]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	2-Hexanone	38														ND [0.098]	ND [0.098]	ND [20]	ND [20]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	4-Chlorotoluene	NS														ND [0.51]	ND [0.51]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	4-Isopropyltoluene	NS														ND [0.28]	0.62 [0.28] J	ND [3]	ND [3]	0.450 [0.310] J	0.470 [0.310] J	ND [0.500]	ND [0.500]
SW8260D	4-Methyl-2-pentanone (MIBK)	6300																ND [15]	ND [15]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	Acetone	14000																ND [50]	52 [50] B				
SW8260D	Benzene	4.6	96.4	93.2	98.6	32.2	34.1	31.4	51.2	21	21.1	24.7	23 H	22 H	20	13 [0.009]	14 [0.009]	90 [3]	88 [3]	31.9 [0.120]	31 [0.120]	26.2 [0.200]	30.2 [0.200]
SW8260D	Bromobenzene	62														ND [0.43]	ND [0.43]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Bromochloromethane	NS														ND [0.29]	ND [0.29]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Bromodichloromethane	1.3														ND [0.006]	ND [0.006]	ND [2]	ND [2]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	Bromoform	33														ND [0.013]	ND [0.013]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Bromomethane	7.5														ND [0.012]	ND [0.012]	ND [6]	ND [6]	ND [3.00]	ND [3.00]	ND [3.00]	ND [3.00]
SW8260D	Carbon disulfide	810																ND [3]	ND [3]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	Carbon tetrachloride	4.6														ND [0.3]	ND [0.3]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Chlorobenzene	78														ND [0.44]	ND [0.44]	ND [2]	ND [2]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	Chloroethane	21000														ND [1.1]	ND [1.1]	ND [5]	ND [5]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Chloroform	2.2														ND [0.009]	ND [0.009]	ND [5]	ND [5]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Chloromethane	190														ND [5.4]	ND [5.4]	ND [20] *	ND [20] *	ND [0.500]	ND [0.500]	1.04 [0.500] QN	ND [0.500] QN
SW8260D	cis-1,2-Dichloroethene	36														ND [0.69]	ND [0.69]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	cis-1,3-Dichloropropene	NS														ND [0.026]	ND [0.026]	ND [1]	ND [1]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	Dibromochloromethane	8.7														ND [0.016]	ND [0.016]	ND [2]	ND [2]	ND [0.250]	ND [0.250]	ND [0.250]	ND [0.250]
SW8260D	Dibromomethane	8.3														ND [0.017]	ND [0.017]	ND [2]	ND [2]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Dichlorodifluoromethane	200														ND [2.3]	ND [2.3]	ND [10] *	ND [10] *	0.460 [0.310] J	0.490 [0.310] J	0.658 [0.500] J	0.538 [0.500] J
SW8260D	Ethylbenzene	15	262	250	32.6	36	41.8	44.3	33.5	7.5	22.8	30	14	11	20	9.8 [0.5]	9.2 [0.5]	22 [3]	22 [3]	9.21 [0.310]	9.21 [0.310]	12.1 [0.500]	10.2 [0.500]
SW8260D	Freon-113	10000																		ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	Hexachlorobutadiene	1.4														ND [0.026]	ND [0.026]	ND [6]	ND [6]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Isopropylbenzene (Cumene)	450														1.9 [0.51] J	2.1 [0.51]	4.5 [2]	4.5 [2]	3 [0.310]	3.17 [0.310]	7.92 [0.500]	6.18 [0.500]
SW8260D	Methylene chloride	110														ND [1.4]	ND [1.4]	ND [5]	ND [5]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	Methyl-t-butyl ether	140														ND [0.44]	ND [0.44]	ND [2]	ND [2]	ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	Naphthalene	1.7														6.8 [0.013] B	8 [0.013] B	7.2 [4]	7.1 [4]	6.36 [0.310]	5.84 [0.310]	1.40 [0.500] QN	4.3 [0.500] QN
SW8260D	n-Butylbenzene	1000														ND [0.44]	0.48 [0.44] J	ND [3]	ND [3]	ND [0.500]	ND [0.500]	0.836 [0.500] J	0.662 [0.500] J
SW8260D	n-Propylbenzene	660														2 [0.5] J	2.1 [0.5] J	4 [3]	4.5 [3]	2.8 [0.310]	3.06 [0.310]	9.77 [0.500] QN	6.84 [0.500] QN
SW8260D	o-Xylene	190														6.7 [0.39]	6.5 [0.39]	18 [2]	19 [2]	10.3 [0.310]	10.6 [0.310]	37.6 [0.500]	30.1 [0.500]
SW8260D	P & M -Xylene	190														31 [0.75]	31 [0.75]	59 [3]	60 [3]	40.9 [0.620]	41.1 [0.620]	78.2 [1.00]	66.3 [1.00]
SW8260D	sec-Butylbenzene	2000														ND [0.49]	ND [0.49]	0.7 [3] J	0.76 [3] J	0.540 [0.310] J	0.580 [0.310] J	1.92 [0.500] QN	1.36 [0.500] QN
SW8260D	Styrene	1200														ND [1]	ND [1]	ND [5]	ND [5]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	tert-Butylbenzene	690														ND [0.58]	ND [0.58]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Tetrachloroethene	41														0.15 [0.017] J	0.15 [0.017] J	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Toluene	1100	19.4	18.2	ND	31	34	20.8	47	4.9	5.47	4.51	3.6	2.9	15	1.5 [0.39] J	1.8 [0.39] J	4 [2]	4 [2]	1.75 [0.310]	1.83 [0.310]	3.18 0.500]	3.30 [0.500]
SW8260D	trans-1,2-Dichloroethene	360														ND [0.39]	ND [0.39]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	trans-1,3-Dichloropropene	NS														ND [0.027]	ND [0.027]	ND [1]	ND [1]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Trichloroethene	2.8														ND [0.009]	ND [0.009]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Trichlorofluoromethane	5200														ND [0.63]	ND [0.63]	ND [3]	ND [3]	ND [0.500]	ND [0.500]	ND [0.500]	ND [0.500]
SW8260D	Vinyl acetate	410																		ND [5.00]	ND [5.00]	ND [5.00]	ND [5.00]
SW8260D	Vinyl chloride	0.19														ND [0.013]	ND [0.013]	ND [1]	ND [1]	ND [0.0750]	ND [0.0750]	ND [0.0750]	ND [0.0750]
SW8260D	Xylenes (total)	190	268	254	55.8	51.3	65.4	53	131	22	60.6	59.6	44.3	33.1	72	37.7 [1.14]	37.5 [1.14]	77 [5]	79 [5]	51.2 [1.00]	51.7 [1.00]	116 [1.50]	96.4 [1.50]

MW-3 Historical Results

Method	Analyte	ADEC CULs (µg/L)	MW3-K-1008 (2008)	MW3-K-0809 (2009)	DUP-K-0809 (2009)	MW3-911 (2011)	MW3-1012 (2012)	DUP1-1012 (2012)	MW3-K-0713 (2013)	DUP-K-0713 (2013)	MW3-K-0814 (2014)	DUP-K-0814 (2014)	MW3-K-0915 (2015)	DUP-K-0915 (2015)	MW3-1016 (2016)	DUP-1016 (2016)	MW3-0817 (2017)	MW3-718 (2018)	D-718 (2018)	Kobuk-MW3-919 (2019)	MW3-0822 (2022)
AK101	GRO	2200	7910	N/A	N/A	5760	13400	11000	2640	2540	2800	4000	1470	1650	1230	1250	1100	800 H QH	830 H QH	180 [100] J	45.9 [50.0] J
AK102	DRO	1500	11600	3040	3260	3910	28500	24400	7340	5840	6100 B	6100 B	3440	3890	5020	5990	4400	5100 QN	1400 QN	1700 [100]	2570 [294] QL
8270D SIM LV (PAH)	1-Methylnaphthalene	11																		16 [0.029]	1.79 0.0278] B
8270D SIM LV (PAH)	2-Methylnaphthalene	36																		14 [0.056]	1.05 [0.0278] B
8270D SIM LV (PAH)	Acenaphthene	530																		0.41 [0.028]	0.0562 [0.0278]
8270D SIM LV (PAH)	Acenaphthylene	260																		0.089 [0.02] J	ND [0.0278]
8270D SIM LV (PAH)	Anthracene	43																		0.046 [0.032] J	ND [0.0278]
8270D SIM LV (PAH)	Benzo[a]anthracene	0.30																		ND [0.015]	ND [0.0278]
8270D SIM LV (PAH)	Benzo[a]pyrene	0.25																		ND [0.015]	ND [0.0111]
8270D SIM LV (PAH)	Benzo[b]fluoranthene	2.5																		ND [0.014]	ND [0.0278]
8270D SIM LV (PAH)	Benzo[g,h,i]perylene	0.26																		ND [0.027]	ND [0.0278]
8270D SIM LV (PAH)	Benzo[k]fluoranthene	0.80																		ND [0.019]	ND [0.0278]
8270D SIM LV (PAH)	Chrysene	2.0																		ND [0.013]	ND [0.0278]
8270D SIM LV (PAH)	Dibenz[a,h]anthracene	0.25																		ND [0.017]	ND [0.0111]
8270D SIM LV (PAH)	Fluoranthene	260																		ND [0.022]	ND [0.0278]
8270D SIM LV (PAH)	Fluorene	290																		1.1 [0.02]	0.14 [0.0278]
8270D SIM LV (PAH)	Indeno[1,2,3-cd]pyrene	0.19																		ND [0.028]	ND [0.0278]
8270D SIM LV (PAH)	Naphthalene	1.7																		14 [0.068]	2.08 [0.0556]
8270D SIM LV (PAH)	Phenanthrene	170																		0.35 [0.071]	0.0596 [0.0556] J
8270D SIM LV (PAH)	Pyrene	120																		ND [0.033]	ND [0.0278]
SW8260D	1,1,1,2-Tetrachloroethane	5.7																		ND [0.009]	ND [0.250]
SW8260D	1,1,1-Trichloroethane	8000																		ND [0.39]	ND [0.500]
SW8260D	1,1,2,2-Tetrachloroethane	0.76																		ND [0.049]	ND [0.250]
SW8260D	1,1,2-Trichloroethane	0.41																		ND [0.017]	ND [0.200]
SW8260D	1,1-Dichloroethane	28																		ND [0.22]	ND [0.500]
SW8260D	1,1-Dichloroethene	280																		ND [0.014]	ND [0.500]
SW8260D	1,1-Dichloropropene	NS																		ND [0.29]	ND [0.500]
SW8260D	1,2,3-Trichlorobenzene	7																		ND [1.1]	ND [0.500]
SW8260D	1,2,3-Trichloropropane	0.0075																		ND [0.41]	ND [0.500]
SW8260D	1,2,4-Trichlorobenzene	4																		ND [0.33]	ND [0.500]
SW8260D	1,2,4-Trimethylbenzene	56																		48 [0.61]	4.64 [0.500]
SW8260D	1,2-Dibromo-3-chloropropane	NS																		ND [1.8]	ND [5.00]
SW8260D	1,2-Dibromoethane	0.075																		ND [0.014]	ND [0.0375]
SW8260D	1,2-Dichlorobenzene	300																		ND [0.46]	ND [0.500]
SW8260D	1,2-Dichloroethane	1.7																		ND [0.014]	ND [0.250]
SW8260D	1,2-Dichloropropane	8.2																		ND [0.024]	ND [0.500]
SW8260D	1,3,5-Trimethylbenzene	60																		23 [0.55]	3.70 [0.500]
SW8260D	1,3-Dichlorobenzene	300																		ND [0.18]	ND [0.500]
SW8260D	1,3-Dichloropropane	NS																		ND [0.35]	ND [0.250]
SW8260D	1,4-Dichlorobenzene	4.8																		ND [0.014]	ND [0.250]
SW8260D	2,2-Dichloropropane	NS																		ND [0.32]	ND [0.500]
SW8260D	2-Butanone (MEK)	5600																			ND [5.00]
SW8260D	2-Chlorotoluene	NS																		ND [0.51]	ND [0.500]
SW8260D	2-Hexanone	38																		ND [0.098]	ND [5.00]
SW8260D	4-Chlorotoluene	NS																		ND [0.51]	ND [0.500]
SW8260D	4-Isopropyltoluene	NS																		3 [0.28]	0.334 [0.500] J
SW8260D	4-Methyl-2-pentanone (MIBK)	6300																			ND [5.00]
SW8260D	Acetone	14000																			
SW8260D	Benzene	4.6	37.9	59.4	59.4	11.4	7.27	6.53	4.27	4.13	0.83	0.84	1.76	2.15	0.5	0.47	0.29 J H	0.16 J	0.19 J	0.17 [0.009] J	ND [0.200]
SW8260D	Bromobenzene	62																		ND [0.43]	ND [0.500]
SW8260D	Bromochloromethane	NS																		ND [0.29]	ND [0.500]
SW8260D	Bromodichloromethane	1.3																		ND [0.006]	ND [0.250]
SW8260D	Bromoform	33																		ND [0.013]	ND [0.500]
SW8260D	Bromomethane	7.5																		ND [0.012]	ND [3.00]
SW8260D	Carbon disulfide	810																			ND [5.00]
SW8260D	Carbon tetrachloride	4.6																		ND [0.3]	ND [0.500]
SW8260D	Chlorobenzene	78																		ND [0.44]	ND [0.250]
SW8260D	Chloroethane	21000																		ND [1.1]	ND [0.500]
SW8260D	Chloroform	2.2																		ND [0.009]	ND [0.500]
SW8260D	Chloromethane	190																		ND [5.4]	ND [0.500]
SW8260D	cis-1,2-Dichloroethene	36																		ND [0.69]	ND [0.500]
SW8260D	cis-1,3-Dichloropropene	NS																		ND [0.026]	ND [0.250]
SW8260D	Dibromochloromethane	8.7																		ND [0.016]	ND [0.250]
SW8260D	Dibromomethane	8.3																		ND [0.017]	ND [0.500]
SW8260D	Dichlorodifluoromethane	200																		ND [2.3]	ND [0.500]
SW8260D	Ethylbenzene	15	605	471	515	266	364	245	192	179	86	79	57.5	57.8	33.9	34.2	27	9.5	9.6	9.3 [0.5]	0.659 [0.500] J
SW8260D	Freon-113	10000																			ND [5.00]
SW8260D	Hexachlorobutadiene	1.4																		ND [0.026]	ND [0.500]
SW8260D	Isopropylbenzene (Cumene)	450																		6.6 [0.51]	0.438 [0.500] J
SW8260D	Methylene chloride	110																		ND [1.4]	ND [5.00]
SW8260D	Methyl-t-butyl ether	140																		ND [0.44]	ND [5.00]
SW8260D	Naphthalene	1.7																		35 [0.013] B	4.2 [0.500]
SW8260D	n-Butylbenzene	1000																		ND [0.44]	ND [0.500]
SW8260D	n-Propylbenzene	660																		9.7 [0.5]	0.516 [0.500] J
SW8260D	o-Xylene	190																		12 [0.39]	2.04 [0.500]
SW8260D	P & M -Xylene	190																		38 [0.75]	4.05 [1.00]
SW8260D	sec-Butylbenzene	2000																		2.2 [0.49] J	ND [0.500]
SW8260D	Styrene	1200																		ND [1]	ND [0.500]
SW8260D	tert-Butylbenzene	690																		ND [0.58]	ND [0.500]
SW8260D	Tetrachloroethene	41																		ND [0.017]	ND [0.500]
SW8260D	Toluene	1100	9	ND	ND	9.72	4.97	4.65	13	10.7	1.5	1.3	1.18	1.2	0.600 J	0.580 J	0.44 J	ND [2.0]	ND [2.0]	0.79 [0.39] J	ND [0.500]
SW8260D	trans-1,2-Dichloroethene	360																		ND [0.39]	ND [0.500]
SW8260D	trans-1,3-Dichloropropene	NS																		ND [0.027]	ND [0.500]
SW8260D	Trichloroethene	2.8																		ND [0.009]	ND [0.500]
SW8260D	Trichlorofluoromethane	5200																		ND [0.63]	ND [0.500]
SW8260D	Vinyl acetate	410																			ND [5.00]
SW8260D	Vinyl chloride	0.19																		ND [0.013]	ND [0.0750]
SW8260D	Xylenes (total)	190	1530	1060	1170	1350	1430	1190	668	756	320	300	344	343	246	242	130	86	88	50.0 [1.14]	6.09 [1.50]

Appendix E:

Field Notes & Groundwater Sampling Field Data Sheets

Appendix E-1:

2019 Field Notes & Groundwater Sampling Field Data Sheets

GROUNDWATER SAMPLE FORM

Project #: 17M-380
Date: 9/23/19
Time: 1330
Sampler: SK
Weather: Clear
~~QAQC Sample ID Time~~ LOG ID:

Site Location: Kobuk Feed and Fuel
Probe/Well #: MW-1
Sample ID: Kobuk-MW1-919
Outside Temperature: 45°F
MS/MSD Performed? Yes/No

~~Purge Method:~~ ~~Peristaltic Pump~~ / ~~Submersible~~ / ~~Bladder~~
Sample Method: Peristaltic Pump / Submersible / Bladder / Other
~~Equipment Used for Sampling:~~ ~~YSI #~~ Rental Water Level: 4H

~~Free Product Observed in Probe/Well?~~ Yes/No If Yes, Depth to Product: ~~0~~

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 16.95
Depth to Water from TOC (feet): - 11.46
Column of Water in Probe/Well (feet): = 5.49
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.35

Sampling Depth unknown ~~screen~~ screen interval
Well Screened Across / Below water table
Depth tubing / pump intake set* approx. 12.5 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acro the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize: ±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	<0.33 feet after initial drawdown
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	3	5.9	0.743	1.89	7.01	53.0	11.47
0.50	6	5.7	0.717	1.08	7.04	15.8	11.47
0.75	9	5.4	0.681	0.75	7.04	-3.3	11.48
1.00	12	5.4	0.667	0.66	7.02	-8.9	11.48
1.25	15	5.4	0.661	0.58	7.01	-16.2	11.48
1.50	18	5.3	0.664 ✓	0.55 ✓	7.01 ✓	-22.5 x	11.49

Did groundwater parameters stabilize? Yes / No If no, why not? Bottom is soft/silty
Did drawdown stabilize? Yes / No If no, why not?
Was flowrate between 0.03 and 0.15 GPM? Yes/No If no, why not?

Water Color: Clear Yellow Orange Brown/Black (Sand/Silt) Other:
Well Condition: Locked Y/N Labeled with LOC ID: Y/N
Sheen: Yes / No Odor: Yes / No
Comments:
Notes/Comments:

Laboratory Analyses (Circle): ~~VOC~~ GRO DRO ~~PAH~~ BTEX
pH checked of samples: Y / N Approximate volume added (mL): HCl = _____ HNO_3 = _____

Purge Water

Gallons generated: 1.75 Containerized and disposed as IDW? Yes No If No, why not?
Disposal method: POL Water / CERCLA Waste
Sampler's Initials: SK

GROUNDWATER SAMPLE FORM

Project #:	17M-380	**Site Location:**	Kobuk Feed and Fuel
Date:	9/23/19	**Probe/Well #:**	MW-2
Time:	1230	**Sample ID:**	Kobuk-MW2-919
Sampler:	SK		
Weather:	Clear	**Outside Temperature:**	44°F

QA/QC Sample ID/Time/LOCID: Kobuk-MW4-919 / 1245 / MW4 **MS/MSD Performed?** Yes / (No)

Purge Method: (Peristaltic Pump) / Submersible / Bladder **Sample Method:** (Peristaltic Pump) / Submersible / (Bladder) / Other

Equipment Used for Sampling: YSI # Rental **Water Level:** 4.14

Free Product Observed in Probe/Well? Yes / (No) **If Yes, Depth to Product:** —

Column of Water in Probe/Well **Sampling Depth** Unknown screen interval

Total Depth in Probe/Well (feet btoc):	18.36	Well Screened **Across** / **Below** water table	
Depth to Water from TOC (feet):	− 12.89	Depth tubing / pump intake set* approx. 13.8	feet below top of casing
Column of Water in Probe/Well (feet):	= 5.47		

*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acro the water table, or in the middle of the screened interval for wells screened below the water table

Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)

Volume of Water in 1 Probe/Well Casing (gal): 0.35

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	*At least 3 of the 4 parameters below must stabilize* ±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	**<0.33 feet after initial drawdown**
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	3	4.6	0.722	2.22	6.75	+40.0	12.94
0.50	6	4.6	0.684	1.27	6.72	122.0	12.95
0.75	9	4.6	0.671	1.11	6.83	106.2	12.97
1.00	12	4.5	0.670	0.89	6.77	97.9	12.98
1.25	15	4.5	0.670	0.73	6.74	84.4	12.98
1.50	18	4.4	0.670	0.67	6.77	82.3	12.99

Did groundwater parameters stabilize? (Yes) / No **If no, why not?** —

Did drawdown stabilize? (Yes) / No **If no, why not?** —

Was flowrate between 0.03 and 0.15 GPM? (Yes) No **If no, why not?** —

Water Color: (Clear) Yellow Orange Brown/Black (Sand/Silt) Other: —

Well Condition: Locked (Y) / N Labeled with LOC ID: Y / (N) **Comments:** —

Sheen: Yes / (No) **Odor:** Yes / (No) **Notes/Comments:** —

Laboratory Analyses (Circle): (VOC) (GRO) (DRO) (PAH)

pH checked of samples: Y / N **Approximate volume added (mL):** HCl = _____ HNO_3 = _____

Purge Water

Gallons generated: 1.75 Containerized and disposed as IDW? (Yes) / No If No, why not? _____

Disposal method: (POL Water) / CERCLA Waste _____

Sampler's Initials: SK

GROUNDWATER SAMPLE FORM

Project #: 17M-380
Date: 9/23/19
Time: 1030
Sampler: JK
Weather: Clear
QA/QC Sample ID/Time/LOCID:

Site Location: Kobuk Feed and Fuel
Probe/Well #: MW3
Sample ID: Kobuk-MW3-9 19
Outside Temperature: 31°F
MS/MSD Performed? Yes/(No)

Purge Method: (Peristaltic Pump / Submersible / Bladder)
Sample Method: (Peristaltic Pump / Submersible / Bladder) / Other
Equipment Used for Sampling: YSI # Rental Water Level: Y.I.T
Free Product Observed in Probe/Well? Yes/(No) If Yes, Depth to Product: —
Sampling Depth unknown screen interval

Column of Water in Probe/Well
Total Depth in Probe/Well (feet btoc): 18.18
Depth to Water from TOC (feet): - 12.63
Column of Water in Probe/Well (feet): = 5.55
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.35

Well Screened Across / Below water table
Depth tubing / pump intake set* approx. 13.5 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acro the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize				<0.33 feet after initial drawdown
			±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	3	5.7	0.607	3.82	6.62	37.0	13.54
0.50	6	5.5	0.629	0.93	6.69	52.6	|
0.75	9	5.7	0.576	0.47	6.80	59.7	|
1.00	12	5.7	0.540	0.38	6.80	72.9	|
1.25	15	5.6	0.529	0.37	6.76	76.3	|
1.50	18	5.6	0.537	0.38	6.79	79.1	↓

Did groundwater parameters stabilize? (Yes) / No If no, why not?
Did drawdown stabilize? Yes/(No) If no, why not? well did not recharge adequately even after aggitating wl surge block/screen oxidized over
Was flowrate between 0.03 and 0.15 GPM? Yes/(No) If no, why not?

Water Color: (Clear) Yellow Orange Brown/Black (Sand/Silt) Other:
Well Condition: Lock (Y) N Labeled with LOC ID: Y (N)
Sheen: Yes (No) Odor: Yes (No)
Comments:
Notes/Comments:

Laboratory Analyses (Circle): (VOC) GRO (DRO) PAH
pH checked of samples: Y / N Approximate volume added (mL): HCl = _____ HNO_3 = _____

Purge Water
Gallons generated: 2.0 Containerized and disposed as IDW? (Yes) No If No, why not?
Disposal method: (POL Water) / CERCLA Waste
Sampler's Initials: JK

Appendix E-2:

2020 Field Notes & Groundwater Sampling Field Data Sheets

7/22/20 Kobuk F&F

1115 Arrive on site: SKlyashtorny
Purpose: Collect GW samples from wells MW-1/MW-2/MW-3 and a duplicate from MW-12 (Dup ID)

Weather: Lt. Rain
Temp: 52- °F Wind: 0- MPH

Time	ID	Notes
1230	Kobuk-MW1-0720	BTEX/GRO/DRO
1345	Kobuk-MW2-0720	VOC/GRO/DRO/PAH
1400	Kobuk-MW12-0720	" Dub of MW2
	Kobuk-MW3-0720	"

1500 MW-3 tested for product @ thickness of ~0.01'. assumed it would be minor as this well has never had product and decided to sample. Well drew down to tip of tubing that was set @ ~0.5' btow. pumped ~1/3 of flow through cell before well drew down and I noticed product in the cell, pumping stopped. Site on the rain.

7/22/20 Kobuk F&F

1500 Called Dustin and he instructed me to forego sampling this well and attempt to remove as much fuel/product as possible from the well.
→ No sheen is visible on the ponds created by the excavated tank pits.

1540 Well is recharging very slowly. only @proximately 0.25 gallons removed in the last 40 minutes.

1550 Leaving Site

GROUNDWATER SAMPLE FORM — Kobuk Feed and Fuel

Project #: 17M-380
Date: 7/22/20
Time: 1230
Sampler: JK
Weather: Rain
QA/QC Sample ID/Time/LOCID:

Site Location: Kobuk Feed and Fuel
Probe/Well #: MW-1
Sample ID: Kobuk-MW1-0720
Outside Temperature: 53°F
MS/MSD Performed? Yes/ No

Purge Method: Peristaltic Pump / Submersible / Bladder
Sample Method: Peristaltic Pump / Submersible / Bladder / Other
Equipment Used for Sampling: YSI # rental **Water Level:** Y/I
Free Product Observed in Probe/Well? Yes/No **If Yes, Depth to Product:** 2

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 16.98
Depth to Water from TOC (feet): - 10.34
Column of Water in Probe/Well (feet): = 6.64
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.42

Sampling Depth

Well Screened **Across / Below** water table
Depth tubing / pump intake set* approx. 11.0 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acro the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize: ±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	<0.33 feet after initial drawdown
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	5.56	0.767	2.95	7.22	-124.3	10.35
0.50	10	4.31	0.709	3.76	7.36	-112.8	10.36
0.75	15	4.27	0.686	6.02	7.24	-91.2	10.36
1.00	20	4.30	0.680	5.98	7.17	-85.9	10.36
1.25	25	4.29	0.677 ✓	5.97 ✓	7.14 ✓	-87.7	10.36

1140

Did groundwater parameters stabilize? Yes / No **If no, why not?**
Did drawdown stabilize? Yes / No **If no, why not?**
Was flowrate between 0.03 and 0.15 GPM? Yes/No **If no, why not?**
Water Color: Clear / Yellow / Orange / Brown/Black (Sand/Silt) / Other:
Well Condition: Lock Y / N Labeled with LOC ID: Y / N
Comments:
Sheen: Yes / No **Odor:** Yes / No
Notes/Comments: Slight
Laboratory Analyses (Circle): BTEX, VOC, GRO, DRO, PAH
pH checked of samples: Y / N **Approximate volume added (mL):** HCl = _____ HNO_3 = _____

Purge Water

Gallons generated: _____ Containerized and disposed as IDW? Yes / No If No, why not? _____
Disposal method: POL Water / CERCLA Waste
Sampler's Initials: JK

GROUNDWATER SAMPLE FORM — Kobuk Feed and Fuel

Project #: 17M-380
Site Location: Kobuk Feed and Fuel
Date: 7/22/20
Probe/Well #: MW2
Time: 1345
Sample ID: Kobuk-MW2-0720
Sampler: JK
Weather: Cloudy / Lt Rain
Outside Temperature: 55°F
QA/QC Sample ID/Time/LOCID: Kobuk-MW12-0720 / 1400 / MW-12
MS/MSD Performed? Yes / No

Purge Method: Peristaltic Pump / Submersible / Bladder
Sample Method: Peristaltic Pump / Submersible / Bladder / Other

Equipment Used for Sampling: YSI # _____ **Water Level:** _____

Free Product Observed in Probe/Well? Yes/No **If Yes, Depth to Product:** _____

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 18.35
Depth to Water from TOC (feet): - 11.90
Column of Water in Probe/Well (feet): =
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): _____

Sampling Depth

Well Screened **Across** / **Below** water table
Depth tubing / pump intake set* approx. _____ feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acro the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize: ±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	<0.33 feet after initial drawdown
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	3.80	0.624	2.64	6.85	-72.0	
0.50	10	3.95	0.659	1.15	6.82	-50.9	
0.75	15	3.87	0.665	0.88	6.81	-34.9	
1.00	20	3.81	0.668	0.69	6.81	-31.2	
1.25	25	3.76	0.670 ✓	0.57 x	6.80 ✓	30.6 ✓	
~~1.50~~	~~30~~						

Did groundwater parameters stabilize? Yes / No **If no, why not?** _____
Did drawdown stabilize? Yes / No **If no, why not?** _____
Was flowrate between 0.03 and 0.15 GPM? Yes / No **If no, why not?** _____
Water Color: Clear / Yellow / Orange / Brown/Black (Sand/Silt) / Other: _____
Well Condition: Lock: Y / N Labeled with LOC ID: Y / N **Comments:** _____
Sheen: Yes / No **Odor:** Yes / No mild **Notes/Comments:** _____
Laboratory Analyses (Circle): BTEX / VOC / GRO / DRO / PAH
pH checked of samples: Y / N **Approximate volume added (mL):** HCl = _____ HNO_3 = _____

Purge Water

Gallons generated: _____ Containerized and disposed as IDW? Yes / No If No, why not? _____
Disposal method: POL Water / CERCLA Waste _____
Sampler's Initials: _____

GROUNDWATER SAMPLE FORM — **Kobuk Feed and Fuel**

Project #: 17M-380
Date: 7/22/20
Time:
Sampler: JK
Weather: Sunny
QA/QC Sample ID/Time/LOCID:

Site Location: Kobuk Feed and Fuel
Probe/Well #: MW-3
Sample ID: ~~Kobuk-MW3-0720~~
Outside Temperature: 55°F
MS/MSD Performed? Yes/(No)

Purge Method: Peristaltic Pump / Submersible / Bladder
Sample Method: Peristaltic Pump / Submersible / Bladder / Other

Equipment Used for Sampling: YSI # _____ **Water Level:** _____

Free Product Observed in Probe/Well? (Yes)/No **If Yes, Depth to Product:** 11.58 ~0.01' product

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): ~~11.59~~ 18.19
Depth to Water from TOC (feet): - 11.59
Column of Water in Probe/Well (feet): =
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): _____

Sampling Depth

Well Screened **Across / Below** water table
Depth tubing / pump intake set* approx._____ feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acro the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	*At least 3 of the 4 parameters below must stabilize*				<0.33 feet after initial drawdown
			±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
			Well Drew Down w/ Cell				
			about 1/3 full - Product came up				
			into cell - No Sample				

Did groundwater parameters stabilize? Yes / No **If no, why not?** _____
Did drawdown stabilize? Yes / No **If no, why not?** _____
Was flowrate between 0.03 and 0.15 GPM? Yes/No **If no, why not?** _____

Water Color: Clear Yellow Orange Brown/Black (Sand/Silt) Other: _____
Well Condition: Lock: Y / N Labeled with LOC ID: Y / N **Comments:** _____
Sheen: Yes / No **Odor:** Yes / No **Notes/Comments:** _____

Laboratory Analyses (Circle): BTEX, VOC, GRO, DRO, PAH
pH checked of samples: Y / N **Approximate volume added (mL):** HCl = _____ HNO_3 = _____

Purge Water

Gallons generated:_____ Containerized and disposed as IDW? Yes / No If No, why not? _____
Disposal method: POL Water / CERCLA Waste _____
Sampler's Initials:_____

Appendix E-3:

2021 Field Notes & Groundwater Sampling Field Data Sheets

9/24/21 Kobuk F&F

0760 Arrive on site
Purpose: Collect GW samples from 3 wells on site

Weather: Snowing
Temp: 31°- Wind: 0- Mph

0800 Measured product in well MW-3 @ 13.28' btoc to an approximate thickness of 0.01'

MW-2/12 → MW2-0921 @0930
MW12-0921 @0945
↳ VOC/GRO/DRO/PAH
MW-1 → MW1-0921 @1110
↳ BTEX/GRO/DRO

1130 Leaving Site

GROUNDWATER SAMPLE FORM — Kobuk Feed and Fuel

Project #: 17M-365
Site Location: Kobuk
Date: 9/24/2021
Probe/Well #: MW- 1
Time: 1110
Sample ID: MW 1 -0921
Sampler: JK
Weather: Snowing
Outside Temperature: 32°F
QA/QC Sample ID/Time/LOCID:
MS/MSD Performed? Yes/No

Purge Method: Peristaltic Pump / Submersible / Bladder
Sample Method: Peristaltic Pump / Submersible / Bladder / Other
Equipment Used for Sampling: YSI # Rental Water Level: YH
Free Product Observed in Probe/Well? Yes/No If Yes, Depth to Product:

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 16.98
Depth to Water from TOC (feet): - 11.90
Column of Water in Probe/Well (feet): = 5.08
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.33

Sampling Depth

Well Screened Across / Below water table
Depth tubing / pump intake set* approx. 13 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acros the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize: ±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	<0.33 feet after initial drawdown
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	4.29	0.912	5.73	7.18	7.3	
0.50	10	4.19	0.836	1.93	7.18	-2.3	
0.75	15	4.15	0.761	1.06	7.13	-6.5	
1.00	20	4.11	0.728	0.73	7.09	-6.8	
1.25	25	4.09	0.715	0.62	7.06	-7.5	
1.50	30	4.09	0.718	0.63	7.05	-9.6	

Did groundwater parameters stabilize? Yes / No If no, why not?
Did drawdown stabilize? Yes / No If no, why not?
Was flowrate between 0.03 and 0.15 GPM? Yes/No If no, why not?
Water Color: Clear Yellow Orange Brown/Black (Sand/Silt) Other:
Well Condition: Lock: Y N Labeled with LOC ID: Y N Comments:
Sheen: Yes / No Odor: Yes / No Notes/Comments:

Laboratory Analyses (Circle): BTEX, VOC, GRO, DRO, PAH

Purge Water
Gallons generated: 2.0 Containerized and disposed as IDW? Yes / No If No, why not?
Disposal method: ROL Water / CERCLA Waste
Sampler's Initials: JK

GROUNDWATER SAMPLE FORM — Kobuk Feed and Fuel

Project #: 17M-365
Site Location: Kobuk
Date: 9/24/2021
Probe/Well #: MW-2
Time: 0930
Sample ID: MW 2-0921
Sampler: JK
Weather: Snow
Outside Temperature: 31°F
QA/QC Sample ID/Time/LOCID: MW12-0921 / 0945 / MW-12
MS/MSD Performed? Yes / (No)

Purge Method: (Peristaltic Pump) / Submersible / Bladder
Sample Method: (Peristaltic Pump) / Submersible / (Bladder) / Other
Equipment Used for Sampling: YSI # Rental
Water Level: 4'H
Free Product Observed in Probe/Well? Yes / (No)
If Yes, Depth to Product: —

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 18.35
Depth to Water from TOC (feet): - 13.47
Column of Water in Probe/Well (feet): = 4.88
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.3

Sampling Depth

Well Screened (Across) / Below water table
Depth tubing / pump intake set* approx. 14.5 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acros the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize				<0.33 feet after initial drawdown
			±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	3.11	0.729	1.46	7.01	46.4	
0.50	10	2.81	0.708	1.09	6.93	33.9	
0.75	15	2.49	0.689	0.88	6.84	21.1	
1.00	20	2.41	0.680	1.06	6.82	13.7	
1.25	25	2.40	0.677	0.75	6.82	7.6	
1.50	30	2.39	0.676	0.66	6.82	1.5	
1.75	35	2.38	0.674	0.60	6.83	2.4	

Did groundwater parameters stabilize? (Yes) / No If no, why not?
Did drawdown stabilize? (Yes) / No If no, why not?
Was flowrate between 0.03 and 0.15 GPM? (Yes)/No If no, why not?
Water Color: (Clear) Yellow Orange Brown/Black (Sand/Silt) Other:
Well Condition: Lock: Y / (N) Labeled with LOC ID: Y / (N) Comments:
Sheen: Yes / (No) Odor: Yes / No Notes/Comments:

Laboratory Analyses (Circle): BTEX VOC GRO DRO PAH

Purge Water
Gallons generated: 2.0 Containerized and disposed as IDW? (Yes) / No If No, why not?
Disposal method: (POL Water) / CERCLA Waste
Sampler's Initials: JK

Appendix E-4:

2022 Field Notes & Groundwater Sampling Field Data Sheets

8/26/22 Kobuk F&F

1415 Arrive on site: Klynstra
Purpose: Collect Annual GW samples

Weather: 58-64°F Cloudy
Temp: ↙ Wind: 0-3 Mph

Time	ID	Notes
1530	MW1-0822	~~BTEX~~/GRO/DRO/PAH
1700	MW2-0822	VOC/GRO/DRO/PAH
1800	MW3-0822	↓
1715	MW12-0822	

1835 Leaving Site.

GROUNDWATER SAMPLE FORM — Kobuk Feed and Fuel

Project #: 17M-365
Date: 8/2/2022
Time: 1530
Sampler: JK
Weather: Cloudy
QA/QC Sample ID/Time/LOCID:

Site Location: Kobuk
Probe/Well #: MW-1
Sample ID: MW 1 -0822
Outside Temperature: 58
MS/MSD Performed? Yes/ No

Purge Method: (Peristaltic Pump) / Submersible / Bladder
Sample Method: Peristaltic Pump / (Submersible) / Bladder / Other
Equipment Used for Sampling: YSI # Rental Water Level: RT
Free Product Observed in Probe/Well? Yes/(No) If Yes, Depth to Product: —

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 16.98
Depth to Water from TOC (feet): - 11.23
Column of Water in Probe/Well (feet): = 5.75
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.37

Sampling Depth

Well Screened **Across** / **Below** water table
Depth tubing / pump intake set* approx. 12.2 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acros the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize				<0.33 feet after initial drawdown
			±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	5.4	0.708	0.55	7.09	-107.9	11.25
0.50	10	4.9	0.667	0.37	7.19	-120.3	11.25
0.75	15	4.8	0.637	0.31	7.22	-124.3	11.25
1.00	20	4.8	0.630	0.32	7.22	-125.1	11.25
1.25	25	5.0 ✓	0.626 ✗	0.30 ✓	7.14 ✓	-125.0 ✓	11.25

Did groundwater parameters stabilize? (Yes) / No If no, why not?
Did drawdown stabilize? (Yes) / No If no, why not?
Was flowrate between 0.03 and 0.15 GPM? (Yes)/No If no, why not?

Water Color: (Clear) Yellow Orange Brown/Black (Sand/Silt) Other:
Well Condition: Lock (Y) / N Labeled with LOC ID: (Y) / N Comments:
Sheen: (Yes) / No Odor: (Yes) / No Notes/Comments:

Laboratory Analyses (Circle): (BTEX), VOC, (GRO), (DRO), (PAH)

Purge Water

Gallons generated: 1.5 Containerized and disposed as IDW? (Yes) / No If No, why not?
Disposal method: (POL Water) / CERCLA Waste
Sampler's Initials: JK

GROUNDWATER SAMPLE FORM — Kobuk Feed and Fuel

Project #: 17M-365
Site Location: Kobuk
Date: 8/26/2022
Probe/Well #: MW-2
Time: 1700
Sample ID: MW 2-0822
Sampler: JK
Weather: Cloudy
Outside Temperature: 63
QA/QC Sample ID/Time/LOCID: MW12-0822 / 1715 / MW-12
MS/MSD Performed? Yes / (No)

Purge Method: Peristaltic Pump / Submersible / Bladder
Sample Method: Peristaltic Pump / Submersible / Bladder / Other
Equipment Used for Sampling: YSI # _____ Water Level: _____
Free Product Observed in Probe/Well? Yes/(No) If Yes, Depth to Product: _____

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 18.35
Depth to Water from TOC (feet): - 12.84
Column of Water in Probe/Well (feet): = 5.51
Circle: Gallons per foot of (.25" (X 0.064)) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.35

Sampling Depth

Well Screened **Across / Below** water table
Depth tubing / pump intake set* approx. 13.8 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acros the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize				<0.33 feet after initial drawdown
			±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	3.3	0.636	0.75	6.98	-57.5	12.87
0.50	10	3.3	0.632	0.52	6.98	-65.3	12.87
0.75	15	3.2	0.627	0.38	6.97	-72.7	12.87
1.00	20	3.3	0.624	0.32	6.91	-74.4	12.88
1.25	25	3.2	0.624	0.29	6.93	-75.0	12.88

Did groundwater parameters stabilize? (Yes) / No If no, why not? _____
Did drawdown stabilize? (Yes) / No If no, why not? _____
Was flowrate between 0.03 and 0.15 GPM? (Yes)/No If no, why not? _____
Water Color: (Clear) Yellow Orange Brown/Black (Sand/Silt) Other: _____
Well Condition: Lock: Y / N Labeled with LOC ID: Y / N Comments: _____
Sheen: Yes / (No) Odor: (Yes) / No Notes/Comments: _____

Laboratory Analyses (Circle): BTEX, (VOC, GRO, DRO, PAH)

Purge Water

Gallons generated: 2.25 Containerized and disposed as IDW? (Yes) / No If No, why not? _____
Disposal method: (POL Water) / CERCLA Waste
Sampler's Initials: JK

GROUNDWATER SAMPLE FORM — **Kobuk Feed and Fuel**

Project #: 17M-365
Site Location: Kobuk
Date: 8/ /2022
Probe/Well #: MW- 3
Time: 1800
Sample ID: MW 3 -0822
Sampler: JK
Weather: Cloudy
Outside Temperature: 64
QA/QC Sample ID/Time/LOCID:
MS/MSD Performed? Yes / No

Purge Method: Peristaltic Pump / Submersible / Bladder
Sample Method: Peristaltic Pump / Submersible / Bladder / Other

Equipment Used for Sampling: YSI # _____ Water Level: _____

Free Product Observed in Probe/Well? Yes/No If Yes, Depth to Product: _____

Column of Water in Probe/Well

Total Depth in Probe/Well (feet btoc): 18.19
Depth to Water from TOC (feet): - 12.66
Column of Water in Probe/Well (feet): = 5.56
Circle: Gallons per foot of 1.25" (X 0.064) or 2" (X 0.163) or 4" (X 0.65)
Volume of Water in 1 Probe/Well Casing (gal): 0.35

Sampling Depth

Well Screened **Across / Below** water table
Depth tubing / pump intake set* approx. 13.5 feet below top of casing
*Tubing/pump intake must be set approximately 2 feet below the water table for wells screened acros the water table, or in the middle of the screened interval for wells screened below the water table

Micropurge well/probe at a rate of 0.03 to 0.15 GPM until parameters stabilize or 3 casing volumes have been removed. If well draws down below tubing or pump intake, stop purging and sample as a low-yield well using a no-purge technique.

Field Parameters:		±3% (or ±0.2°C max)	At least 3 of the 4 parameters below must stabilize				<0.33 feet after initial drawdown
			±3%	±10% (<1mg/L, ±0.2 mg/L)	±0.1 units	±10 mV	
Water Removed (gal)	Time Purged (min)	Temperature (°C)	Conductivity (mS/cm)	Dissolved O_2 (mg/L)	pH	Potential (mV)	Water Level (ft)
0.25	5	7.8	0.540	6.16	6.76	-77.4	—
0.50	10	9.4	0.514	7.25	6.80	-53.9	—
0.75	15						
1.00	20						
1.25	25						
		Well drew down before first reading even at minimum flow					

Did groundwater parameters stabilize? Yes / No If no, why not? _____
Did drawdown stabilize? Yes / No If no, why not? _____
Was flowrate between 0.03 and 0.15 GPM? Yes / No If no, why not? _____

Water Color: Clear / Yellow / Orange / Brown/Black (Sand/Silt) / Other: _____
Well Condition: Lock: Y / N Labeled with LOC ID: Y / N Comments: _____
Sheen: Yes / No Odor: Yes / No Strong odor Notes/Comments: _____

Laboratory Analyses (Circle): BTEX, VOC, GRO, DRO, PAHs

Purge Water

Gallons generated: 0.5 Containerized and disposed as IDW? Yes / No If No, why not? _____
Disposal method: POL Water / CERCLA Waste
Sampler's Initials: JK

Appendix F:
Disposal Documents

NON-HAZARDOUS WASTE MANIFEST 186982-LH

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: VSQG

Manifest Document No.: 186982A

2. Page 1 of 1

3. Generator's Name and Mailing Address
ALASKA RESOURCES & ENVIRONMENTA
3520 INTERNATIONAL ST.
FAIRBANKS, AK 99701

ALASKA RESOURCES & ENVIRONME
3520 INTERNATIONAL ST.
FAIRBANKS, AK 99701

IN CASE OF EMERGENCY CALL 800-899-4672

4. Generator's Phone ( )

4022T

5. Transporter 1 Company Name: US ECOLOGY

6. US EPA ID Number: MIK593743838

A. State Transporter's ID

B. Transporter 1 Phone: 734-521-8104

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address
US ECOLOGY ALASKA LLC
2020 VIKING DRIVE
ANCHORAGE, AK 99501

10. US EPA ID Number: AKR000004184

E. State Facility's ID

F. Facility's Phone: 907-258-1558

11. WASTE DESCRIPTION	HM		Containers No.	Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a.		Material Not Regulated by DOT	1	TP	140	G
b.						
c.						
d.						

G. Additional Descriptions for Materials Listed Above
I) EA0325 PFOS/PFOA CONTAMINATED WASTEWATER (TP27S)

H. Handling Codes for Wastes Listed Above
D46779

15. Special Handling Instructions and Additional Information
Shipper's Certification: This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation

16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Josh Klyashtorin		1 / 9 / 23

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Pam Wyatt	Pam Wyatt	1 / 9 / 23

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month / Day / Year)
Zach Hamilton		03 / 02 / 23

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name	Signature	Date (Month / Day / Year)
Daryl Girard		03 / 02 / 23

NON-HAZARDOUS WASTE — GENERATOR — TRANSPORTER — FACILITY

Drum Tracking Log for Manifest Number 186982A

Manifest 186982A			Arrived 02-MAR-23				Gen ALASKA RESOURCES & ENVIRONMENTAL SERVICES			Tsdf US ECOLOGY ALASKA LLC	
Document	**Item**	**Line**	**Profile**	**Type**	**Size**	**Oil Fuel**	**Water**	**Antifreeze**	**Sludge**	**Solids**	**Location**
D46779	1	1	EA0325	TP	275	0	140	0	0	0	PAD2: 9346.40 P, 140.00 G
				Totals:		0	140	0	0	0	

CERTIFICATE OF DISPOSAL/RECYCLE

US ecology

GENERATOR:	ALASKA RESOURCES & ENVIRONMENTAL SERVICES 3520 INTERNATIONAL ST. FAIRBANKS, AK 99701
DISPOSAL FACILITY:	US ECOLOGY ALASKA LLC 2020 VIKING DRIVE ANCHORAGE, AK 99501

EPA ID NUMBER: VSQG
MANIFEST/DOCUMENT #: 186982A
DATE OF DISPOSAL/RECYCLE: MAR-02-2023

LINE	WASTE DESCRIPTION	CONTAINERS	TYPE	QUANTITY	UOM
1	PFOS/PFOA CONTAMINATED WASTEWATER (TP275)	1	TP	140	G

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

PREPARED BY: Daryl Girard

SIGNATURE: _____ DATE: MAR 0 2 2023