Phase II Environmental Site Assessment Report of Findings

Former Native Corporation Tank Farm
2nd Avenue and Cottonwood Street
Koyuk, Alaska

Alaska DEC Contaminated Site ID 610.38.003
Alaska DEC Hazard ID 3101

November 2023

Phase II Environmental Site Assessment Report

Former Native Corporation Tank Farm
Cottonwood Street and 2nd Avenue
Koyuk, Alaska 99753
Alaska DEC Contaminated Site ID 610-38-003
Alaska DEC Hazard ID 3101

Prepared for:

KAWERAK, INC.
Environmental Program
P.O. Box 948
Nome, AK 99762

Prepared by:

ESKER
Esker Associates, LLC

P.O. Box 8083
Missoula, MT 59807

November 2023

Esker Project #13

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

AAC	Alaska Administrative Code
ABCA	Analysis of Brownfields Cleanup Alternatives
ADEC	Alaska Department of Environmental Conservation
AK	Alaska
AST	Aboveground Storage Tank
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CFR	Code of Federal Regulations
COC	Chain of Custody
COPC	Contaminant of Potential Concern
CSM	Conceptual Site Model
DNR	Alaska Department of Natural Resources
DQO	Data Quality Objective
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
ERB	Equipment Rinse Blank
ESA	Environmental Site Assessment
GPS	Global Positioning System
GRO	Gasoline Range Organics
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
JSA	Job Safety Analysis
KKA	Koyuk
KNC	Koyuk Native Corporation
LOD	Limit of Detection
LOQ	Limit of Quantitation
MTBE	Methyl Tert Butyl Ether
NEC	Notice of Environmental Contamination
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
REC	Recognized Environmental Condition
RPD	Relative Percent Difference
RRO	Residual Range Organics
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
TP	Test Pit
VOC	Volatile Organic Compound

Executive Summary

In June 2023, contractors to Kawerak, Inc. (Kawerak) completed a Phase II Environmental Site Assessment (ESA) at the former Native Corporation Tank Farm in Koyuk, Alaska. The objective of the ESA was to fill data gaps identified in a 2022 Phase I ESA. The property served as a petroleum hydrocarbon storage facility for several years, and evidence of a subsurface release was previously documented. To complete the ESA, the project team excavated 13 test pits, characterized subsurface conditions, collected and analyzed subsurface soil samples, and installed a groundwater monitoring well.

The soil profile generally consisted of shallow fill material underlain by an interval of fine-grained native soil. Several test pits intersected subsurface water that appeared to have been perched within the relatively permeable fill material and on top of the natural silt-rich soil. The project team noted the presence of seasonally frozen ground within several test pits. In some cases, the depths of test pits were limited by an inability to dig below the frozen layer.

The assessment confirmed the presence of one or more onsite petroleum hydrocarbon release(s). Concentrations of some contaminants exceed State of Alaska human health cleanup levels and/or migration-to-groundwater cleanup levels. Results indicate potential risks to both human health and the environment. Petroleum hydrocarbon compounds have impacted soil near the locations of the current and former aboveground storage tanks (ASTs).

The investigation defined the horizontal extent of soil impacts in some areas of the site. In general, soil impacts do not appear extend off the property in a downgradient direction. The horizontal extent of impacts was not defined in several portions of the property. The Phase II ESA defined the vertical extent of petroleum hydrocarbon impacts to soil at all but one of the test pit locations. Data obtained during this assessment allow for a preliminary estimation of the area and volume of soil that exceeds one or more cleanup levels. The approximate volume of contaminated soil is 3,100 cubic yards.

Subsurface water was encountered in several test pits at depths within 8 feet of ground surface. This water appeared to be perched within coarse-grained fill material. The fine-grained nature of the soil, combined with the presence of seeps of shallow water from above, complicated the identification of a local or regional water table. The depth to (non-perched) subsurface water remains a data gap.

Although one monitoring well was installed, groundwater samples were not collected. The severity and extent of any impacts to the local or regional groundwater system could not be evaluated. However, a sheen observed on perched water, and the possible presence of free product, suggest that subsurface water may have been impacted by the release(s).

Based on information presented in this report, one or more corrective actions will likely be required at the site. As a next step, additional data should be collected to define more fully the vertical and horizontal extents of impacts.

Introduction

Esker Associates, LLC (Esker), in cooperation with ChemTrack Alaska, Inc. (ChemTrack) completed a Phase II Environmental Site Assessment (ESA) at the former Native Corporation Tank Farm in Koyuk, Alaska (**Figure 1** and **Figure 2**). Koyuk residents are concerned about potential impacts to human health and the environment that could have originated at the site.

The Phase II ESA was completed on behalf of the Environmental Program of Kawerak, Inc. (Kawerak) of Nome, Alaska using funds provided by a U.S. Environmental Protection Agency (EPA) Brownfields Assessment Grant. Esker developed the scope of the investigation based on historical documentation, the results of a Phase I ESA completed at the site (NewFields, 2022a), and real-time data collected in the field.

The objective of the ESA was to fill identified data gaps by:

- determining whether RECs identified in the Phase I ESA have resulted in the release of contaminants to soil and groundwater on the site and/or onto nearby properties;
- evaluating the extent and severity of any impacts to soil and groundwater at and near the site; and
- providing information to support evaluations of remedial options and associated costs.

The investigation was completed in accordance with Kawerak's Quality Assurance Project Plan (QAPP; NewFields 2022b) and the Sampling and Analysis Plan (SAP) for the site (Esker 2023), both of which were approved by the U.S. EPA. The Alaska Department of Environmental Conservation (ADEC) reviewed and approved the SAP. Esker prepared this document using guidance provided by EPA and by the ADEC (2017, 2022a).

ChemTrack scientists Harmony Hirsch and Lauren Jennings conducted field data collection activities with support from Adam Johnson of Esker. Ms. Hirsch was the onsite Qualified Environmental Professional (QEP) and field team lead, and Ms. Jennings filled the role of qualified sampler. Kayla Bourdon of Kawerak provided onsite logistical support. Mr. Johnson managed the Phase II ESA and served as the project's overall QEP in accordance with 18 AAC 75.333. He prepared this report in accordance with 18 AAC 75.335 with the assistance of ChemTrack.

Background and General Site Description

The site is located in Koyuk, Alaska at the southwest corner of the intersection of Cottonwood Street and 2nd Avenue (**Figure 2** and **Figure 3**). The approximate latitude and longitude of the property in decimal degrees are 64.92993° North, -161.163340° West, respectively. The site is located at an elevation of approximately 30 feet above mean sea level and comprises two legal land parcels encompassing a total area of approximately 11,300 square feet (0.25 acres; **Figure 3**).

The property's legal description is Koyuk 1993 Subdivision. Plot No. 94-09, Lots 8 and 9. The ADEC described the site's location as Lots eight (8) and nine (9), Block nine (9), Tract "C", as shown on the official plat of U.S. Survey 4390, Koyuk Townsite, in Section 31, Township 6 South, Range 12 West of the Kateel River Meridian.

The property lies in a residential and commercial area in the southwestern part of Koyuk (**Figure 3**). As recently as 2005, the property served as a location for the storage of fuels. The Koyuk Native Corporation (KNC) office is located across the street to the north. The Koyuk Native Store and a residence lie to the east. A former residence was observed to the south, and undeveloped land and a residential property are located to the west. The site is located approximately 300 feet north of Koyuk Inlet of the Pacific Ocean.

The land surface at the property slopes slightly to the south toward the beach. Surface cover comprises soil, rock, gravel, grasses, shrubs, and trees. The project team did not observe surface waters on the developed portion of the property. A small unnamed creek flows from north to south toward the beach (**Figure 4**). The creek channel appears to be located on the western portion of the site and on adjacent land to the west.

Shipping containers and small sheds are located on the property. Several shipping containers were locked, while others contained various equipment, materials and supplies, and solid wastes. The property was unused at the time of the Phase II ESA with the exception of the storage of various materials and equipment.

Koyuk residents are concerned about potential human health and environmental impacts from current and previous uses of the subject property. The City of Koyuk is interested in cleaning up the site to reduce risks to city residents and ecological systems. The community would like to return the property to a green space where people can gather traditional herbs and berries.

According to a 1980 community map of Koyuk, the site contained a "village gasoline tank". By 1996, a "fuel pump house" was located on the property along with three large vertical storage tanks. As of 2004, the three large vertical tanks were still present. At that time, seven or eight unlabeled rectangular polygons were depicted on the site; some of these may have been horizontal fuel tanks.

In 2022, five ASTs were observed on the site ranging from a 100-gallon portable tank to two large tanks with capacities of approximately 10,000 gallons (**Figure 3**). The contents of the tanks are unknown. The Phase I ESA did not provide indications of stained surface soil around any of the tanks, but several areas lacked vegetative cover. The two large ASTs were resting on a partially torn plastic liner that appeared to have been placed directly on bare soil. The large tanks were somewhat rusted and appeared in fair condition. A hydrocarbon odor was observed near the discharge piping at the northern end of the western large tank. Possible AST piping was noted to the southwest of the large horizontal ASTs.

The 2022 Phase I ESA identified three smaller tanks in the southeastern portion of the site (**Figure 3**). These include a small portable trailer-mounted tank with a capacity of approximately 100 gallons and a larger semi-portable blue tank of unknown capacity. Several drums and compressed gas cylinders that appeared empty were noted around the site; some of these had been partially buried.

According to the ADEC, the site previously had five tanks including three vertical ASTs that had been removed and two horizontal ASTs that were situated above a partially torn plastic liner (ADEC 2014). The site visit for the Phase I ESA documented five ASTs, although the vertical ASTs were not present.

The ADEC reported several fuel releases on the site in the 1980s and 1990s. The U.S. Coast Guard issued violations due to a lack of secondary containment around the fuel tanks. An oil spill reportedly occurred in 1988 and a gasoline spill reportedly occurred in 1993. In 1998, a federal scientist observed gasoline dripping from a line used for fueling boats that ran across the property to the south. Gasoline was observed leaking from tank joints in June 2001, and in September 2001 soil samples exhibited benzene and diesel-range organics contamination at the groundwater interface.

The ADEC issued a Notice of Environmental Contamination (NEC) to the KNC on April 9, 2015, informing the corporation that a release identified in 2001 had contaminated soil at concentrations above the default cleanup levels for migration to groundwater. The extent of soil contamination was not defined, and ADEC implemented the following institutional controls:

- Report to ADEC if land uses change;
- Receive approval for any groundwater wells installed at the site;
- Receive approval to transport soil or groundwater offsite; and

- Movement or use of contaminated soil or groundwater in a manner that violates an Alaska state code is prohibited.

The NEC will remain in place until the ADEC provides a written determination that soil and groundwater at the site meets the most stringent cleanup levels and that offsite transportation of soil and groundwater is not a concern. The ADEC issued several NEC reminder letters from 2016 to 2022.

Review of the above information identified the following RECs for the site (NewFields, 2022a):

- Previous use of the site as a petroleum storage tank farm;
- Indications of petroleum releases on the site;
- Documented petroleum contamination in soil; and
- The presence of aboveground storage tanks (ASTs) and drums.

The Phase I ESA report for the site (NewFields, 2022a) provides additional details relating to the site and the surrounding area. Background documents related to the site are contained in **Appendix A**.

Geology and Hydrogeology – General Conditions

Koyuk lies at the mouth of the Koyuk River where the river discharges to Norton Sound. Metamorphic bedrock in the Koyuk area reportedly comprises marble and schist (Till et al., 2010). The Phase I ESA noted the presence of schist outcrops along the shoreline south of the site (NewFields, 2022). The townsite is located on colluvial and lagoonal deposits that may have formed in part by melting of permafrost. The shoreline generally comprises gravel, sand, and silt (Riehle et al., 1981). Prior to Phase II ESA activities, little information about onsite soil types was available.

Site-specific groundwater data were not available during preparation of the SAP for this Phase II ESA. Groundwater on the site likely flows to the south toward the Koyuk River and Koyuk Inlet. The Phase I ESA identified six well logs in the Koyuk area. The log for a well drilled about 700 feet north of the site reported a static water level of about eight (8) feet below ground surface (bgs). Soil contamination was reportedly noted at the groundwater interface in 2001.

Initial Conceptual Site Model (CSM) and Data Gaps

For the SAP, Esker developed a CSM for the former tank farm property based on the general site setting, the findings of previous investigations, and professional knowledge regarding likely conditions at petroleum release sites. Based on the information reviewed, the model includes the following elements:

- Starting prior to 1980, and continuing until as recently as 2005, the site served as a location for the storage of petroleum hydrocarbon fuels.
- Petroleum releases have been documented on the site (see background section). Historical constituent concentrations reportedly exceeded default migration-to-groundwater cleanup levels.
- In 2001, soil samples exhibited benzene and diesel range organics (DRO) contamination at the groundwater interface.
- Regional groundwater on the site likely flows to the south toward the Koyuk River.

The CSM revealed the following data gaps:

- Soil characteristics were largely unknown (e.g., texture and moisture content).
- The depth to groundwater and flow direction were unknown.

- Existing information did not allow an evaluation of the extent and severity of any soil contamination on and near the site.
- Impacts to groundwater had not been confirmed but were suspected based on the presence of soil contaminants detected in historical samples at the water table.
- Offsite impacts to soil and groundwater had not been confirmed but could not be ruled out.

Phase II ESA Purpose and Approach

The purpose of the Phase II ESA was to fill the above data gaps. The investigation targeted soil and groundwater that may have been impacted by several contaminant sources, including:

- Three existing horizontal ASTs;
- Three former vertical ASTs;
- Other possible historical ASTs;
- Smaller portable and semi-portable storage tanks; and
- Possible AST piping observed to the southwest of the former vertical ASTs.

The project team completed several tasks to meet the identified objectives, as follows:

- Excavation of thirteen test pits on and near the site (depths ranged from 5 to 14 feet bgs);
- Collection and analysis of soil samples; and
- Installation of one groundwater monitoring well. The planned well development and groundwater sampling were not completed due to insufficient recharge.

Health and Safety

All personnel working on the site were trained to perform field-related tasks safely and effectively. ChemTrack and Esker staff had current 40-hour Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) training in accordance with the requirements listed under 29 CFR 1910.120. Mr. Johnson ensured that ChemTrack field staff had completed appropriate training prior to the initiation of field work. All onsite staff had the authority to stop work on the project due to potential unsafe conditions. Prior to commencing site work, the project team reviewed the Health and Safety Plan (HASP) developed specifically for the site (Esker 2023). Appendices to the HASP included a Job Safety Analysis and a Tailgate Safety Meeting form. Documentation of a safety meeting completed prior to site work is contained in **Appendix B**.

Field Methods

Initial Preparations and General Procedures

Prior to conducting field work, the project team reviewed the Phase I ESA (NewFields, 2022a), the SAP (Esker 2023), and Kawerak's EPA-approved QAPP (NewFields 2022b). Fieldwork was completed in general accordance with this SAP and Standard Operating Procedures (SOPs) contained in the QAPP. Site-specific work was also completed in accordance with the State of Alaska's Field Sampling Guidance (ADEC 2022a). Esker notified ADEC prior to mobilization of the field team to the project site.

Before initiating the subsurface investigation, the project team identified the locations of onsite and nearby buried utilities. Because third-party utility location companies do not operate in Koyuk, the team met with the City of Koyuk to identify and mark the locations of such utilities. The purpose of the consultation was to avoid damage to subsurface infrastructure during the investigation. The locations of several planned

borings were modified to avoid digging near such utilities. One boring had been planned further north within 2nd Avenue, and a second boring was planned near the intersection of 2nd Avenue and Cottonwood Street. ChemTrack moved the final locations of these borings to reduce the risk of encountering buried utilities. The project team recorded the approximate locations of all identified subsurface utilities (**Figure 3**).

All field activities were documented in accordance with SOPs. Pertinent field investigation and sampling information was recorded in field notes (**Appendix C**) and on appropriate daily field reports (**Appendix D**). The field team recorded the locations of relevant site features using a mapping-grade GPS device provided by Kawerak (Juniper Geode GNS3S with a single-frequency antenna).

Information collected and/or recorded in the field generally consisted of date and time; field team members; weather conditions; field measurements; documentation of instrument calibrations; location of activities and site conditions; field observations and comments; soil types and descriptions; indications of potential contamination; changes to sampling protocols and/or work plan deviations; site photographs and sketches; locations of sampling points; Global Positioning System (GPS) coordinates; and indications of permafrost and/or seasonally frozen ground. Visual and olfactory observations included descriptions of site conditions, indications of soil and groundwater impacts, depth to groundwater, and descriptions of detected odors. A log of selected photographs is included in **Appendix E**.

The field team labeled and packaged samples in accordance with SOPs. Standard laboratory Chain-of-Custody (COC) forms were prepared for soil samples, and standard laboratory turnaround times were requested for the project. The project team selected SGS North America, Inc. of Anchorage, Alaska as the laboratory for this project due to its relative proximity to Koyuk and lab personnel familiarity with Alaska-specific procedures and analyses. Detailed information about the laboratory is provided in its Quality Manual (SGS 2023).

The SAP allowed for the option to modify investigative work based on field conditions or observations (EPA, 2004). This approach promoted real-time decision making related to the extent of observed contaminant impacts. Esker's project manager communicated with ADEC regarding some of the proposed modifications to or deviations from the SAP. ADEC was informed that planned monitoring wells would not be installed in two of the test pits because the regional water table was not encountered. SAP deviations and rationales are documented in this report.

A variety of equipment and wastes are located on the site, including storage tanks, shipping containers, sheds, plastic liners, and compressed gas cylinders. Prior to completion of the Phase II ESA, Kawerak attempted to arrange for the removal of these materials to facilitate the subsurface investigation. However, they remained in place during the assessment. As a result, sampling locations were restricted in some areas. However, in general, the process of test pit excavation was not impacted by the presence of such materials.

During the sampling portion of the investigation, the field team label soil samples with the year of sampling followed by "KKA" for Koyuk, then "TP" for test pit and finally a depth in feet bgs. For example, one of the test pits was named "23KKA TP07 (9.5')" for Test Pit 7 at a depth of 9.5 feet bgs. Due to space considerations, tables of analytical results presented herein do not show the year "23" or the location "KKA".

Required Equipment

The investigation did not make use of a borehole drilling rig because procurement of such equipment would have been logistically complex and cost prohibitive. The project team took advantage of an excavator that

had already been staged in Koyuk to complete test pits for the collection of soil samples. Following sampling, the excavator operator backfilled each test pit and compacted the backfilled soil.

All field equipment was operated, maintained, and calibrated in accordance with SOPs and with procedures recommended by device manufacturers. ChemTrack documented PID calibration results in field notes. The laboratory's Quality Assurance Manual provides details related to the operation, maintenance, and calibration of its equipment.

Subsurface Soil Sampling

As described above, data gaps prevented an evaluation of the current extent and severity of soil contamination on the site. To address soil data gaps, the project team provided oversight during the excavation of 13 test pits to depths ranging from 5 to 14 feet bgs. Test pits were completed from June 22 through June 24, 2023 using a Bobcat E-85 mini-excavator. **Table 1** provides information about the test pits, including ID numbers, descriptive locations, latitude, longitude, approximate ground surface elevations, and total depths. Elevation data are estimates only; such information collected by GPS units typically has a higher degree of error than horizontal location data.

ChemTrack collected subsurface soil samples from most of the test pits. No samples were collected from test pit TP1. Final test pit locations are shown in **Figure 4**. The SAP identified the following Contaminants of Potential Concern (COPCs): gasoline-range organics (GRO); diesel-range organics (DRO); residual-range organics (RRO); benzene, toluene, ethylbenzene, and xylenes (BTEX); volatile organic compounds (VOCs); and lead.

The proposed test pit locations were selected to target the RECs described above. Based on an assumed groundwater flow direction to the south, the investigation also evaluated the southeastern and southwestern property boundaries to evaluate whether contamination from releases at the site could have migrated to adjacent properties. In addition, sampling was completed at the northern edge of the site, near 2nd Avenue and Cottonwood Street, to evaluate potential upgradient subsurface impacts. Test pit TP5 targeted an area downgradient of current and former fuel tanks; this test pit was also located adjacent to an abandoned fuel valve (**Figure 3**); a photograph of the valve is included in **Appendix E**.

Within each test pit, the field team obtained discrete (non-composited) samples of surface and subsurface soils for the purposes of observation and field screening. According to the SAP, material encountered deeper than two feet bgs was considered subsurface soil. All samples collected and submitted for laboratory analysis were obtained from depths of two feet or greater.

ChemTrack and Esker described and classified soils from each test pit. Project staff documented depths to subsurface water and recorded visual and olfactory evidence of contamination. Field observations were recorded on individual test pit logs (**Appendix F**). The team recorded the location of each test pit using Kawerak's mapping-grade GPS device.

During the excavation of test pits, the project team took appropriate precautions to avoid 1) introducing contaminants into excavations and 2) mixing different soil horizons. As detailed in ADEC's Field Sampling Guidance, clean soil should be segregated from contaminated soil during site assessment activities. This Phase II ESA did not involve the permanent stockpiling of soil. The equipment operator temporarily placed excavated soil on the site in such a way that it could be returned to the excavation in approximately the reverse order in which it was removed from the ground.

The field team screened soils for organic vapors using a Photoionization Detector (PID). The instrument facilitated real-time evaluations of the extent of soil contamination and aided in the selection of samples for submittal to the laboratory. Additional field screening consisted of visual and olfactory indications of

contamination. ChemTrack recorded screening measurements and observations on individual test pit logs (**Appendix F**).

The field team modified several proposed test pit locations shown in the SAP due to the presence of buried utilities, the locations of equipment and materials stored at the ground surface, real-time field screening of soil and groundwater impacts, and/or visual/olfactory observations. **Figure 4** shows the final locations of the excavated test pits.

ChemTrack collected fifteen (15) subsurface soil samples for laboratory analysis, including one soil duplicate sample. The number and depth of samples was determined through consultations between ChemTrack and Esker. ChemTrack collected soil samples directly from the excavator bucket and filled soil containers using disposable metal spoons. Information used to select sample depths in a test pit included visual and olfactory observations, PID screening results, lithology observations, soil moisture, and depth to subsurface water. In many cases, the soil sample submitted for laboratory analysis was collected from the bottom of the excavation. An average of one soil sample was collected from each test pit for laboratory analysis. Two samples were collected from test pits TP2 and TP7. No samples were submitted to the laboratory from test pit TP1.

Each soil sample was marked using laboratory-provided labels. Label information included a unique ID number, as described above, and the date and time. ChemTrack labeled, packaged, and shipped soil samples with COC documentation to SGS in Anchorage. The project team placed reusable gel packs in coolers to maintain sample temperatures. Soil samples were analyzed for the following constituents:

- GRO by Method AK 101; DRO by Method AK 102; and RRO by Method AK 103; and
- BTEX and VOCs by EPA Method 8260D.

During the test pit investigation, the project team noted the presence of a small creek on or near the site (**Figure 4**). Creek channel locations determined using the GPS device are included in **Table 2**.

Monitoring Well Installation

Historical constituent concentrations in soil reportedly exceeded default migration-to-groundwater cleanup levels. In addition, soil samples exhibited benzene and DRO contamination at the groundwater interface. Nevertheless, identified data gaps prevent an evaluation of the current extent and severity of potential groundwater contamination on and near the site. Groundwater on the site likely flows to the south toward the Koyuk River.

The SAP indicated that up to three monitoring wells would be installed in selected test pits depending on site conditions and equipment capabilities. Such a method of monitoring well installation is acceptable to the State of Alaska (ADEC 2013; ADEC 2023a). Because the depth of subsurface water at the site exceeded the maximum reach of the excavator at most locations, only one monitoring well (MW1) was installed (**Figure 4**).

The project team constructed, installed, and attempted to develop monitoring well MW1 in general accordance with SOPs. The total depth (9 feet bgs) and screened interval (4 to 9 feet bgs) were based on field observations of hydrogeologic conditions. The monitoring well was constructed using two-inch diameter Schedule 40 PVC flush-threaded casing with a "U-Pack" well screen containing 0.01-inch slots. These screens are double-walled and allowed the field scientist to add a silica sand filter pack prior to installation of the casing in the test pit. Such an approach was required because the investigation involved use of an excavator instead of a drilling rig. The "U-Pack" screen had an inner diameter of 2 inches and an outer diameter of 3 inches.

A casing string (blank riser and screen) was assembled in its entirety prior to placement into the excavation. During the backfilling of test pit TP5, an interval of native soil was placed above the silica sand and then bentonite chips were placed above the native soil to ground surface. The bentonite chips were then hydrated with clean water. ChemTrack used a length of cylindrical sheet metal to temporarily contain the bentonite chips around the casing while sealing up to the ground surface. Monitoring well MW1 was completed with a concrete surface seal supporting a flush-mount well monument with manhole. Field personnel prepared records of subsurface materials encountered and an as-built diagram of the MW1 (**Appendix G**).

Following installation, ChemTrack attempted to develop the monitoring well using a surge block and small pump. However, this process yielded less than 0.03 gallons of highly turbid water. Purged water had a sheen and a petroleum hydrocarbon odor. After purging, an interface probe appeared to indicate that petroleum free product may have been present in the well. Due to the low volume of recharge to the well, and the possible presence of free product, groundwater samples were not collected. The depth to water after purging was about 7.5 feet bgs.

Decontamination & Investigation-Derived Wastes

Decontamination of soil sampling equipment was not required because ChemTrack used new disposable metal spoons to collect each sample. The interface probe (water and free product level indicator) was decontaminated prior to and after measuring fluid elevations in the monitoring well. The excavator bucket was decontaminated using dry methods. ChemTrack removed visible materials from the bucket to the extent possible using hand tools. The dry method was selected because pressure washers and steam cleaners are not available in Koyuk. Investigation-derived wastes (soils excavated from test pits) were placed back into excavations at the approximate depths they were first encountered. The volume of groundwater produced during the well development effort was minimal and so no containerization was required.

Field and Laboratory QA/QC Procedures

The Phase II ESA followed Kawerak's EPA-approved QAPP which establishes specific quality assurance (QA) and quality control (QC) policies and activities. The assessment was also carried out in accordance with the SAP and State of Alaska requirements (ADEC 2022a and 2022b). Investigation staff adhered to applicable SOPs during the Phase II ESA. The project team collected QA/QC samples during the investigation to assess sample collection techniques, evaluate analytical results, and assess whether errors were introduced during sample collection, handling, transport, and/or analysis. The laboratory followed written procedures addressing internal QA/QC requirements (SGS, 2023).

ChemTrack collected 14 natural subsurface soil samples during the course of the Phase II ESA. The team collected one duplicate soil sample from a location with suspected petroleum hydrocarbon impacts. The duplicate was submitted as a blind sample to the laboratory with a unique sample ID and was analyzed for all COPCs. A trip blank prepared by the laboratory accompanied soil samples collected for analyses of GRO and VOCs. Equipment rinse blanks were not collected because ChemTrack used new disposable equipment to collect soil samples. Temperature blanks were included in coolers with soil samples shipped to the laboratory.

Investigation Results

Soil and Hydrogeologic Conditions

The soil profile generally consisted of shallow fill material underlain by an interval of fine-grained native soil. The fill ranged in thickness from about two to four feet and comprised coarse-grained rock fragments in a fine-grained matrix. Some of the coarse fragments appeared to be weathered bedrock. According to Koyuk resident and excavator operator Charles Swanson, the fill was transported to the site from a location on the west side of the community that was later used as a landfill.

Underlying the fill was a thick interval of dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate. The silt horizon typically extended to the total depth of each test pit. The structure of the silt varied from massive to blocky. At some locations, the mineral soil contained small amounts of visible organic matter. Orange mottling observed at some locations may have been iron oxides; such a color pattern could be indicative of fluctuations in groundwater levels over time.

In most test pits, the silt horizon as a whole appeared moist but not necessarily saturated. Several test pits intersected subsurface water that appeared to have been perched within the relatively permeable fill material and on top of the natural silt-rich soil. This water, which appeared as seeps entering the test pits at discrete depths, may have originated as precipitation at the ground surface. The water likely flowed through thin zones of relatively high permeability at the fill-silt interface or within shallow zones of silt-rich soil. The depth of perched water varied but was typically between three and four feet bgs. Monitoring well MW1 was installed in test pit TP5, a location where a relatively large amount of subsurface flow was encountered. Insufficient flow into the other test pits precluded the installation of other monitoring wells.

The project team noted the presence of seasonally frozen ground within several test pits. Such material could be classified as permafrost if the soil had remained below 0° C for at least two years. Frozen ground was encountered at depths ranging from 1 to about 10 feet bgs depending on the test pit. In some cases, test pit depths were limited by the presence of hard frozen ground (e.g., TP7, TP9, TP10, and TP13). Frozen soil may have augmented the low permeability of the native material and further limited the downward migration of water and contaminants at some locations. ChemTrack noted that PID readings for frozen soil (less than 20 ppm) were often lower than for thawed intervals.

Subsurface Soil – Field Screening

Field observations of potential contamination at the site included elevated PID readings, petroleum hydrocarbon odors, soil staining, sheens on subsurface water and, at test pit TP5, apparent free product. **Table 3** presents field screening results (PID readings) collected during excavation of test pits. Values in bold represent depths at which soil samples were submitted for laboratory analyses. Elevated concentrations of volatile compounds (above 30 parts per million or ppm) were detected in six of the fifteen test pits. ChemTrack documented concentrations above 200 ppm in five test pits. The highest reading was 1901 ppm in TP7 at a depth of 2 feet bgs.

Of the six test pits with elevated readings, concentrations of volatile compounds at the bottom of four of the borings had declined to less than 15 ppm (TP3, TP6, TP7, and TP8). The PID reading at the bottom of TP9 was elevated (43.2 ppm) but was significantly lower than at shallower depths (up to 557 ppm). Frozen ground prevented the excavation of TP9 beyond a depth of 11 feet bgs. PID readings at TP2 ranged from 200 ppm to 394 ppm between 7 and 14 feet bgs and remained elevated at the bottom of the test pit (309 ppm).

Field screening (PID) results suggest that one or more petroleum hydrocarbon release(s) has occurred at the site. Based on the locations of test pits with elevated PID readings, soil appears to be impacted in a zone associated with the locations of the current and former onsite ASTs (**Figure 3** and **Figure 4**).

Subsurface Soil – Laboratory Analyses

Analytical results for subsurface soil samples are included in **Table 4** through **Table 8**. Selected field screening and analytical results are shown in **Figure 5**. A complete laboratory report is included as **Appendix H**.

Esker compared subsurface soil analytical results to Method Two Soil Cleanup Levels (ADEC 2023b). These cleanup levels are appropriate at the assessment stage of the project and would be protective of human health and the environment. In the future, other approaches may be used to calculate site-specific cleanup levels at the site (e.g., Method Three or Method Four).

Analytical results support field observations and PID readings, all of which confirm that one or more petroleum release(s) has occurred on the site. Petroleum hydrocarbon compounds were detected in 8 of 14 subsurface soil samples and in 10 of 13 test pits. Petroleum constituents and VOCs were not detected in samples submitted from test pits TP5 (6'), TP9 (10.5') and TP11 (10.5'). Field observations and PID readings were generally consistent with analytical results. A slightly elevated PID reading (43.2 ppm) was recorded at the bottom of boring TP9 (10.5'), but all analytical results were below cleanup levels.

The shallowest petroleum and VOC impacts, as documented by analytical results, were found at test pits TP7 (2') and TP13 (4.5'). TP7 coincides with the former location of vertical ASTs. No specific contaminant sources are known in association with test pit TP13, although it was located relatively close to the existing horizontal ASTs. Frozen ground that resulted in excavator refusal at TP13 may serve as a barrier to downward migration of contaminants in shallow soil. The deepest soil impacts documented by laboratory results occurred at TP2 (14'), where the benzene concentration exceeded the migration-to-groundwater cleanup level.

Toluene and xylenes were detected below soil cleanup levels in soil sample TP7 (9.5'). However, elevated PID readings were observed at intermediate depths (between 2 and 9.5 feet bgs) in which no samples were submitted for analysis. These results suggest that a shallow soil interval (from 2 to about 8 feet bgs) is likely impacted with petroleum hydrocarbons.

GRO results (**Table 4**) indicate that C6-C10 petroleum hydrocarbons were detected above all three soil cleanup levels within test pit TP07 at a depth of 2 feet bgs (5,160 milligrams per kilogram or mg/kg). At the same depth, DRO was detected at a concentration of 3,820 mg/kg, which exceeds the migration-to-groundwater cleanup level (**Table 5**). Test pit TP7 corresponds with the former location of several vertical ASTs. Although GRO and DRO were detected in most other samples and test pits, results were below cleanup levels. Concentrations of RRO were below cleanup levels (**Table 6**).

Detections of VOCs in subsurface soil samples are summarized in **Table 7**, and analytical results for individual samples are included in **Table 8**. Volatile compounds were detected at depths ranging from 2 to 14 feet bgs. Benzene was the most commonly detected volatile compound; concentrations ranged from 0.01 mg/kg (TP 12 at 9') to 9.6 mg/kg (TP7 at 2'). Benzene concentrations exceeded the migration-to-groundwater soil cleanup level in samples collected from seven of the test pits. All detections of benzene were below the soil cleanup level that is protective of human health.

Other detected VOCs include:

- toluene, ethylbenzene, xylenes, and naphthalene (gasoline constituents);

- 1,2,4- and 1,3,5-trimethylbenzene (gasoline constituents and/or additives);
- isopropylbenzene (cumene; fuel constituent);
- 4-isopropyltoluene (naturally occurring organic compound);
- 2-butanone (methyl ethyl ketone) and acetone (solvents);
- n-propylbenzene and tert-butylbenzene (solvents).

Toluene was detected in several soil samples from multiple test pits. At test pit TP7 (2'), the concentration exceeded both the human health and the migration-to-groundwater cleanup levels. Detected concentrations in all other samples were below cleanup levels. Ethylbenzene was detected at test pit TP6 (9') at a concentration above the migration-to-groundwater cleanup level. The concentration exceeded both cleanup levels at TP7 (2'). Total xylenes exceeded both cleanup levels at TP7 (2').

Naphthalene was detected at a concentration above the migration-to-groundwater cleanup level at TP7 (2'). Concentrations of 1,2,4- and 1,3,5-trimethylbenzene were above both cleanup levels at the same location and depth. Isopropylbenzene, n-propylbenzene, and tert-butylbenzene concentrations exceeded migration-to-groundwater cleanup levels at test pit TP7 (2'). Detections of 2-butanone, acetone, and 4-isopropyltoluene were below cleanup levels. Methyl Tert Butyl Ether (MTBE), an additive previously introduced into some fuels as an anti-knocking agent, was not detected in any soil samples collected during the investigation.

Based on analytical results and site history, the following constituents are considered to be COPCs for this site:

- GRO and DRO;
- BTEX and naphthalene;
- Trimethylbenzenes; and
- Isopropylbenzene, n-propylbenzene, and tert-butylbenzene (limited to an area at and near TP7).

Groundwater

As discussed in previous report sections, subsurface water was observed within several test pits. The water appeared to have been perched on top of silt-rich natural soil and, in some test pits, was observed above seasonally frozen ground or permafrost. Such water may have migrated downward as precipitation within the relatively permeable fill material until its vertical flow rate was reduced by the underlying silt-rich soil. The depth of perched water varied but was typically between three and four feet bgs.

Test pits completed as part of this investigation do not appear to have intersected fully-saturated soil conditions (i.e., the local or regional water table). Saturated soil may lie below the maximum reach of the excavator (14 feet bgs). Alternatively, the fine-grained texture of the native soil materials (frozen in some cases) may have prevented regional groundwater from entering test pits at depths shallower than 14 feet bgs during the time period that each test pit remained open.

The above hydrogeologic conditions required a modification to the groundwater portion of the investigation. Instead of three planned monitoring wells, only one well (MW1) was installed in test pit TP5 (**Figure 4**). TP5 exhibited the most subsurface flow of all test pits completed at the site. The initial depth that water entered the test pit was 3 feet bgs along discrete flow paths near the fill-silt interface. Due to the small volume of water present in the well casing, the well could not be fully developed or purged, and ChemTrack did not collect a groundwater sample. The well development process, although incomplete, suggested that the depth to groundwater was about 8 feet bgs.

Subsurface water purged from MW1 exhibited a hydrocarbon sheen and an odor. After purging, an interface probe appeared to indicate that petroleum free product may have been present in the well. Based on the pattern of subsurface water movement (discrete flows as seeps through more permeable zones near the fill-silt interface), the sheen and possible free product may not be associated with a deeper saturated zone. Rather, the sources of these impacts may have been free product that was released and then migrated from the ground surface to the bottom of the coarse-grained fill material (top of native silty soil).

Data Validation, QA/QC Assessment, and DQOs

Esker validated laboratory data in accordance with State of Alaska guidance (ADEC 2022b) and the QAPP. The validation process included completion of a Laboratory Data Review Checklist for the project (ADEC 2022c; **Appendix I**). The report indicates that most sample handling metrics and quality control results were within applicable thresholds. Exceptions are noted below.

- In general, Limits of Detection (LODs) presented in the SGS report are below ADEC cleanup levels. All LODs were below human health cleanup levels. For a few VOCs, the LODs are slightly above migration-to-groundwater cleanup levels. The VOCs whose LODs exceeded these screening levels are not considered COPCs for the site.
- With the exception of GRO and benzene, all constituents analyzed in the trip blank were below laboratory reporting limits. GRO was detected at an estimated concentration of 1.84 mg/kg, which is below the Limit of Quantitation (LOQ) and more than an order of magnitude below the migration-to-groundwater screening level. The benzene concentration (0.005 mg/kg) was lower than the associated LOD (0.006 mg/kg) and was approximately half of the lowest detected concentration in the natural samples (0.01 mg/kg).
- Based on the GRO and benzene results in the trip blank, concentrations of these constituents in natural samples may be biased high. However, results in terms of the number of cleanup level exceedances would remain mostly unchanged. The single GRO cleanup level exceedance would remain if adjusted for slightly high bias. The benzene concentration in the sample collected from TP13 (4.5') was above the migration to groundwater screening level. If the concentration of benzene detected in the trip blank was subtracted from the sample result, the benzene concentration would be below the cleanup level. This result would tend to reduce the horizontal extent and volume of contaminated soil.
- Laboratory limits in the SGS report (**Appendix H**) are presented as LOQs and Limits of Detection (LODs). The SGS report indicated that LODs are the quantitation limits. LODs for GRO, DRO, and RRO were below cleanup levels. LODs for several VOCs were above migration-to-groundwater screening levels, as reported in **Table 8**. None of these constituents were detected in any of the soil samples. The LODs for the principal components of petroleum hydrocarbons (GRO, DRO, RRO, and BTEX) were all below cleanup levels.
- Relative Percent Differences (RPDs) between the natural soil sample and its duplicate were as follows: GRO (95%); DRO (1%); RRO (9%); benzene (156%); and toluene (93%). RPDs for GRO, benzene, and toluene did not meet project requirements. These findings are consistent with a high degree of natural soil variability at field sites. GRO results were either an order of magnitude above or below screening levels, and the RPD failure would not change the findings. The RPD failure for benzene could affect results for samples collected from TP3, TP6, TP7, TP8, TP12, and TP13. However, the interpretation that a release has occurred on the site in the vicinity of the current and former ASTs would not change. Other VOC constituents were not detected above laboratory limits in the natural and duplicate samples.

The data validation narrative above most likely did not result in decision errors regarding the presence and location of petroleum impacts to site soils. Soil results as a whole indicate detections above applicable cleanup levels, and therefore the results may be used to identify the extent of petroleum impacts.

Data quality objectives (DQOs) are qualitative and quantitative statements developed during the planning process of an assessment or cleanup project (EPA 1998, EPA 2006). The Data Quality Objectives for this project are presented in the SAP (Esker 2023). As stated therein, soil data were to be used to determine the spatial extent of petroleum impacts at the site, and to determine if soil results were above applicable cleanup levels. In general, DQOs were fulfilled for this investigation. Exceptions are discussed in the Deviations section below.

Deviations from the SAP

ADEC's Field Sampling Guidance (2022a) and the SAP for this project (Esker 2023) guided the field investigation portion of the Phase II ESA. Deviations from these documents are described below.

- Equipment rinse blanks (ERBs) were to be collected from soil sampling equipment. However, new and clean sampling tools were used to collect soil samples and place them in laboratory containers. Therefore, no ERB samples were collected during the project.
- The SAP proposed that at least one soil sample be collected from each test pit. No samples were submitted to the laboratory from test pit TP1 because field screening results (visual, olfactory, PID) did not indicate any impacts to soil. At least one sample was collected and submitted to the laboratory from all other test pits.
- The SAP indicated that soil samples would be analyzed for lead, a common constituent of gasoline in previous decades. However, the project team inadvertently left lead off the COC form when submitting the soil samples for analysis. A QA/QC check of the COC did not note the omission. Therefore, SGS did not analyze soil samples for lead.
- Although one monitoring well (MW1) was installed, it could not be properly developed, and groundwater analytical data were not obtained. Esker and ChemTrack noted a sheen on subsurface water as well as apparent free product on the water surface. These observations suggest that subsurface water is impacted with petroleum hydrocarbon compounds. The water encountered during the field investigation may have been perched on top of the shallow coarse-grained fill material.
- Monitoring well MW1 was installed in an excavation and not in a drilled borehole. Such an installation process is a deviation from ADEC's Field Sampling Guidance (ADEC 2022a). However, the State of Alaska approved the well as a long-term installation (ADEC 2023a).
- Because an excavator was used for this project and not a drilling rig, the total depth of test pits was limited to about 14 feet bgs. This resulted in an inability to define the vertical extent of soil contamination at TP2.

Findings

This section summarizes the results of the investigation and considers the implications of the data with respect to existing site conditions. The initial CSM, presented above, was developed based on the general site setting, the findings of previous investigations, and professional knowledge regarding likely conditions at such sites. The summary below can be considered a revised CSM based on the Phase II ESA field investigation.

- Onsite soils are characterized by a coarse-grained layer of fill material (3-4 feet thick) underlain by natural silt-rich soil containing some sand and clay. Earlier sections of this report provide additional information about soil characteristics.
- The Phase II ESA was intended to provide an initial indication of the location and concentration of potential COPCs in order to determine whether additional sampling or remedial action may be required. The assessment confirmed the presence of one or more onsite petroleum hydrocarbon release(s). COPCs are present in subsurface soil on the site, a finding which is consistent with historical information. Concentrations of some contaminants exceed ADEC human health cleanup levels and/or migration-to-groundwater cleanup levels. Results indicate potential risks to both human health (ingestion or inhalation) and the environment (soil contaminants leaching to the groundwater system). Based on data collected to date, subsurface soil contamination does not appear to be present offsite.
- Petroleum hydrocarbon compounds have impacted soil at multiple test pits in close proximity to the locations of the current and former ASTs. Field measurements and analytical results indicate that impacts exist at depths ranging from 1 to 14 feet bgs. The shallowest impacts (1 foot bgs) were observed at test pit TP6 and the deepest impacts (14 feet bgs) were noted at TP2.
- The Phase II ESA provided data necessary to evaluate the extent and severity of soil contamination within several areas of the site. The pattern of soil impacts suggests that the former vertical ASTs and the existing horizontal ASTs may be sources of onsite contamination. Other sources may include infrastructure related to the tanks (e.g., fuel lines and valves) as well as the smaller onsite tanks.
- Subsurface water was encountered in several test pits at depths within 8 feet of ground surface. This water appeared to be perched within coarse-grained fill material and may have originated as precipitation. Shallow subsurface water either pooled on top of natural silt-rich soil or moved through discrete higher-permeability zones within shallow silt horizons.
- The fine-grained nature of the natural onsite soil, combined with the presence of seeps of shallow water from above, complicated the identification of a local or regional water table. The depth to (non-perched) subsurface water remains a data gap. The groundwater flow direction was not determined but is likely to the south toward the Koyuk River and Koyuk Inlet.
- The investigation defined the horizontal extent of soil impacts in some areas of the site. In general, soil impacts do not appear extend off the property in a downgradient direction. The horizontal extent of impacts was not defined in the following areas: within 2nd Avenue upgradient of the site (due to the presence of buried utilities); between test pits TP9 and TP13; near the intersection of Cottonwood Street and 2nd Avenue; east of TP13; between test pits TP1 and TP5; north of test pit TP5 along the creek; and west of test pit TP8.
- The Phase II ESA defined the vertical extent of petroleum hydrocarbon impacts to onsite soil at most test pit locations. Soil impacts do not appear to extend beyond about ten feet bgs. One exception was test pit TP2; at that location, PID readings remained elevated (> 300 ppm) and the benzene concentration exceeded the migration-to-groundwater screening level at a depth of 14 feet

bgs. Deeper investigation was not possible due to equipment limitations. The investigation did not define the vertical extent of impacts at test pit TP2.

- Data obtained during this assessment allow for a preliminary estimation of the area and volume of soil that exceeds one or more cleanup levels. **Figure 6** shows the approximate horizontal extent of soil impacts based on the test pits completed. The area of the polygon shown in **Figure 6** is approximately 9,000 square feet. The vertical extent of impacted soil has yet to be fully defined. However, for the purpose of this ESA report, we can assume that the average maximum depth of contamination is 10 feet bgs. Under this scenario, the approximate volume of contaminated soil is 90,000 cubic feet (3,300 cubic yards). Subsequent assessment work may result in modifications to these estimates.
- Although one monitoring well was installed, groundwater samples were not collected. The severity and extent of any impacts to the local or regional groundwater system could not be evaluated. However, a sheen observed on perched water, and the possible presence of free product, suggest that subsurface water may have been impacted by the release(s).
- Given exceedances of migration-to-groundwater cleanup levels and indications of impacts to subsurface water, onsite soil may be a continuing source of groundwater contamination. The former vertical ASTs are no longer potential sources of subsurface impacts. The existing horizontal ASTs may be sources of ongoing impacts. The horizontal tanks, however, are reportedly no longer in use.
- The closest known water wells are located at least 750 feet upgradient from the project site. These include two public water supply wells installed in the 1970s and three new wells drilled in 2023 (Alaska DNR 2023).
- Most of the southern and western portion of the site is covered by thick vegetation, which would tend to limit the potential for surface water runoff from the site. However, native soil on the site is fine-grained and exhibits low permeability. A small creek is located on the western side of the project site. During storm events or periods of high precipitation or snowmelt, contaminants from the site could migrate from the developed portion of the site toward the creek. In this manner, surface water and/or sediment may have been impacted by one or more onsite releases.
- Based on information presented in this report, one or more corrective actions will likely be required at the site. One potential soil remedial action would include removal of impacted soil followed by placement of clean fill material. As an alternative, Kawerak could develop site-specific cleanup levels as part of a risk assessment. Specific remedial action(s) will be identified and evaluated once supplemental characterization work is completed. The options will then be defined and compared as part of an Analysis of Brownfields Cleanup Alternatives (ABCA). The preferred alternative will consider several factors, including but not limited to cost, ability to implement, effectiveness, and site-specific conditions. Once a preferred alternative has been identified, the project team will prepare a site-specific Cleanup Plan.

Recommendations

The Findings section above provides detailed information about the nature, magnitude, and horizontal and vertical extents of impacts to onsite soils from one or more petroleum hydrocarbon releases. However, several remaining data gaps prevent a complete delineation of the extent of contamination. Esker recommends additional site characterization to fully define the extent of impacts to environmental media including soil, groundwater, surface water, and sediment. A supplemental Phase II ESA will eliminate remaining data gaps, facilitate the selection of a preferred site remediation strategy, and provide data necessary to prepare the ABCA and the Cleanup Plan.

Proposed assessment activities include:

- Drilling of several boreholes to depths greater than 15 feet bgs in the impacted area.
- Field screening and collection of soil samples within the boreholes to evaluate the vertical extent of petroleum hydrocarbon impacts to onsite soil.
- Installation of monitoring wells in the boreholes.
- Collection of groundwater samples from the monitoring wells.
- Sampling of surface water and sediment at the creek near the western site boundary.

References Cited

Alaska Department of Environmental Conservation (ADEC). 2013. Monitoring Well Guidance. September.

Alaska DEC. 2017. Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites. March.

Alaska DEC. 2022a. Field Sampling Guidance. January.

Alaska DEC. 2022b. Guidelines for Data Reporting. Technical Memorandum 22-001. August 15.

Alaska DEC. 2022c. Laboratory Data Review Checklist. September.

Alaska DEC. 2023a. Correspondence between Breanna Mahoney (ADEC) and Adam Johnson of Esker regarding Installation of Monitoring Wells in Test Pits. May 11.

Alaska DEC. 2023b. 18 AAC 75: Oil and Other Hazardous Substances Pollution Control. February 5.

Alaska Department of Natural Resources (DNR). 2023. Well Log Tracking System (WELTS). Accessed 27 October 2023.

Esker Associates, LLC. 2023. Phase II Environmental Site Assessment Sampling and Analysis Plan, Former Native Corporation Tank Farm, 2nd Avenue and Cottonwood Street, Koyuk, Alaska 99753, Alaska DEC Contaminated Site ID 610-38-003, Alaska DEC Hazard ID 3101. Prepared for Kawerak, Inc. Environmental Program. June. Version 2.

NewFields, 2022a. Phase I Environmental Site Assessment, Native Corporation Tank Farm, 2nd Avenue and Cottonwood Street, Koyuk, Alaska. ADEC Contaminated Site ID 610-38-003. Alaska DEC Hazard ID 3101. October.

NewFields, 2022b. Programmatic Quality Assurance Project Plan, Kawerak Environmental Program. Brownfields Grant # BF-01J98901-1. Prepared for Kawerak Environmental Program. Version 2. September.

Riehle, J.R., Emmel, K.S., and Bolm, J.G., 1981. Reconnaissance Report of Surficial Geology of Coastal Area from Tolstoi Point to Cape Nome, Norton Sound, Alaska. Alaska Open-File Report 125. May.

Till, A.B., Dumoulin, J.A., Werdon, M.B., and Bleick, H.A., 2010. Preliminary bedrock geologic map of the Seward Peninsula, Alaska, and accompanying conodont data: U.S. Geological Survey Open-File Report 2009-1254, 1 pamphlet, 57 p., 2 plates, scale 1:500,000.

SGS North America, Inc. – Alaska Division. 2023. Quality Manual. January.

U.S. EPA, 1998. Quality Assurance Guidance for Conducting Brownfields Sites Assessments. September EPA 540-R-98-03.

U.S. EPA, 2004. Improving Sampling, Analysis, and Data Management for Site Investigation and Cleanup. Office of Solid Waste and Emergency and Response. April.

U.S. Environmental Protection Agency (EPA). 2006. Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4. February.

Tables


Second Avenue
Cottonwood Street
Residence
Shipping Containers and Sheds
Portable Storage Tank
Koyuk Native Store
Compressed Gas Cylinders
Horizontal Aboveground Petroleum Storage Tanks
Steel Portable Storage Tank
Collapsed Wooden Structure
Residence
Former Residence

Table 1. Test Pit Summary with GPS Data

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Test Pit ID	Descriptive Location	Latitude (dec. degrees)	Longitude (dec. degrees)	Approx. GSE (feet amsl)	Total Depth (feet bgs)
23KKA TP01	Southeastern portion of the site near abandoned residence	64.9297235	-161.1630906	5.5	13
23KKA TP02	Adjacent to southeast extent of horizontal ASTs	64.9298665	-161.1631181	7.0	14
23KKA TP03	Northeastern portion of the site near Cottonwood St.	64.9299040	-161.1629315	10.5	13
23KKA TP04	South of horizontal ASTs	64.9298025	-161.1631084	8.2	10
23KKA TP05*	Southwestern portion of the site near creek	64.9297069	-161.1634905	9.4	11
23KKA TP06	South of location of former vertical ASTs	64.9298072	-161.1634544	10.4	9
23KKA TP07	Location of former vertical ASTs	64.9299325	-161.1634467	7.6	10
23KKA TP08	Location of former vertical ASTs	64.9299153	-161.1635382	7.1	10
23KKA TP09	Between horizontal ASTs and 2nd Ave.	64.9300211	-161.1633461	9.5	11
23KKA TP10	Northeastern portion of the site near Cottonwood St.	64.9298651	-161.1628203	11.5	10
23KKA TP11	South of shipping containers	64.9298088	-161.1629000	8.9	11
23KKA TP12	Near southeastern extent of the site	64.9297598	-161.1626106	4.5	9
23KKA TP13	Northeastern portion of the site near Cottonwood St.	64.9299355	-161.1628652	8.7	5

Notes:

KKA = Koyuk; TP = Test Pit; AST = aboveground storage tank; GPS = Global Positioning System; bgs = below ground surface

All location data collected with Juniper Geode GNS3S single frequency GPS; WGS 84 spatial reference system

* = monitoring well MW1 was installed in TP5; GSE = Ground Surface Elevation; amsl = above mean sea level

Table 2. Other GPS Data

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Location ID	Latitude (decimal degrees)	Longitude (decimal degrees)	Approx. ground surface elev (feet amsl)
Creek Culvert	64.9299386	-161.1639009	5.2
Creek 1	64.9299049	-161.1638345	8.1
Creek 2	64.9298702	-161.1636798	6.3
Creek 3	64.9298154	-161.1636151	7.1
Creek 4	64.9297402	-161.1635731	9.2
Fuel Valve	64.9297228	-161.1634956	9.3
Creek 5	64.9296681	-161.1635758	8.4
Creek 6	64.9296171	-161.1635693	5.3
Creek 7	64.9295483	-161.1635733	5.8
Creek 8	64.9295208	-161.1635533	7.3
Creek 9 (beach)	64.9294288	-161.1635921	4.4

Notes:

GPS = Global Positioning System; GPS data for test pits are included in Table 1

All location data collected with Juniper Geode GNS3S single frequency GPS

WGS84 spatial reference system; amsl = above mean sea level

Locations are listed in order from north (culvert) to south (beach)

Table 3. Soil Field Screening (PID) Results

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Test Pit	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11	TP12	TP13
TD (ft bgs) → / D (ft bgs) ↓	13	14	13	10	11	9	10	10	11	10	11	9	5
1	---	18.8	---	---	12.2	368.0	4.4	0.9	1.6	---	---	1.6	---
2	9.2	---	11.9	0.3	---	845.6	**1901**	---	94.5	0.6	1.7	---	1.3
3	---	19.7	8.1	3.6	26.8	---	659.0	387.0	---	---	---	1.0	6.9
4	---	52.8	9.1	1.3	---	859.0	---	---	493.6	3.2	2.1	1.1	---
5	21.5	75.3	11.0	1.1	---	---	477.4	---	378.0	4.1	---	1.2	**1.2**
6	16.1	---	---	---	**12.0**	28.4	---	216.0	---	---	4.0	---	
7	---	**394.2**	14.5	2.8	---	---	368.0	---	557.4	---	---	2.2	
8	12.6	200.4	---	---	---	31.6	84.0	70.5	319.3	2.8	3.0	---	
9	18.5	350.8	37.5	10.0	---	**12.8**	---	37.8	4.1	---	---	**1.7**	
10	17.1	292.2	---	**2.1**	---		**9.4**	**11.5**	---	**1.3**	---		
11	13.1	162.0	9.3		---				**43.2**		**1.3**		
12	15.4	---	6.7										
13	15.9	208.0	**2.9**										
14		**308.5**											

Notes:

PID = Photoionization Detector; D = depth of PID reading; TD = total depth of test pit

All readings are in parts per million (PPM)

--- = no PID reading; = not applicable

Bold type = sample submitted for laboratory analysis

For the purposes of this table, some fractional depths (e.g., 4.5 feet bgs) have been rounded to a whole number (e.g., 4.0 or 5.0 feet bgs)

= elevated PID reading (> 30 ppm)

= elevated PID reading (> 200 ppm)

Table 4. Soil Analytical Results - Gasoline Range Organics

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Soil Cleanup Levels (ADEC Method Two)*						
Under 40 Inch Zone (ingestion - mg/kg)			1,400			
Under 40 Inch Zone (inhalation - mg/kg))			1,400			
Under 40 Inch Zone (migration to GW - mg/kg)			300			
Maximum Allowable Concentration (mg/kg)			1,400			
Sample Information			Results		Laboratory Limits	
Sample Location and Depth (ft bgs)	Date Collected	Time Collected	GRO (C6-C10)	Qualifier	LOQ	LOD
23KKA.TB	6/22/2023	17:21	1.84	J	2.52	1.26
23KKA.TP02 (14')	6/22/2023	17:55	4.37	J	4.65	2.33
23KKA.TP02 (7')	6/22/2023	17:21	12.6	---	5.64	2.82
23KKA.TP02 (7') DUP	6/22/2023	17:28	4.47	J	5.13	2.56
23KKA.TP03 (13')	6/22/2023	19:52	3.27	J	5.12	2.56
23KKA.TP04 (10')	6/23/2023	9:20	3.45	J	5.24	2.62
23KKA.TP05 (6')	6/23/2023	10:51	4.69	J	7.5	3.75
23KKA.TP06 (9')	6/23/2023	15:32	5.31	J	5.58	2.79
23KKA.TP07 (2')	6/23/2023	16:17	5,160	---	367	184
23KKA.TP07 (9.5')	6/23/2023	16:36	3.58	J	5.21	2.61
23KKA.TP08 (9.5')	6/24/2023	8:53	3.51	J	5.22	2.61
23KKA.TP09 (10.5')	6/24/2023	10:03	3.44	J	5.94	2.97
23KKA.TP10 (10')	6/24/2023	11:01	3.08	J	4.83	2.42
23KKA.TP11 (10.5')	6/24/2023	11:47	3.49	J	5.34	2.67
23KKA.TP12 (9')	6/24/2023	12:53	3.28	J	5.02	2.51
23KKA.TP13 (4.5')	6/24/2023	13:47	4.7	J	7.21	3.61

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method AK101

TP = Test Pit; GRO = Gasoline Range Organics; TB = Trip Blank; DUP = Duplicate

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Table 5. Soil Analytical Results - Diesel Range Organics

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Soil Cleanup Levels (ADEC Method Two)*						
Under 40 Inch Zone (ingestion - mg/kg)			10,250			
Under 40 Inch Zone (inhalation - mg/kg))			12,500			
Under 40 Inch Zone (migration to GW - mg/kg)			250			
Maximum Allowable Concentration (mg/kg)			12,500			
Sample Information			Results		Laboratory Limits	
Sample Location and Depth (ft bgs)	Date Collected	Time Collected	DRO (C10-C25)	Qualifier	LOQ	LOD
23KKA.TB	6/22/2023	17:21	(Trip Blank Not Analyzed for DRO)			
23KKA.TP02 (14')	6/22/2023	17:55	43.6	---	25.6	12.8
23KKA.TP02 (7')	6/22/2023	17:21	40.8	---	26.9	13.4
23KKA.TP02 (7') DUP	6/22/2023	17:28	40.4	---	26.9	13.4
23KKA.TP03 (13')	6/22/2023	19:52	29.8	---	26.1	13.1
23KKA.TP04 (10')	6/23/2023	9:20	16.2	J	26.4	13.2
23KKA.TP05 (6')	6/23/2023	10:51	27.7	J	31.9	15.9
23KKA.TP06 (9')	6/23/2023	15:32	36.3	---	27.1	13.6
23KKA.TP07 (2')	6/23/2023	16:17	3,820	---	22.8	11.4
23KKA.TP07 (9.5')	6/23/2023	16:36	19.2	J	26.3	13.2
23KKA.TP08 (9.5')	6/24/2023	8:53	17.9	J	25.4	12.7
23KKA.TP09 (10.5')	6/24/2023	10:03	0.0	U	28.3	14.2
23KKA.TP10 (10')	6/24/2023	11:01	17.1	J	25.1	12.6
23KKA.TP11 (10.5')	6/24/2023	11:47	12.1	J	26.3	13.2
23KKA.TP12 (9')	6/24/2023	12:53	26.4	---	25.9	12.9
23KKA.TP13 (4.5')	6/24/2023	13:47	96.1	---	31.4	15.7

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method AK102

TP = Test Pit; DRO = Diesel Range Organics; TB = Trip Blank; DUP = Duplicate

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; U = not detected

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Table 6. Soil Analytical Results - Residual Range Organics

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Soil Cleanup Levels (ADEC Method Two)*						
Under 40 Inch Zone (ingestion - mg/kg)			10,000			
Under 40 Inch Zone (inhalation - mg/kg))			22,000			
Under 40 Inch Zone (migration to GW - mg/kg)			11,000			
Maximum Allowable Concentration (mg/kg)			22,000			
Sample Information			Results		Laboratory Limits	
Sample Location and Depth (ft bgs)	Date Collected	Time Collected	RRO (C25-C365)	Qualifier	LOQ	LOD
23KKA.TB	6/22/2023	17:21	(Trip Blank Not Analyzed for RRO)			
23KKA.TP02 (14')	6/22/2023	17:55	323	---	128	64
23KKA.TP02 (7')	6/22/2023	17:21	698	---	134	67
23KKA.TP02 (7') DUP	6/22/2023	17:28	637	---	134	67
23KKA.TP03 (13')	6/22/2023	19:52	403	---	130	65
23KKA.TP04 (10')	6/23/2023	9:20	274	---	132	66
23KKA.TP05 (6')	6/23/2023	10:51	509	---	160	80
23KKA.TP06 (9')	6/23/2023	15:32	232	---	135	67.5
23KKA.TP07 (2')	6/23/2023	16:17	297	---	114	57
23KKA.TP07 (9.5')	6/23/2023	16:36	181	---	132	66
23KKA.TP08 (9.5')	6/24/2023	8:53	234	---	127	63.5
23KKA.TP09 (10.5')	6/24/2023	10:03	71.4	J	142	71
23KKA.TP10 (10')	6/24/2023	11:01	162	---	126	63
23KKA.TP11 (10.5')	6/24/2023	11:47	125	J	131	65.5
23KKA.TP12 (9')	6/24/2023	12:53	256	---	130	65
23KKA.TP13 (4.5')	6/24/2023	13:47	1360	---	157	78.5

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method AK103

TP = Test Pit; RRO = Residual Range Organics; TB = Trip Blank; DUP = Duplicate

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Table 7. Soil Analytical Results - Summary of VOC Detections

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

VOC Analyte	HH SCL*	MGW SCL*	TP2 (14')	TP2 (7')	TP2 (7') (DUP)	TP3 (13')	TP4 (10')	TP6 (9')	TP7 (2')	TP7 (9.5')	TP8 (9.5')	TP10 (10')	TP12 (9')	TP13 (4.5')
Acetone	81,000	38	0.416	0.501	0.975	0.301	0.441	---	---	---	---	0.254	0.294	0.41
2-Butanone (MEK)	23,000	15	---	---	0.243	---	---	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	43	0.61	---	---	---	---	---	0.179	244	---	---	---	---	---
1,3,5-Trimethylbenzene	37	0.66	---	---	---	---	---	---	79.3	---	---	---	---	---
4-Isopropyltoluene	---	---	---	---	---	---	---	---	3.07	---	---	---	---	---
Benzene	11	0.022	0.557	3.89	0.483	0.0354	---	0.0146	9.6	0.0156	0.0443	---	0.00986	0.0237
Ethylbenzene	49	0.13	---	---	---	---	---	0.177	58.2	---	---	---	---	---
Isopropylbenzene (Cumene)	54	5.6	---	---	---	---	---	0.0696	7.01	---	---	---	---	---
Naphthalene	29	0.038	---	---	---	---	---	---	18.5	---	---	---	---	---
n-Propylbenzene	52	9.1	---	---	---	---	---	0.0642	9.74	---	---	---	---	---
tert-Butylbenzene	36	11	---	---	---	---	---	---	21.6	---	---	---	---	---
Toluene	200	6.7	---	0.0513	0.0186	0.0195	---	---	326	0.0457	---	---	---	---
o-Xylene	---	---	---	---	---	---	---	0.0441	---	0.0176	---	---	---	---
p- & m-Xylene	---	---	---	---	---	---	---	0.214	---	0.0808	---	---	---	---
Xylenes (total)	57	1.5	---	---	---	---	---	0.258	966	0.0984	---	---	---	---

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; --- = not applicable; VOC = volatile organic compound

HH SCL = ADEC Human Health Soil Cleanup Level; MGW SCL = ADEC Migration to Groundwater Soil Cleanup Level

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation
(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

VOCs were not detected in samples collected from test pits TP5 (6'), TP9 (10.5'), or TP11 (10.5')

Laboratory limits and qualifiers are shown on tables containing analytical results for individual test pits

No soil samples were submitted for laboratory analysis from TP1

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP2 (7')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane [a]	0	U	21	0.022	0.0452	0.0226
1,1,1-Trichloroethane	0	U	360	32	0.0564	0.0282
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00452	0.00226
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00226	0.00113
1,1-Dichloroethane	0	U	46	0.092	0.0564	0.0282
1,1-Dichloroethene	0	U	330	1.2	0.0564	0.0282
1,1-Dichloropropene	0	U	---	---	0.0564	0.0282
1,2,3-Trichlorobenzene	0	U	81	0.15	0.226	0.113
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00452	0.00226
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0564	0.0282
1,2,4-Trimethylbenzene	0	U	43	0.61	0.226	0.113
1,2-Dibromo-3-chloropropane	0	U	---	---	0.226	0.113
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00339	0.00169
1,2-Dichlorobenzene	0	U	78	2.4	0.0564	0.0282
1,2-Dichloroethane	0	U	5.5	0.0055	0.00452	0.00226
1,2-Dichloropropane	0	U	17	0.030	0.0226	0.0113
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0564	0.0282
1,3-Dichlorobenzene	0	U	62	2.3	0.0564	0.0282
1,3-Dichloropropane	0	U	---	---	0.0226	0.0113
1,4-Dichlorobenzene	0	U	21	0.037	0.0564	0.0282
2,2-Dichloropropane [a]	0	U	21	0.018	0.0564	0.0282
2-Butanone (MEK)	0	U	23000	15	0.564	0.282
2-Chlorotoluene	0	U	---	---	0.0564	0.0282
2-Hexanone [a]	0	U	270	0.11	0.271	0.136
4-Chlorotoluene	0	U	---	---	0.0452	0.0226
4-Isopropyltoluene	0	U	---	---	0.181	0.0905
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.564	0.282
Acetone	0.501	J	81000	38	0.564	0.282
Benzene	3.89	---	11	0.022	0.0282	0.0141
Bromobenzene	0	U	160	0.36	0.0564	0.0282
Bromochloromethane	0	U	---	---	0.0564	0.0282
Bromodichloromethane	0	U	3.6	0.0043	0.00452	0.00226
Bromoform	0	U	240	0.1	0.0564	0.0282
Bromomethane	0	U	10	0.024	0.0452	0.0226
Carbon disulfide	0	U	500	2.9	0.226	0.113

Carbon tetrachloride	0	U	9.1	0.021	0.0282	0.0141
Chlorobenzene	0	U	180	0.46	0.0564	0.0282
Chloroethane	0	U	---	---	0.452	0.226
Chloroform	0	U	4	0.0071	0.0135	0.00675
Chloromethane	0	U	170	0.61	0.0564	0.0282
cis-1,2-Dichloroethene	0	U	200	0.12	0.0564	0.0282
cis-1,3-Dichloropropene	0	U	---	---	0.0282	0.0141
Dibromochloromethane [a]	0	U	110	0.0027	0.0113	0.00565
Dibromomethane [a]	0	U	31	0.025	0.0564	0.0282
Dichlorodifluoromethane	0	U	150	3.9	0.226	0.113
Ethylbenzene	0	U	49	0.13	0.0564	0.0282
Freon-113	0	U	---	---	0.226	0.113
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0452	0.0226
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0564	0.0282
Methylene chloride	0	U	460	0.33	0.226	0.113
Methyl-t-butyl ether	0	U	670	0.40	0.226	0.113
Naphthalene	0	U	29	0.038	0.0564	0.0282
n-Butylbenzene	0	U	20	23	0.0564	0.0282
n-Propylbenzene	0	U	52	9.1	0.0564	0.0282
o-Xylene	0	U	---	---	0.0564	0.0282
p- & m-Xylene	0	U	---	---	0.113	0.0565
sec-Butylbenzene	0	U	28	42	0.0564	0.0282
Styrene	0	U	180	10	0.0564	0.0282
tert-Butylbenzene	0	U	36	11	0.0564	0.0282
Tetrachloroethene	0	U	68	0.19	0.0282	0.0141
Toluene	0.0513	J	200	6.7	0.0564	0.0282
trans-1,2-Dichloroethene	0	U	960	1.3	0.0564	0.0282
trans-1,3-Dichloropropene	0	U	21	0.018	0.0282	0.0141
Trichloroethene [a]	0	U	4.9	0.011	0.0226	0.0113
Trichlorofluoromethane	0	U	980	41	0.113	0.0565
Vinyl acetate	0	U	1400	1.1	0.226	0.113
Vinyl chloride [a]	0	U	0.65	0.00080	0.00181	0.000905
Xylenes (total)	0	U	57	1.5	0.169	0.0845

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/22/23 at 17:21.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP2 (7' DUP)

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.041	0.0205
1,1,1-Trichloroethane	0	U	360	32	0.0513	0.0256
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.0041	0.00205
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00205	0.00103
1,1-Dichloroethane	0	U	46	0.092	0.0513	0.0256
1,1-Dichloroethene	0	U	330	1.2	0.0513	0.0256
1,1-Dichloropropene	0	U	---	---	0.0513	0.0256
1,2,3-Trichlorobenzene	0	U	81	0.15	0.205	0.102
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.0041	0.00205
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0513	0.0256
1,2,4-Trimethylbenzene	0	U	43	0.61	0.205	0.102
1,2-Dibromo-3-chloropropane	0	U	---	---	0.205	0.102
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00308	0.00154
1,2-Dichlorobenzene	0	U	78	2.4	0.0513	0.0256
1,2-Dichloroethane	0	U	5.5	0.0055	0.0041	0.00205
1,2-Dichloropropane	0	U	17	0.030	0.0205	0.0103
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0513	0.0256
1,3-Dichlorobenzene	0	U	62	2.3	0.0513	0.0256
1,3-Dichloropropane	0	U	---	---	0.0205	0.0103
1,4-Dichlorobenzene	0	U	21	0.037	0.0513	0.0256
2,2-Dichloropropane [a]	0	U	21	0.018	0.0513	0.0256
2-Butanone (MEK)	0.243	J	23000	15	0.513	0.257
2-Chlorotoluene	0	U	---	---	0.0513	0.0256
2-Hexanone [a]	0	U	270	0.11	0.246	0.123
4-Chlorotoluene	0	U	---	---	0.041	0.0205
4-Isopropyltoluene	0	U	---	---	0.164	0.082
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.513	0.257
Acetone	0.975	=	81000	38	0.513	0.257
Benzene	0.483	=	11	0.022	0.0257	0.0129
Bromobenzene	0	U	160	0.36	0.0513	0.0256
Bromochloromethane	0	U	---	---	0.0513	0.0256
Bromodichloromethane	0	U	3.6	0.0043	0.0041	0.00205
Bromoform	0	U	240	0.1	0.0513	0.0256
Bromomethane	0	U	10	0.024	0.041	0.0205
Carbon disulfide	0	U	500	2.9	0.205	0.102

Carbon tetrachloride	0	U	9.1	0.021	0.0257	0.0129
Chlorobenzene	0	U	180	0.46	0.0513	0.0256
Chloroethane	0	U	---	---	0.41	0.205
Chloroform	0	U	4	0.0071	0.0123	0.00615
Chloromethane	0	U	170	0.61	0.0513	0.0256
cis-1,2-Dichloroethene	0	U	200	0.12	0.0513	0.0256
cis-1,3-Dichloropropene	0	U	---	---	0.0257	0.0129
Dibromochloromethane [a]	0	U	110	0.0027	0.0103	0.00515
Dibromomethane [a]	0	U	31	0.025	0.0513	0.0256
Dichlorodifluoromethane	0	U	150	3.9	0.205	0.102
Ethylbenzene	0	U	49	0.13	0.0513	0.0256
Freon-113	0	U	---	---	0.205	0.102
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.041	0.0205
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0513	0.0256
Methylene chloride	0	U	460	0.33	0.205	0.102
Methyl-t-butyl ether	0	U	670	0.40	0.205	0.102
Naphthalene	0	U	29	0.038	0.0513	0.0256
n-Butylbenzene	0	U	20	23	0.0513	0.0256
n-Propylbenzene	0	U	52	9.1	0.0513	0.0256
o-Xylene	0	U	---	---	0.0513	0.0256
p- & m-Xylene	0	U	---	---	0.103	0.0515
sec-Butylbenzene	0	U	28	42	0.0513	0.0256
Styrene	0	U	180	10	0.0513	0.0256
tert-Butylbenzene	0	U	36	11	0.0513	0.0256
Tetrachloroethene	0	U	68	0.19	0.0257	0.0129
Toluene	0.0186	J	200	6.7	0.0513	0.0256
trans-1,2-Dichloroethene	0	U	960	1.3	0.0513	0.0256
trans-1,3-Dichloropropene	0	U	21	0.018	0.0257	0.0129
Trichloroethene [a]	0	U	4.9	0.011	0.0205	0.0103
Trichlorofluoromethane	0	U	980	41	0.103	0.0515
Vinyl acetate	0	U	1400	1.1	0.205	0.102
Vinyl chloride [a]	0	U	0.65	0.00080	0.00164	0.00082
Xylenes (total)	0	U	57	1.5	0.154	0.077

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD; DUP = duplicate sample

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/22/23 at 17:28.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP2 (14')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0372	0.0186
1,1,1-Trichloroethane	0	U	360	32	0.0465	0.0233
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00372	0.00186
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00186	0.00093
1,1-Dichloroethane	0	U	46	0.092	0.0465	0.0233
1,1-Dichloroethene	0	U	330	1.2	0.0465	0.0233
1,1-Dichloropropene	0	U	---	---	0.0465	0.0233
1,2,3-Trichlorobenzene	0	U	81	0.15	0.186	0.093
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00372	0.00186
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0465	0.0233
1,2,4-Trimethylbenzene	0	U	43	0.61	0.186	0.093
1,2-Dibromo-3-chloropropane	0	U	---	---	0.186	0.093
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00279	0.0014
1,2-Dichlorobenzene	0	U	78	2.4	0.0465	0.0233
1,2-Dichloroethane	0	U	5.5	0.0055	0.00372	0.00186
1,2-Dichloropropane	0	U	17	0.030	0.0186	0.0093
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0465	0.0233
1,3-Dichlorobenzene	0	U	62	2.3	0.0465	0.0233
1,3-Dichloropropane	0	U	---	---	0.0186	0.0093
1,4-Dichlorobenzene	0	U	21	0.037	0.0465	0.0233
2,2-Dichloropropane [a]	0	U	21	0.018	0.0465	0.0233
2-Butanone (MEK)	0	U	23000	15	0.465	0.233
2-Chlorotoluene	0	U	---	---	0.0465	0.0233
2-Hexanone [a]	0	U	270	0.11	0.223	0.112
4-Chlorotoluene	0	U	---	---	0.0372	0.0186
4-Isopropyltoluene	0	U	---	---	0.149	0.0745
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.465	0.233
Acetone	0.416	J	81000	38	0.465	0.233
Benzene	0.557	---	11	0.022	0.0233	0.0117
Bromobenzene	0	U	160	0.36	0.0465	0.0233
Bromochloromethane	0	U	---	---	0.0465	0.0233
Bromodichloromethane	0	U	3.6	0.0043	0.00372	0.00186
Bromoform	0	U	240	0.1	0.0465	0.0233
Bromomethane	0	U	10	0.024	0.0372	0.0186
Carbon disulfide	0	U	500	2.9	0.186	0.093

Carbon tetrachloride	0	U	9.1	0.021	0.0233	0.0117
Chlorobenzene	0	U	180	0.46	0.0465	0.0233
Chloroethane	0	U	---	---	0.372	0.186
Chloroform	0	U	4	0.0071	0.0112	0.0056
Chloromethane	0	U	170	0.61	0.0465	0.0233
cis-1,2-Dichloroethene	0	U	200	0.12	0.0465	0.0233
cis-1,3-Dichloropropene	0	U	---	---	0.0233	0.0117
Dibromochloromethane [a]	0	U	110	0.0027	0.0093	0.00465
Dibromomethane	0	U	31	0.025	0.0465	0.0233
Dichlorodifluoromethane	0	U	150	3.9	0.186	0.093
Ethylbenzene	0	U	49	0.13	0.0465	0.0233
Freon-113	0	U	---	---	0.186	0.093
Hexachlorobutadiene	0	U	3.3	0.02	0.0372	0.0186
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0465	0.0233
Methylene chloride	0	U	460	0.33	0.186	0.093
Methyl-t-butyl ether	0	U	670	0.40	0.186	0.093
Naphthalene	0	U	29	0.038	0.0465	0.0233
n-Butylbenzene	0	U	20	23	0.0465	0.0233
n-Propylbenzene	0	U	52	9.1	0.0465	0.0233
o-Xylene	0	U	---	---	0.0465	0.0233
p- & m-Xylene	0	U	---	---	0.093	0.0465
sec-Butylbenzene	0	U	28	42	0.0465	0.0233
Styrene	0	U	180	10	0.0465	0.0233
tert-Butylbenzene	0	U	36	11	0.0465	0.0233
Tetrachloroethene	0	U	68	0.19	0.0233	0.0117
Toluene	0	U	200	6.7	0.0465	0.0233
trans-1,2-Dichloroethene	0	U	960	1.3	0.0465	0.0233
trans-1,3-Dichloropropene	0	U	21	0.018	0.0233	0.0117
Trichloroethene	0	U	4.9	0.011	0.0186	0.0093
Trichlorofluoromethane	0	U	980	41	0.093	0.0465
Vinyl acetate	0	U	1400	1.1	0.186	0.093
Vinyl chloride	0	U	0.65	0.00080	0.00149	0.000745
Xylenes (total)	0	U	57	1.5	0.14	0.07

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/22/23 at 17:55.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP3 (13')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0409	0.0204
1,1,1-Trichloroethane	0	U	360	32	0.0512	0.0256
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00409	0.00204
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00205	0.00103
1,1-Dichloroethane	0	U	46	0.092	0.0512	0.0256
1,1-Dichloroethene	0	U	330	1.2	0.0512	0.0256
1,1-Dichloropropene	0	U	---	---	0.0512	0.0256
1,2,3-Trichlorobenzene	0	U	81	0.15	0.205	0.102
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00409	0.00204
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0512	0.0256
1,2,4-Trimethylbenzene	0	U	43	0.61	0.205	0.102
1,2-Dibromo-3-chloropropane	0	U	---	---	0.205	0.102
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00307	0.00153
1,2-Dichlorobenzene	0	U	78	2.4	0.0512	0.0256
1,2-Dichloroethane	0	U	5.5	0.0055	0.00409	0.00204
1,2-Dichloropropane	0	U	17	0.030	0.0205	0.0103
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0512	0.0256
1,3-Dichlorobenzene	0	U	62	2.3	0.0512	0.0256
1,3-Dichloropropane	0	U	---	---	0.0205	0.0103
1,4-Dichlorobenzene	0	U	21	0.037	0.0512	0.0256
2,2-Dichloropropane [a]	0	U	21	0.018	0.0512	0.0256
2-Butanone (MEK)	0	U	23000	15	0.512	0.256
2-Chlorotoluene	0	U	---	---	0.0512	0.0256
2-Hexanone [a]	0	U	270	0.11	0.246	0.123
4-Chlorotoluene	0	U	---	---	0.0409	0.0204
4-Isopropyltoluene	0	U	---	---	0.164	0.082
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.512	0.256
Acetone	0.301	J	81000	38	0.512	0.256
Benzene	0.0354	---	11	0.022	0.0256	0.0128
Bromobenzene	0	U	160	0.36	0.0512	0.0256
Bromochloromethane	0	U	---	---	0.0512	0.0256
Bromodichloromethane	0	U	3.6	0.0043	0.00409	0.00204
Bromoform	0	U	240	0.1	0.0512	0.0256
Bromomethane	0	U	10	0.024	0.0409	0.0204
Carbon disulfide	0	U	500	2.9	0.205	0.102

Carbon tetrachloride	0	U	9.1	0.021	0.0256	0.0128
Chlorobenzene	0	U	180	0.46	0.0512	0.0256
Chloroethane	0	U	---	---	0.409	0.204
Chloroform	0	U	4	0.0071	0.0123	0.00615
Chloromethane	0	U	170	0.61	0.0512	0.0256
cis-1,2-Dichloroethene	0	U	200	0.12	0.0512	0.0256
cis-1,3-Dichloropropene	0	U	---	---	0.0256	0.0128
Dibromochloromethane [a]	0	U	110	0.0027	0.0102	0.0051
Dibromomethane [a]	0	U	31	0.025	0.0512	0.0256
Dichlorodifluoromethane	0	U	150	3.9	0.205	0.102
Ethylbenzene	0	U	49	0.13	0.0512	0.0256
Freon-113	0	U	---	---	0.205	0.102
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0409	0.0204
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0512	0.0256
Methylene chloride	0	U	460	0.33	0.205	0.102
Methyl-t-butyl ether	0	U	670	0.40	0.205	0.102
Naphthalene	0	U	29	0.038	0.0512	0.0256
n-Butylbenzene	0	U	20	23	0.0512	0.0256
n-Propylbenzene	0	U	52	9.1	0.0512	0.0256
o-Xylene	0	U	---	---	0.0512	0.0256
p- & m-Xylene	0	U	---	---	0.102	0.051
sec-Butylbenzene	0	U	28	42	0.0512	0.0256
Styrene	0	U	180	10	0.0512	0.0256
tert-Butylbenzene	0	U	36	11	0.0512	0.0256
Tetrachloroethene	0	U	68	0.19	0.0256	0.0128
Toluene	0.0195	J	200	6.7	0.0512	0.0256
trans-1,2-Dichloroethene	0	U	960	1.3	0.0512	0.0256
trans-1,3-Dichloropropene	0	U	21	0.018	0.0256	0.0128
Trichloroethene [a]	0	U	4.9	0.011	0.0205	0.0103
Trichlorofluoromethane	0	U	980	41	0.102	0.051
Vinyl acetate	0	U	1400	1.1	0.205	0.102
Vinyl chloride [a]	0	U	0.65	0.00080	0.00164	0.00082
Xylenes (total)	0	U	57	1.5	0.154	0.077

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/22/23 at 19:52.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP4 (10')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0419	0.021
1,1,1-Trichloroethane	0	U	360	32	0.0524	0.0262
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00419	0.0021
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.0021	0.00105
1,1-Dichloroethane	0	U	46	0.092	0.0524	0.0262
1,1-Dichloroethene	0	U	330	1.2	0.0524	0.0262
1,1-Dichloropropene	0	U	---	---	0.0524	0.0262
1,2,3-Trichlorobenzene	0	U	81	0.15	0.21	0.105
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00419	0.0021
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0524	0.0262
1,2,4-Trimethylbenzene	0	U	43	0.61	0.21	0.105
1,2-Dibromo-3-chloropropane	0	U	---	---	0.21	0.105
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00315	0.00158
1,2-Dichlorobenzene	0	U	78	2.4	0.0524	0.0262
1,2-Dichloroethane	0	U	5.5	0.0055	0.00419	0.0021
1,2-Dichloropropane	0	U	17	0.030	0.021	0.0105
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0524	0.0262
1,3-Dichlorobenzene	0	U	62	2.3	0.0524	0.0262
1,3-Dichloropropane	0	U	---	---	0.021	0.0105
1,4-Dichlorobenzene	0	U	21	0.037	0.0524	0.0262
2,2-Dichloropropane [a]	0	U	21	0.018	0.0524	0.0262
2-Butanone (MEK)	0	U	23000	15	0.524	0.262
2-Chlorotoluene	0	U	---	---	0.0524	0.0262
2-Hexanone [a]	0	U	270	0.11	0.252	0.126
4-Chlorotoluene	0	U	---	---	0.0419	0.021
4-Isopropyltoluene	0	U	---	---	0.168	0.084
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.524	0.262
Acetone	0.441	J	81000	38	0.524	0.262
Benzene	0	U	11	0.022	0.0262	0.0131
Bromobenzene	0	U	160	0.36	0.0524	0.0262
Bromochloromethane	0	U	---	---	0.0524	0.0262
Bromodichloromethane	0	U	3.6	0.0043	0.00419	0.0021
Bromoform	0	U	240	0.1	0.0524	0.0262
Bromomethane	0	U	10	0.024	0.0419	0.021
Carbon disulfide	0	U	500	2.9	0.21	0.105

Carbon tetrachloride	0	U	9.1	0.021	0.0262	0.0131
Chlorobenzene	0	U	180	0.46	0.0524	0.0262
Chloroethane	0	U	---	---	0.419	0.209
Chloroform	0	U	4	0.0071	0.0126	0.0063
Chloromethane	0	U	170	0.61	0.0524	0.0262
cis-1,2-Dichloroethene	0	U	200	0.12	0.0524	0.0262
cis-1,3-Dichloropropene	0	U	---	---	0.0262	0.0131
Dibromochloromethane [a]	0	U	110	0.0027	0.0105	0.00525
Dibromomethane [a]	0	U	31	0.025	0.0524	0.0262
Dichlorodifluoromethane	0	U	150	3.9	0.21	0.105
Ethylbenzene	0	U	49	0.13	0.0524	0.0262
Freon-113	0	U	---	---	0.21	0.105
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0419	0.021
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0524	0.0262
Methylene chloride	0	U	460	0.33	0.21	0.105
Methyl-t-butyl ether	0	U	670	0.40	0.21	0.105
Naphthalene	0	U	29	0.038	0.0524	0.0262
n-Butylbenzene	0	U	20	23	0.0524	0.0262
n-Propylbenzene	0	U	52	9.1	0.0524	0.0262
o-Xylene	0	U	---	---	0.0524	0.0262
p- & m-Xylene	0	U	---	---	0.105	0.0525
sec-Butylbenzene	0	U	28	42	0.0524	0.0262
Styrene	0	U	180	10	0.0524	0.0262
tert-Butylbenzene	0	U	36	11	0.0524	0.0262
Tetrachloroethene	0	U	68	0.19	0.0262	0.0131
Toluene	0	U	200	6.7	0.0524	0.0262
trans-1,2-Dichloroethene	0	U	960	1.3	0.0524	0.0262
trans-1,3-Dichloropropene	0	U	21	0.018	0.0262	0.0131
Trichloroethene	0	U	4.9	0.011	0.021	0.0105
Trichlorofluoromethane	0	U	980	41	0.105	0.0525
Vinyl acetate	0	U	1400	1.1	0.21	0.105
Vinyl chloride [a]	0	U	0.65	0.00080	0.00168	0.00084
Xylenes (total)	0	U	57	1.5	0.157	0.0785

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/23/23 at 09:20.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP5 (6')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane [a]	0	U	21	0.022	0.06	0.03
1,1,1-Trichloroethane	0	U	360	32	0.075	0.0375
1,1,2,2-Tetrachloroethane [a]	0	U	6.1	0.0030	0.006	0.003
1,1,2-Trichloroethane [a]	0	U	1.6	0.0014	0.003	0.0015
1,1-Dichloroethane	0	U	46	0.092	0.075	0.0375
1,1-Dichloroethene	0	U	330	1.2	0.075	0.0375
1,1-Dichloropropene	0	U	---	---	0.075	0.0375
1,2,3-Trichlorobenzene [a]	0	U	81	0.15	0.3	0.15
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.006	0.003
1,2,4-Trichlorobenzene	0	U	45	0.082	0.075	0.0375
1,2,4-Trimethylbenzene	0	U	43	0.61	0.3	0.15
1,2-Dibromo-3-chloropropane	0	U	---	---	0.3	0.15
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.0045	0.00225
1,2-Dichlorobenzene	0	U	78	2.4	0.075	0.0375
1,2-Dichloroethane	0	U	5.5	0.0055	0.006	0.003
1,2-Dichloropropane	0	U	17	0.030	0.03	0.015
1,3,5-Trimethylbenzene	0	U	37	0.66	0.075	0.0375
1,3-Dichlorobenzene	0	U	62	2.3	0.075	0.0375
1,3-Dichloropropane	0	U	---	---	0.03	0.015
1,4-Dichlorobenzene [a]	0	U	21	0.037	0.075	0.0375
2,2-Dichloropropane [a]	0	U	21	0.018	0.075	0.0375
2-Butanone (MEK)	0	U	23000	15	0.75	0.375
2-Chlorotoluene	0	U	---	---	0.075	0.0375
2-Hexanone [a]	0	U	270	0.11	0.36	0.18
4-Chlorotoluene	0	U	---	---	0.06	0.03
4-Isopropyltoluene	0	U	---	---	0.24	0.12
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.75	0.375
Acetone	0	U	81000	38	0.75	0.375
Benzene	0	U	11	0.022	0.0375	0.0187
Bromobenzene	0	U	160	0.36	0.075	0.0375
Bromochloromethane	0	U	---	---	0.075	0.0375
Bromodichloromethane	0	U	3.6	0.0043	0.006	0.003
Bromoform	0	U	240	0.1	0.075	0.0375
Bromomethane [a]	0	U	10	0.024	0.06	0.03
Carbon disulfide	0	U	500	2.9	0.3	0.15

Carbon tetrachloride	0	U	9.1	0.021	0.0375	0.0187
Chlorobenzene	0	U	180	0.46	0.075	0.0375
Chloroethane	0	U	---	---	0.6	0.3
Chloroform [a]	0	U	4	0.0071	0.018	0.009
Chloromethane	0	U	170	0.61	0.075	0.0375
cis-1,2-Dichloroethene	0	U	200	0.12	0.075	0.0375
cis-1,3-Dichloropropene	0	U	---	---	0.0375	0.0187
Dibromochloromethane [a]	0	U	110	0.0027	0.015	0.0075
Dibromomethane [a]	0	U	31	0.025	0.075	0.0375
Dichlorodifluoromethane	0	U	150	3.9	0.3	0.15
Ethylbenzene	0	U	49	0.13	0.075	0.0375
Freon-113	0	U	---	---	0.3	0.15
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.06	0.03
Isopropylbenzene (Cumene)	0	U	54	5.6	0.075	0.0375
Methylene chloride	0	U	460	0.33	0.3	0.15
Methyl-t-butyl ether	0	U	670	0.40	0.3	0.15
Naphthalene	0	U	29	0.038	0.075	0.0375
n-Butylbenzene	0	U	20	23	0.075	0.0375
n-Propylbenzene	0	U	52	9.1	0.075	0.0375
o-Xylene	0	U	---	---	0.075	0.0375
p- & m-Xylene	0	U	---	---	0.15	0.075
sec-Butylbenzene	0	U	28	42	0.075	0.0375
Styrene	0	U	180	10	0.075	0.0375
tert-Butylbenzene	0	U	36	11	0.075	0.0375
Tetrachloroethene	0	U	68	0.19	0.0375	0.0187
Toluene	0	U	200	6.7	0.075	0.0375
trans-1,2-Dichloroethene	0	U	960	1.3	0.075	0.0375
trans-1,3-Dichloropropene [a]	0	U	21	0.018	0.0375	0.0187
Trichloroethene [a]	0	U	4.9	0.011	0.03	0.015
Trichlorofluoromethane	0	U	980	41	0.15	0.075
Vinyl acetate	0	U	1400	1.1	0.3	0.15
Vinyl chloride [a]	0	U	0.65	0.00080	0.0024	0.0012
Xylenes (total)	0	U	57	1.5	0.225	0.113

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/23/23 at 10:51.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP6 (9')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane [a]	0	U	21	0.022	0.0446	0.0223
1,1,1-Trichloroethane	0	U	360	32	0.0558	0.0279
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00446	0.00223
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00223	0.00112
1,1-Dichloroethane	0	U	46	0.092	0.0558	0.0279
1,1-Dichloroethene	0	U	330	1.2	0.0558	0.0279
1,1-Dichloropropene	0	U	---	---	0.0558	0.0279
1,2,3-Trichlorobenzene	0	U	81	0.15	0.223	0.112
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00446	0.00223
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0558	0.0279
1,2,4-Trimethylbenzene	0.179	J	43	0.61	0.223	0.112
1,2-Dibromo-3-chloropropane	0	U	---	---	0.223	0.112
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00335	0.00168
1,2-Dichlorobenzene	0	U	78	2.4	0.0558	0.0279
1,2-Dichloroethane	0	U	5.5	0.0055	0.00446	0.00223
1,2-Dichloropropane	0	U	17	0.030	0.0223	0.0112
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0558	0.0279
1,3-Dichlorobenzene	0	U	62	2.3	0.0558	0.0279
1,3-Dichloropropane	0	U	---	---	0.0223	0.0112
1,4-Dichlorobenzene	0	U	21	0.037	0.0558	0.0279
2,2-Dichloropropane [a]	0	U	21	0.018	0.0558	0.0279
2-Butanone (MEK)	0	U	23000	15	0.558	0.279
2-Chlorotoluene	0	U	---	---	0.0558	0.0279
2-Hexanone [a]	0	U	270	0.11	0.268	0.134
4-Chlorotoluene	0	U	---	---	0.0446	0.0223
4-Isopropyltoluene	0	U	---	---	0.179	0.0895
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.558	0.279
Acetone	0	U	81000	38	0.558	0.279
Benzene	0.0146	J	11	0.022	0.0279	0.014
Bromobenzene	0	U	160	0.36	0.0558	0.0279
Bromochloromethane	0	U	---	---	0.0558	0.0279
Bromodichloromethane	0	U	3.6	0.0043	0.00446	0.00223
Bromoform	0	U	240	0.1	0.0558	0.0279
Bromomethane	0	U	10	0.024	0.0446	0.0223
Carbon disulfide	0	U	500	2.9	0.223	0.112

Carbon tetrachloride	0	U	9.1	0.021	0.0279	0.014
Chlorobenzene	0	U	180	0.46	0.0558	0.0279
Chloroethane	0	U	---	---	0.446	0.223
Chloroform	0	U	4	0.0071	0.0134	0.0067
Chloromethane	0	U	170	0.61	0.0558	0.0279
cis-1,2-Dichloroethene	0	U	200	0.12	0.0558	0.0279
cis-1,3-Dichloropropene	0	U	---	---	0.0279	0.014
Dibromochloromethane [a]	0	U	110	0.0027	0.0112	0.0056
Dibromomethane [a]	0	U	31	0.025	0.0558	0.0279
Dichlorodifluoromethane	0	U	150	3.9	0.223	0.112
Ethylbenzene	0.177	---	49	0.13	0.0558	0.0279
Freon-113	0	U	---	---	0.223	0.112
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0446	0.0223
Isopropylbenzene (Cumene)	0.0696	---	54	5.6	0.0558	0.0279
Methylene chloride	0	U	460	0.33	0.223	0.112
Methyl-t-butyl ether	0	U	670	0.40	0.223	0.112
Naphthalene	0	U	29	0.038	0.0558	0.0279
n-Butylbenzene	0	U	20	23	0.0558	0.0279
n-Propylbenzene	0.0642	---	52	9.1	0.0558	0.0279
o-Xylene	0.0441	J	---	---	0.0558	0.0279
p- & m-Xylene	0.214	---	---	---	0.112	0.056
sec-Butylbenzene	0	U	28	42	0.0558	0.0279
Styrene	0	U	180	10	0.0558	0.0279
tert-Butylbenzene	0	U	36	11	0.0558	0.0279
Tetrachloroethene	0	U	68	0.19	0.0279	0.014
Toluene	0	U	200	6.7	0.0558	0.0279
trans-1,2-Dichloroethene	0	U	960	1.3	0.0558	0.0279
trans-1,3-Dichloropropene	0	U	21	0.018	0.0279	0.014
Trichloroethene [a]	0	U	4.9	0.011	0.0223	0.0112
Trichlorofluoromethane	0	U	980	41	0.112	0.056
Vinyl acetate	0	U	1400	1.1	0.223	0.112
Vinyl chloride [a]	0	U	0.65	0.00080	0.00179	0.000895
Xylenes (total)	0.258	---	57	1.5	0.167	0.0835

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/23/23 at 15:32.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP7 (2')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane [a]	0	U	21	0.022	0.587	0.293
1,1,1-Trichloroethane	0	U	360	32	0.734	0.367
1,1,2,2-Tetrachloroethane [a]	0	U	6.1	0.0030	0.0587	0.0294
1,1,2-Trichloroethane [a]	0	U	1.6	0.0014	0.0294	0.0147
1,1-Dichloroethane [a]	0	U	46	0.092	0.734	0.367
1,1-Dichloroethene	0	U	330	1.2	0.734	0.367
1,1-Dichloropropene	0	U	---	---	0.734	0.367
1,2,3-Trichlorobenzene [a]	0	U	81	0.15	2.94	1.47
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.0587	0.0294
1,2,4-Trichlorobenzene [a]	0	U	45	0.082	0.734	0.367
1,2,4-Trimethylbenzene [a]	244	---	43	0.61	29.4	14.7
1,2-Dibromo-3-chloropropane	0	U	---	---	2.94	1.47
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.044	0.022
1,2-Dichlorobenzene	0	U	78	2.4	0.734	0.367
1,2-Dichloroethane [a]	0	U	5.5	0.0055	0.0587	0.0294
1,2-Dichloropropane [a]	0	U	17	0.030	0.294	0.147
1,3,5-Trimethylbenzene [a]	79.3	---	37	0.66	7.34	3.67
1,3-Dichlorobenzene	0	U	62	2.3	0.734	0.367
1,3-Dichloropropane	0	U	---	---	0.294	0.147
1,4-Dichlorobenzene [a]	0	U	21	0.037	0.734	0.367
2,2-Dichloropropane [a]	0	U	21	0.018	0.734	0.367
2-Butanone (MEK)	0	U	23000	15	7.34	3.67
2-Chlorotoluene	0	U	---	---	0.734	0.367
2-Hexanone [a]	0	U	270	0.11	3.52	1.76
4-Chlorotoluene	0	U	---	---	0.587	0.293
4-Isopropyltoluene	3.07	---	---	---	2.35	1.18
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	7.34	3.67
Acetone	0	U	81000	38	7.34	3.67
Benzene [a]	9.6	---	11	0.022	0.367	0.184
Bromobenzene [a]	0	U	160	0.36	0.734	0.367
Bromochloromethane	0	U	---	---	0.734	0.367
Bromodichloromethane [a]	0	U	3.6	0.0043	0.0587	0.0294
Bromoform [a]	0	U	240	0.1	0.734	0.367
Bromomethane [a]	0	U	10	0.024	0.587	0.293
Carbon disulfide	0	U	500	2.9	2.94	1.47

Carbon tetrachloride [a]	0	U	9.1	0.021	0.367	0.184
Chlorobenzene	0	U	180	0.46	0.734	0.367
Chloroethane	0	U	---	---	5.87	2.94
Chloroform [a]	0	U	4	0.0071	0.176	0.088
Chloromethane	0	U	170	0.61	0.734	0.367
cis-1,2-Dichloroethene [a]	0	U	200	0.12	0.734	0.367
cis-1,3-Dichloropropene	0	U	---	---	0.367	0.184
Dibromochloromethane [a]	0	U	110	0.0027	0.147	0.0735
Dibromomethane [a]	0	U	31	0.025	0.734	0.367
Dichlorodifluoromethane	0	U	150	3.9	2.94	1.47
Ethylbenzene [a]	58.2	---	49	0.13	0.734	0.367
Freon-113	0	U	---	---	2.94	1.47
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.587	0.293
Isopropylbenzene (Cumene)	7.01	---	54	5.6	0.734	0.367
Methylene chloride [a]	0	U	460	0.33	2.94	1.47
Methyl-t-butyl ether [a]	0	U	670	0.40	2.94	1.47
Naphthalene [a]	18.5	---	29	0.038	0.734	0.367
n-Butylbenzene	0	U	20	23	0.734	0.367
n-Propylbenzene	9.74	---	52	9.1	0.734	0.367
o-Xylene	256	---	---	---	7.34	3.67
p- & m-Xylene	710	---	---	---	14.7	7.35
sec-Butylbenzene	4.19	---	28	42	0.734	0.367
Styrene	0	U	180	10	0.734	0.367
tert-Butylbenzene	21.6	---	36	11	0.734	0.367
Tetrachloroethene	0	U	68	0.19	0.367	0.184
Toluene	326	---	200	6.7	7.34	3.67
trans-1,2-Dichloroethene [a]	0	U	960	1.3	0.734	0.367
trans-1,3-Dichloropropene [a]	0	U	21	0.018	0.367	0.184
Trichloroethene [a]	0	U	4.9	0.011	0.294	0.147
Trichlorofluoromethane	0	U	980	41	1.47	0.735
Vinyl acetate [a]	0	U	1400	1.1	2.94	1.47
Vinyl chloride [a]	0	U	0.65	0.00080	0.0235	0.0118
Xylenes (total) [a]	966	---	57	1.5	22	11

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/23/23 at 16:17.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP7 (9.5')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0417	0.0209
1,1,1-Trichloroethane	0	U	360	32	0.0521	0.0261
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00417	0.00209
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00208	0.00104
1,1-Dichloroethane	0	U	46	0.092	0.0521	0.0261
1,1-Dichloroethene	0	U	330	1.2	0.0521	0.0261
1,1-Dichloropropene	0	U	---	---	0.0521	0.0261
1,2,3-Trichlorobenzene	0	U	81	0.15	0.208	0.104
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00417	0.00209
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0521	0.0261
1,2,4-Trimethylbenzene	0	U	43	0.61	0.208	0.104
1,2-Dibromo-3-chloropropane	0	U	---	---	0.208	0.104
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00313	0.00157
1,2-Dichlorobenzene	0	U	78	2.4	0.0521	0.0261
1,2-Dichloroethane	0	U	5.5	0.0055	0.00417	0.00209
1,2-Dichloropropane	0	U	17	0.030	0.0208	0.0104
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0521	0.0261
1,3-Dichlorobenzene	0	U	62	2.3	0.0521	0.0261
1,3-Dichloropropane	0	U	---	---	0.0208	0.0104
1,4-Dichlorobenzene	0	U	21	0.037	0.0521	0.0261
2,2-Dichloropropane [a]	0	U	21	0.018	0.0521	0.0261
2-Butanone (MEK)	0	U	23000	15	0.521	0.261
2-Chlorotoluene	0	U	---	---	0.0521	0.0261
2-Hexanone [a]	0	U	270	0.11	0.25	0.125
4-Chlorotoluene	0	U	---	---	0.0417	0.0209
4-Isopropyltoluene	0	U	---	---	0.167	0.0835
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.521	0.261
Acetone	0	U	81000	38	0.521	0.261
Benzene	0.0156	J	11	0.022	0.0261	0.0131
Bromobenzene	0	U	160	0.36	0.0521	0.0261
Bromochloromethane	0	U	---	---	0.0521	0.0261
Bromodichloromethane	0	U	3.6	0.0043	0.00417	0.00209
Bromoform	0	U	240	0.1	0.0521	0.0261
Bromomethane	0	U	10	0.024	0.0417	0.0209
Carbon disulfide	0	U	500	2.9	0.208	0.104

Carbon tetrachloride	0	U	9.1	0.021	0.0261	0.0131
Chlorobenzene	0	U	180	0.46	0.0521	0.0261
Chloroethane	0	U	---	---	0.417	0.208
Chloroform	0	U	4	0.0071	0.0125	0.00625
Chloromethane	0	U	170	0.61	0.0521	0.0261
cis-1,2-Dichloroethene	0	U	200	0.12	0.0521	0.0261
cis-1,3-Dichloropropene	0	U	---	---	0.0261	0.0131
Dibromochloromethane [a]	0	U	110	0.0027	0.0104	0.0052
Dibromomethane [a]	0	U	31	0.025	0.0521	0.0261
Dichlorodifluoromethane	0	U	150	3.9	0.208	0.104
Ethylbenzene	0	U	49	0.13	0.0521	0.0261
Freon-113	0	U	---	---	0.208	0.104
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0417	0.0209
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0521	0.0261
Methylene chloride	0	U	460	0.33	0.208	0.104
Methyl-t-butyl ether	0	U	670	0.40	0.208	0.104
Naphthalene	0	U	29	0.038	0.0521	0.0261
n-Butylbenzene	0	U	20	23	0.0521	0.0261
n-Propylbenzene	0	U	52	9.1	0.0521	0.0261
o-Xylene	0.0176	J	---	---	0.0521	0.0261
p- & m-Xylene	0.0808	J	---	---	0.104	0.052
sec-Butylbenzene	0	U	28	42	0.0521	0.0261
Styrene	0	U	180	10	0.0521	0.0261
tert-Butylbenzene	0	U	36	11	0.0521	0.0261
Tetrachloroethene	0	U	68	0.19	0.0261	0.0131
Toluene	0.0457	J	200	6.7	0.0521	0.0261
trans-1,2-Dichloroethene	0	U	960	1.3	0.0521	0.0261
trans-1,3-Dichloropropene	0	U	21	0.018	0.0261	0.0131
Trichloroethene	0	U	4.9	0.011	0.0208	0.0104
Trichlorofluoromethane	0	U	980	41	0.104	0.052
Vinyl acetate	0	U	1400	1.1	0.208	0.104
Vinyl chloride [a]	0	U	0.65	0.00080	0.00167	0.000835
Xylenes (total)	0.0984	J	57	1.5	0.156	0.078

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/23/23 at 16:36.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP8 (9.5')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0418	0.0209
1,1,1-Trichloroethane	0	U	360	32	0.0522	0.0261
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00418	0.00209
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00209	0.00104
1,1-Dichloroethane	0	U	46	0.092	0.0522	0.0261
1,1-Dichloroethene	0	U	330	1.2	0.0522	0.0261
1,1-Dichloropropene	0	U	---	---	0.0522	0.0261
1,2,3-Trichlorobenzene	0	U	81	0.15	0.209	0.105
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00418	0.00209
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0522	0.0261
1,2,4-Trimethylbenzene	0	U	43	0.61	0.209	0.105
1,2-Dibromo-3-chloropropane	0	U	---	---	0.209	0.105
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00313	0.00157
1,2-Dichlorobenzene	0	U	78	2.4	0.0522	0.0261
1,2-Dichloroethane	0	U	5.5	0.0055	0.00418	0.00209
1,2-Dichloropropane	0	U	17	0.030	0.0209	0.0104
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0522	0.0261
1,3-Dichlorobenzene	0	U	62	2.3	0.0522	0.0261
1,3-Dichloropropane	0	U	---	---	0.0209	0.0104
1,4-Dichlorobenzene	0	U	21	0.037	0.0522	0.0261
2,2-Dichloropropane [a]	0	U	21	0.018	0.0522	0.0261
2-Butanone (MEK)	0	U	23000	15	0.522	0.261
2-Chlorotoluene	0	U	---	---	0.0522	0.0261
2-Hexanone [a]	0	U	270	0.11	0.251	0.126
4-Chlorotoluene	0	U	---	---	0.0418	0.0209
4-Isopropyltoluene	0	U	---	---	0.167	0.0835
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.522	0.261
Acetone	0	U	81000	38	0.522	0.261
Benzene	0.0443	---	11	0.022	0.0261	0.0131
Bromobenzene	0	U	160	0.36	0.0522	0.0261
Bromochloromethane	0	U	---	---	0.0522	0.0261
Bromodichloromethane	0	U	3.6	0.0043	0.00418	0.00209
Bromoform	0	U	240	0.1	0.0522	0.0261
Bromomethane	0	U	10	0.024	0.0418	0.0209
Carbon disulfide	0	U	500	2.9	0.209	0.105

Carbon tetrachloride	0	U	9.1	0.021	0.0261	0.0131
Chlorobenzene	0	U	180	0.46	0.0522	0.0261
Chloroethane	0	U	---	---	0.418	0.209
Chloroform	0	U	4	0.0071	0.0125	0.00625
Chloromethane	0	U	170	0.61	0.0522	0.0261
cis-1,2-Dichloroethene	0	U	200	0.12	0.0522	0.0261
cis-1,3-Dichloropropene	0	U	---	---	0.0261	0.0131
Dibromochloromethane [a]	0	U	110	0.0027	0.0104	0.0052
Dibromomethane [a]	0	U	31	0.025	0.0522	0.0261
Dichlorodifluoromethane	0	U	150	3.9	0.209	0.105
Ethylbenzene	0	U	49	0.13	0.0522	0.0261
Freon-113	0	U	---	---	0.209	0.105
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0418	0.0209
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0522	0.0261
Methylene chloride	0	U	460	0.33	0.209	0.105
Methyl-t-butyl ether	0	U	670	0.40	0.209	0.105
Naphthalene	0	U	29	0.038	0.0522	0.0261
n-Butylbenzene	0	U	20	23	0.0522	0.0261
n-Propylbenzene	0	U	52	9.1	0.0522	0.0261
o-Xylene	0	U	---	---	0.0522	0.0261
p- & m-Xylene	0	U	---	---	0.104	0.052
sec-Butylbenzene	0	U	28	42	0.0522	0.0261
Styrene	0	U	180	10	0.0522	0.0261
tert-Butylbenzene	0	U	36	11	0.0522	0.0261
Tetrachloroethene	0	U	68	0.19	0.0261	0.0131
Toluene	0	U	200	6.7	0.0522	0.0261
trans-1,2-Dichloroethene	0	U	960	1.3	0.0522	0.0261
trans-1,3-Dichloropropene	0	U	21	0.018	0.0261	0.0131
Trichloroethene	0	U	4.9	0.011	0.0209	0.0104
Trichlorofluoromethane	0	U	980	41	0.104	0.052
Vinyl acetate	0	U	1400	1.1	0.209	0.105
Vinyl chloride [a]	0	U	0.65	0.00080	0.00167	0.000835
Xylenes (total)	0	U	57	1.5	0.157	0.0785

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/24/23 at 08:53.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP9 (10.5')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane [a]	0	U	21	0.022	0.0475	0.0238
1,1,1-Trichloroethane	0	U	360	32	0.0594	0.0297
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00475	0.00237
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00238	0.00119
1,1-Dichloroethane	0	U	46	0.092	0.0594	0.0297
1,1-Dichloroethene	0	U	330	1.2	0.0594	0.0297
1,1-Dichloropropene	0	U	---	---	0.0594	0.0297
1,2,3-Trichlorobenzene	0	U	81	0.15	0.238	0.119
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00475	0.00237
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0594	0.0297
1,2,4-Trimethylbenzene	0	U	43	0.61	0.238	0.119
1,2-Dibromo-3-chloropropane	0	U	---	---	0.238	0.119
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00356	0.00178
1,2-Dichlorobenzene	0	U	78	2.4	0.0594	0.0297
1,2-Dichloroethane	0	U	5.5	0.0055	0.00475	0.00237
1,2-Dichloropropane	0	U	17	0.030	0.0238	0.0119
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0594	0.0297
1,3-Dichlorobenzene	0	U	62	2.3	0.0594	0.0297
1,3-Dichloropropane	0	U	---	---	0.0238	0.0119
1,4-Dichlorobenzene	0	U	21	0.037	0.0594	0.0297
2,2-Dichloropropane [a]	0	U	21	0.018	0.0594	0.0297
2-Butanone (MEK)	0	U	23000	15	0.594	0.297
2-Chlorotoluene	0	U	---	---	0.0594	0.0297
2-Hexanone [a]	0	U	270	0.11	0.285	0.142
4-Chlorotoluene	0	U	---	---	0.0475	0.0238
4-Isopropyltoluene	0	U	---	---	0.19	0.095
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.594	0.297
Acetone	0	U	81000	38	0.594	0.297
Benzene	0	U	11	0.022	0.0297	0.0149
Bromobenzene	0	U	160	0.36	0.0594	0.0297
Bromochloromethane	0	U	---	---	0.0594	0.0297
Bromodichloromethane	0	U	3.6	0.0043	0.00475	0.00237
Bromoform	0	U	240	0.1	0.0594	0.0297
Bromomethane	0	U	10	0.024	0.0475	0.0238
Carbon disulfide	0	U	500	2.9	0.238	0.119

Carbon tetrachloride	0	U	9.1	0.021	0.0297	0.0149
Chlorobenzene	0	U	180	0.46	0.0594	0.0297
Chloroethane	0	U	---	---	0.475	0.237
Chloroform [a]	0	U	4	0.0071	0.0143	0.00715
Chloromethane	0	U	170	0.61	0.0594	0.0297
cis-1,2-Dichloroethene	0	U	200	0.12	0.0594	0.0297
cis-1,3-Dichloropropene	0	U	---	---	0.0297	0.0149
Dibromochloromethane [a]	0	U	110	0.0027	0.0119	0.00595
Dibromomethane [a]	0	U	31	0.025	0.0594	0.0297
Dichlorodifluoromethane	0	U	150	3.9	0.238	0.119
Ethylbenzene	0	U	49	0.13	0.0594	0.0297
Freon-113	0	U	---	---	0.238	0.119
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0475	0.0238
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0594	0.0297
Methylene chloride	0	U	460	0.33	0.238	0.119
Methyl-t-butyl ether	0	U	670	0.40	0.238	0.119
Naphthalene	0	U	29	0.038	0.0594	0.0297
n-Butylbenzene	0	U	20	23	0.0594	0.0297
n-Propylbenzene	0	U	52	9.1	0.0594	0.0297
o-Xylene	0	U	---	---	0.0594	0.0297
p- & m-Xylene	0	U	---	---	0.119	0.0595
sec-Butylbenzene	0	U	28	42	0.0594	0.0297
Styrene	0	U	180	10	0.0594	0.0297
tert-Butylbenzene	0	U	36	11	0.0594	0.0297
Tetrachloroethene	0	U	68	0.19	0.0297	0.0149
Toluene	0	U	200	6.7	0.0594	0.0297
trans-1,2-Dichloroethene	0	U	960	1.3	0.0594	0.0297
trans-1,3-Dichloropropene	0	U	21	0.018	0.0297	0.0149
Trichloroethene [a]	0	U	4.9	0.011	0.0238	0.0119
Trichlorofluoromethane	0	U	980	41	0.119	0.0595
Vinyl acetate	0	U	1400	1.1	0.238	0.119
Vinyl chloride [a]	0	U	0.65	0.00080	0.0019	0.00095
Xylenes (total)	0	U	57	1.5	0.178	0.089

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/24/23 at 10:03.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP10 (10')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0387	0.0193
1,1,1-Trichloroethane	0	U	360	32	0.0483	0.0242
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00387	0.00194
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00193	0.000965
1,1-Dichloroethane	0	U	46	0.092	0.0483	0.0242
1,1-Dichloroethene	0	U	330	1.2	0.0483	0.0242
1,1-Dichloropropene	0	U	---	---	0.0483	0.0242
1,2,3-Trichlorobenzene	0	U	81	0.15	0.193	0.0965
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00387	0.00194
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0483	0.0242
1,2,4-Trimethylbenzene	0	U	43	0.61	0.193	0.0965
1,2-Dibromo-3-chloropropane	0	U	---	---	0.193	0.0965
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.0029	0.00145
1,2-Dichlorobenzene	0	U	78	2.4	0.0483	0.0242
1,2-Dichloroethane	0	U	5.5	0.0055	0.00387	0.00194
1,2-Dichloropropane	0	U	17	0.030	0.0193	0.00965
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0483	0.0242
1,3-Dichlorobenzene	0	U	62	2.3	0.0483	0.0242
1,3-Dichloropropane	0	U	---	---	0.0193	0.00965
1,4-Dichlorobenzene	0	U	21	0.037	0.0483	0.0242
2,2-Dichloropropane [a]	0	U	21	0.018	0.0483	0.0242
2-Butanone (MEK)	0	U	23000	15	0.483	0.241
2-Chlorotoluene	0	U	---	---	0.0483	0.0242
2-Hexanone [a]	0	U	270	0.11	0.232	0.116
4-Chlorotoluene	0	U	---	---	0.0387	0.0193
4-Isopropyltoluene	0	U	---	---	0.155	0.0775
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.483	0.241
Acetone	0.254	J	81000	38	0.483	0.241
Benzene	0	U	11	0.022	0.0242	0.0121
Bromobenzene	0	U	160	0.36	0.0483	0.0242
Bromochloromethane	0	U	---	---	0.0483	0.0242
Bromodichloromethane	0	U	3.6	0.0043	0.00387	0.00194
Bromoform	0	U	240	0.1	0.0483	0.0242
Bromomethane	0	U	10	0.024	0.0387	0.0193
Carbon disulfide	0	U	500	2.9	0.193	0.0965

Carbon tetrachloride	0	U	9.1	0.021	0.0242	0.0121
Chlorobenzene	0	U	180	0.46	0.0483	0.0242
Chloroethane	0	U	---	---	0.387	0.194
Chloroform	0	U	4	0.0071	0.0116	0.0058
Chloromethane	0	U	170	0.61	0.0483	0.0242
cis-1,2-Dichloroethene	0	U	200	0.12	0.0483	0.0242
cis-1,3-Dichloropropene	0	U	---	---	0.0242	0.0121
Dibromochloromethane [a]	0	U	110	0.0027	0.00966	0.00483
Dibromomethane	0	U	31	0.025	0.0483	0.0242
Dichlorodifluoromethane	0	U	150	3.9	0.193	0.0965
Ethylbenzene	0	U	49	0.13	0.0483	0.0242
Freon-113	0	U	---	---	0.193	0.0965
Hexachlorobutadiene	0	U	3.3	0.02	0.0387	0.0193
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0483	0.0242
Methylene chloride	0	U	460	0.33	0.193	0.0965
Methyl-t-butyl ether	0	U	670	0.40	0.193	0.0965
Naphthalene	0	U	29	0.038	0.0483	0.0242
n-Butylbenzene	0	U	20	23	0.0483	0.0242
n-Propylbenzene	0	U	52	9.1	0.0483	0.0242
o-Xylene	0	U	---	---	0.0483	0.0242
p- & m-Xylene	0	U	---	---	0.0966	0.0483
sec-Butylbenzene	0	U	28	42	0.0483	0.0242
Styrene	0	U	180	10	0.0483	0.0242
tert-Butylbenzene	0	U	36	11	0.0483	0.0242
Tetrachloroethene	0	U	68	0.19	0.0242	0.0121
Toluene	0	U	200	6.7	0.0483	0.0242
trans-1,2-Dichloroethene	0	U	960	1.3	0.0483	0.0242
trans-1,3-Dichloropropene	0	U	21	0.018	0.0242	0.0121
Trichloroethene	0	U	4.9	0.011	0.0193	0.00965
Trichlorofluoromethane	0	U	980	41	0.0966	0.0483
Vinyl acetate	0	U	1400	1.1	0.193	0.0965
Vinyl chloride	0	U	0.65	0.00080	0.00155	0.000775
Xylenes (total)	0	U	57	1.5	0.145	0.0725

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/24/23 at 11:01.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP11 (10.5')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0428	0.0214
1,1,1-Trichloroethane	0	U	360	32	0.0534	0.0267
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00428	0.00214
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00214	0.00107
1,1-Dichloroethane	0	U	46	0.092	0.0534	0.0267
1,1-Dichloroethene	0	U	330	1.2	0.0534	0.0267
1,1-Dichloropropene	0	U	---	---	0.0534	0.0267
1,2,3-Trichlorobenzene	0	U	81	0.15	0.214	0.107
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00428	0.00214
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0534	0.0267
1,2,4-Trimethylbenzene	0	U	43	0.61	0.214	0.107
1,2-Dibromo-3-chloropropane	0	U	---	---	0.214	0.107
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00321	0.00161
1,2-Dichlorobenzene	0	U	78	2.4	0.0534	0.0267
1,2-Dichloroethane	0	U	5.5	0.0055	0.00428	0.00214
1,2-Dichloropropane	0	U	17	0.030	0.0214	0.0107
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0534	0.0267
1,3-Dichlorobenzene	0	U	62	2.3	0.0534	0.0267
1,3-Dichloropropane	0	U	---	---	0.0214	0.0107
1,4-Dichlorobenzene	0	U	21	0.037	0.0534	0.0267
2,2-Dichloropropane [a]	0	U	21	0.018	0.0534	0.0267
2-Butanone (MEK)	0	U	23000	15	0.534	0.267
2-Chlorotoluene	0	U	---	---	0.0534	0.0267
2-Hexanone [a]	0	U	270	0.11	0.257	0.129
4-Chlorotoluene	0	U	---	---	0.0428	0.0214
4-Isopropyltoluene	0	U	---	---	0.171	0.0855
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.534	0.267
Acetone	0	U	81000	38	0.534	0.267
Benzene	0	U	11	0.022	0.0267	0.0134
Bromobenzene	0	U	160	0.36	0.0534	0.0267
Bromochloromethane	0	U	---	---	0.0534	0.0267
Bromodichloromethane	0	U	3.6	0.0043	0.00428	0.00214
Bromoform	0	U	240	0.1	0.0534	0.0267
Bromomethane	0	U	10	0.024	0.0428	0.0214
Carbon disulfide	0	U	500	2.9	0.214	0.107

Carbon tetrachloride	0	U	9.1	0.021	0.0267	0.0134
Chlorobenzene	0	U	180	0.46	0.0534	0.0267
Chloroethane	0	U	---	---	0.428	0.214
Chloroform	0	U	4	0.0071	0.0128	0.0064
Chloromethane	0	U	170	0.61	0.0534	0.0267
cis-1,2-Dichloroethene	0	U	200	0.12	0.0534	0.0267
cis-1,3-Dichloropropene	0	U	---	---	0.0267	0.0134
Dibromochloromethane [a]	0	U	110	0.0027	0.0107	0.00535
Dibromomethane [a]	0	U	31	0.025	0.0534	0.0267
Dichlorodifluoromethane	0	U	150	3.9	0.214	0.107
Ethylbenzene	0	U	49	0.13	0.0534	0.0267
Freon-113	0	U	---	---	0.214	0.107
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0428	0.0214
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0534	0.0267
Methylene chloride	0	U	460	0.33	0.214	0.107
Methyl-t-butyl ether	0	U	670	0.40	0.214	0.107
Naphthalene	0	U	29	0.038	0.0534	0.0267
n-Butylbenzene	0	U	20	23	0.0534	0.0267
n-Propylbenzene	0	U	52	9.1	0.0534	0.0267
o-Xylene	0	U	---	---	0.0534	0.0267
p- & m-Xylene	0	U	---	---	0.107	0.0535
sec-Butylbenzene	0	U	28	42	0.0534	0.0267
Styrene	0	U	180	10	0.0534	0.0267
tert-Butylbenzene	0	U	36	11	0.0534	0.0267
Tetrachloroethene	0	U	68	0.19	0.0267	0.0134
Toluene	0	U	200	6.7	0.0534	0.0267
trans-1,2-Dichloroethene	0	U	960	1.3	0.0534	0.0267
trans-1,3-Dichloropropene	0	U	21	0.018	0.0267	0.0134
Trichloroethene	0	U	4.9	0.011	0.0214	0.0107
Trichlorofluoromethane	0	U	980	41	0.107	0.0535
Vinyl acetate	0	U	1400	1.1	0.214	0.107
Vinyl chloride [a]	0	U	0.65	0.00080	0.00171	0.000855
Xylenes (total)	0	U	57	1.5	0.16	0.08

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/24/23 at 11:47.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP12 (9')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0402	0.0201
1,1,1-Trichloroethane	0	U	360	32	0.0502	0.0251
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00402	0.00201
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00201	0.00101
1,1-Dichloroethane	0	U	46	0.092	0.0502	0.0251
1,1-Dichloroethene	0	U	330	1.2	0.0502	0.0251
1,1-Dichloropropene	0	U	---	---	0.0502	0.0251
1,2,3-Trichlorobenzene	0	U	81	0.15	0.201	0.101
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00402	0.00201
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0502	0.0251
1,2,4-Trimethylbenzene	0	U	43	0.61	0.201	0.101
1,2-Dibromo-3-chloropropane	0	U	---	---	0.201	0.101
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00301	0.00151
1,2-Dichlorobenzene	0	U	78	2.4	0.0502	0.0251
1,2-Dichloroethane	0	U	5.5	0.0055	0.00402	0.00201
1,2-Dichloropropane	0	U	17	0.030	0.0201	0.0101
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0502	0.0251
1,3-Dichlorobenzene	0	U	62	2.3	0.0502	0.0251
1,3-Dichloropropane	0	U	---	---	0.0201	0.0101
1,4-Dichlorobenzene	0	U	21	0.037	0.0502	0.0251
2,2-Dichloropropane [a]	0	U	21	0.018	0.0502	0.0251
2-Butanone (MEK)	0	U	23000	15	0.502	0.251
2-Chlorotoluene	0	U	---	---	0.0502	0.0251
2-Hexanone [a]	0	U	270	0.11	0.241	0.121
4-Chlorotoluene	0	U	---	---	0.0402	0.0201
4-Isopropyltoluene	0	U	---	---	0.161	0.0805
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.502	0.251
Acetone	0.294	J	81000	38	0.502	0.251
Benzene	0.00986	J	11	0.022	0.0251	0.0126
Bromobenzene	0	U	160	0.36	0.0502	0.0251
Bromochloromethane	0	U	---	---	0.0502	0.0251
Bromodichloromethane	0	U	3.6	0.0043	0.00402	0.00201
Bromoform	0	U	240	0.1	0.0502	0.0251
Bromomethane	0	U	10	0.024	0.0402	0.0201
Carbon disulfide	0	U	500	2.9	0.201	0.101

Carbon tetrachloride	0	U	9.1	0.021	0.0251	0.0126
Chlorobenzene	0	U	180	0.46	0.0502	0.0251
Chloroethane	0	U	---	---	0.402	0.201
Chloroform	0	U	4	0.0071	0.012	0.006
Chloromethane	0	U	170	0.61	0.0502	0.0251
cis-1,2-Dichloroethene	0	U	200	0.12	0.0502	0.0251
cis-1,3-Dichloropropene	0	U	---	---	0.0251	0.0126
Dibromochloromethane [a]	0	U	110	0.0027	0.01	0.005
Dibromomethane [a]	0	U	31	0.025	0.0502	0.0251
Dichlorodifluoromethane	0	U	150	3.9	0.201	0.101
Ethylbenzene	0	U	49	0.13	0.0502	0.0251
Freon-113	0	U	---	---	0.201	0.101
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0402	0.0201
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0502	0.0251
Methylene chloride	0	U	460	0.33	0.201	0.101
Methyl-t-butyl ether	0	U	670	0.40	0.201	0.101
Naphthalene	0	U	29	0.038	0.0502	0.0251
n-Butylbenzene	0	U	20	23	0.0502	0.0251
n-Propylbenzene	0	U	52	9.1	0.0502	0.0251
o-Xylene	0	U	---	---	0.0502	0.0251
p- & m-Xylene	0	U	---	---	0.1	0.05
sec-Butylbenzene	0	U	28	42	0.0502	0.0251
Styrene	0	U	180	10	0.0502	0.0251
tert-Butylbenzene	0	U	36	11	0.0502	0.0251
Tetrachloroethene	0	U	68	0.19	0.0251	0.0126
Toluene	0	U	200	6.7	0.0502	0.0251
trans-1,2-Dichloroethene	0	U	960	1.3	0.0502	0.0251
trans-1,3-Dichloropropene	0	U	21	0.018	0.0251	0.0126
Trichloroethene	0	U	4.9	0.011	0.0201	0.0101
Trichlorofluoromethane	0	U	980	41	0.1	0.05
Vinyl acetate	0	U	1400	1.1	0.201	0.101
Vinyl chloride [a]	0	U	0.65	0.00080	0.00161	0.000805
Xylenes (total)	0	U	57	1.5	0.151	0.0755

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/24/23 at 12:53.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Test Pit TP13 (4.5')

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg)	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0577	0.0289
1,1,1-Trichloroethane	0	U	360	32	0.0721	0.036
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00577	0.00289
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00288	0.00144
1,1-Dichloroethane	0	U	46	0.092	0.0721	0.036
1,1-Dichloroethene	0	U	330	1.2	0.0721	0.036
1,1-Dichloropropene	0	U	---	---	0.0721	0.036
1,2,3-Trichlorobenzene	0	U	81	0.15	0.288	0.144
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00577	0.00289
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0721	0.036
1,2,4-Trimethylbenzene	0	U	43	0.61	0.288	0.144
1,2-Dibromo-3-chloropropane	0	U	---	---	0.288	0.144
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00433	0.00216
1,2-Dichlorobenzene	0	U	78	2.4	0.0721	0.036
1,2-Dichloroethane	0	U	5.5	0.0055	0.00577	0.00289
1,2-Dichloropropane	0	U	17	0.030	0.0288	0.0144
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0721	0.036
1,3-Dichlorobenzene	0	U	62	2.3	0.0721	0.036
1,3-Dichloropropane	0	U	---	---	0.0288	0.0144
1,4-Dichlorobenzene	0	U	21	0.037	0.0721	0.036
2,2-Dichloropropane [a]	0	U	21	0.018	0.0721	0.036
2-Butanone (MEK)	0	U	23000	15	0.721	0.36
2-Chlorotoluene	0	U	---	---	0.0721	0.036
2-Hexanone [a]	0	U	270	0.11	0.346	0.173
4-Chlorotoluene	0	U	---	---	0.0577	0.0289
4-Isopropyltoluene	0	U	---	---	0.231	0.116
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.721	0.36
Acetone	0.41	J	81000	38	0.721	0.36
Benzene	0.0237	J	11	0.022	0.036	0.018
Bromobenzene	0	U	160	0.36	0.0721	0.036
Bromochloromethane	0	U	---	---	0.0721	0.036
Bromodichloromethane	0	U	3.6	0.0043	0.00577	0.00289
Bromoform	0	U	240	0.1	0.0721	0.036
Bromomethane	0	U	10	0.024	0.0577	0.0289
Carbon disulfide	0	U	500	2.9	0.288	0.144

Carbon tetrachloride	0	U	9.1	0.021	0.036	0.018
Chlorobenzene	0	U	180	0.46	0.0721	0.036
Chloroethane	0	U	---	---	0.577	0.288
Chloroform	0	U	4	0.0071	0.0173	0.00865
Chloromethane	0	U	170	0.61	0.0721	0.036
cis-1,2-Dichloroethene	0	U	200	0.12	0.0721	0.036
cis-1,3-Dichloropropene	0	U	---	---	0.036	0.018
Dibromochloromethane [a]	0	U	110	0.0027	0.0144	0.0072
Dibromomethane [a]	0	U	31	0.025	0.0721	0.036
Dichlorodifluoromethane	0	U	150	3.9	0.288	0.144
Ethylbenzene	0	U	49	0.13	0.0721	0.036
Freon-113	0	U	---	---	0.288	0.144
Hexachlorobutadiene [a]	0	U	3.3	0.02	0.0577	0.0289
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0721	0.036
Methylene chloride	0	U	460	0.33	0.288	0.144
Methyl-t-butyl ether	0	U	670	0.40	0.288	0.144
Naphthalene	0	U	29	0.038	0.0721	0.036
n-Butylbenzene	0	U	20	23	0.0721	0.036
n-Propylbenzene	0	U	52	9.1	0.0721	0.036
o-Xylene	0	U	---	---	0.0721	0.036
p- & m-Xylene	0	U	---	---	0.144	0.072
sec-Butylbenzene	0	U	28	42	0.0721	0.036
Styrene	0	U	180	10	0.0721	0.036
tert-Butylbenzene	0	U	36	11	0.0721	0.036
Tetrachloroethene	0	U	68	0.19	0.036	0.018
Toluene	0	U	200	6.7	0.0721	0.036
trans-1,2-Dichloroethene	0	U	960	1.3	0.0721	0.036
trans-1,3-Dichloropropene	0	U	21	0.018	0.036	0.018
Trichloroethene	0	U	4.9	0.011	0.0288	0.0144
Trichlorofluoromethane	0	U	980	41	0.144	0.072
Vinyl acetate	0	U	1400	1.1	0.288	0.144
Vinyl chloride [a]	0	U	0.65	0.00080	0.00231	0.00116
Xylenes (total)	0	U	57	1.5	0.216	0.108

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

TP = Test Pit; U = not detected above the LOD

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

Highlighted cells are results detected above one or more cleanup level(s)

Non-highlighted cells are results not detected or detected below cleanup level(s)

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

* Koyuk area receives less than 40 inches of annual precipitation

(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/24/23 at 13:47.

a = LOD is greater than the migration-to-groundwater cleanup level

Table 8. Soil Analytical Results - Volatile Organic Compounds

Trip Blank (23KKA.TB)

Former Koyuk Native Corporation Tank Farm

Second Avenue and Cottonwood Street, Koyuk, Alaska

Sample Information	Results		ADEC Soil Cleanup Levels*		Laboratory Limits	
VOC Analyte	Concentration (mg/kg)	Qualifier	Human Health	Migration to Groundwater	LOQ	LOD
1,1,1,2-Tetrachloroethane	0	U	21	0.022	0.0202	0.0101
1,1,1-Trichloroethane	0	U	360	32	0.0252	0.0126
1,1,2,2-Tetrachloroethane	0	U	6.1	0.0030	0.00202	0.00101
1,1,2-Trichloroethane	0	U	1.6	0.0014	0.00101	0.000505
1,1-Dichloroethane	0	U	46	0.092	0.0252	0.0126
1,1-Dichloroethene	0	U	330	1.2	0.0252	0.0126
1,1-Dichloropropene	0	U	---	---	0.0252	0.0126
1,2,3-Trichlorobenzene	0	U	81	0.15	0.101	0.0505
1,2,3-Trichloropropane [a]	0	U	0.066	0.00003	0.00202	0.00101
1,2,4-Trichlorobenzene	0	U	45	0.082	0.0252	0.0126
1,2,4-Trimethylbenzene	0	U	43	0.61	0.101	0.0505
1,2-Dibromo-3-chloropropane	0	U	---	---	0.101	0.0505
1,2-Dibromoethane [a]	0	U	0.42	0.00024	0.00151	0.000755
1,2-Dichlorobenzene	0	U	78	2.4	0.0252	0.0126
1,2-Dichloroethane	0	U	5.5	0.0055	0.00202	0.00101
1,2-Dichloropropane	0	U	17	0.030	0.0101	0.00505
1,3,5-Trimethylbenzene	0	U	37	0.66	0.0252	0.0126
1,3-Dichlorobenzene	0	U	62	2.3	0.0252	0.0126
1,3-Dichloropropane	0	U	---	---	0.0101	0.00505
1,4-Dichlorobenzene	0	U	21	0.037	0.0252	0.0126
2,2-Dichloropropane	0	U	21	0.018	0.0252	0.0126
2-Butanone (MEK)	0	U	23000	15	0.252	0.126
2-Chlorotoluene	0	U	---	---	0.0252	0.0126
2-Hexanone	0	U	270	0.11	0.121	0.0605
4-Chlorotoluene	0	U	---	---	0.0202	0.0101
4-Isopropyltoluene	0	U	---	---	0.0806	0.0403
4-Methyl-2-pentanone (MIBK)	0	U	2200	18	0.252	0.126
Acetone	0	U	81000	38	0.252	0.126
Benzene	0.00501	J	11	0.022	0.0126	0.0063
Bromobenzene	0	U	160	0.36	0.0252	0.0126
Bromochloromethane	0	U	---	---	0.0252	0.0126
Bromodichloromethane	0	U	3.6	0.0043	0.00202	0.00101
Bromoform	0	U	240	0.1	0.0252	0.0126
Bromomethane	0	U	10	0.024	0.0202	0.0101
Carbon disulfide	0	U	500	2.9	0.101	0.0505

Carbon tetrachloride	0	U	9.1	0.021	0.0126	0.0063
Chlorobenzene	0	U	180	0.46	0.0252	0.0126
Chloroethane	0	U	---	---	0.202	0.101
Chloroform	0	U	4	0.0071	0.00605	0.00302
Chloromethane	0	U	170	0.61	0.0252	0.0126
cis-1,2-Dichloroethene	0	U	200	0.12	0.0252	0.0126
cis-1,3-Dichloropropene	0	U	---	---	0.0126	0.0063
Dibromochloromethane	0	U	110	0.0027	0.00504	0.00252
Dibromomethane	0	U	31	0.025	0.0252	0.0126
Dichlorodifluoromethane	0	U	150	3.9	0.101	0.0505
Ethylbenzene	0	U	49	0.13	0.0252	0.0126
Freon-113	0	U	---	---	0.101	0.0505
Hexachlorobutadiene	0	U	3.3	0.02	0.0202	0.0101
Isopropylbenzene (Cumene)	0	U	54	5.6	0.0252	0.0126
Methylene chloride	0	U	460	0.33	0.101	0.0505
Methyl-t-butyl ether	0	U	670	0.40	0.101	0.0505
Naphthalene	0	U	29	0.038	0.0252	0.0126
n-Butylbenzene	0	U	20	23	0.0252	0.0126
n-Propylbenzene	0	U	52	9.1	0.0252	0.0126
o-Xylene	0	U	---	---	0.0252	0.0126
p- & m-Xylene	0	U	---	---	0.0504	0.0252
sec-Butylbenzene	0	U	28	42	0.0252	0.0126
Styrene	0	U	180	10	0.0252	0.0126
tert-Butylbenzene	0	U	36	11	0.0252	0.0126
Tetrachloroethene	0	U	68	0.19	0.0126	0.0063
Toluene	0	U	200	6.7	0.0252	0.0126
trans-1,2-Dichloroethene	0	U	960	1.3	0.0252	0.0126
trans-1,3-Dichloropropene	0	U	21	0.018	0.0126	0.0063
Trichloroethene	0	U	4.9	0.011	0.0101	0.00505
Trichlorofluoromethane	0	U	980	41	0.0504	0.0252
Vinyl acetate	0	U	1400	1.1	0.101	0.0505
Vinyl chloride	0	U	0.65	0.00080	0.000806	0.000403
Xylenes (total)	0	U	57	1.5	0.0756	0.0378

Notes:

Concentrations reported in milligrams per kilogram (mg/kg) using Method SW8260D

LOQ = Limit of Quantitation (Practical Quantitation Limit)

LOD = Limit of Detection (reporting limit; half of the LOQ)

U = not detected above the LOD

J = the quantitation is an estimation; --- = not applicable; VOC = volatile organic compound

* Cleanup levels (Method Two) from 18 AAC 75 (amended February 5, 2023)

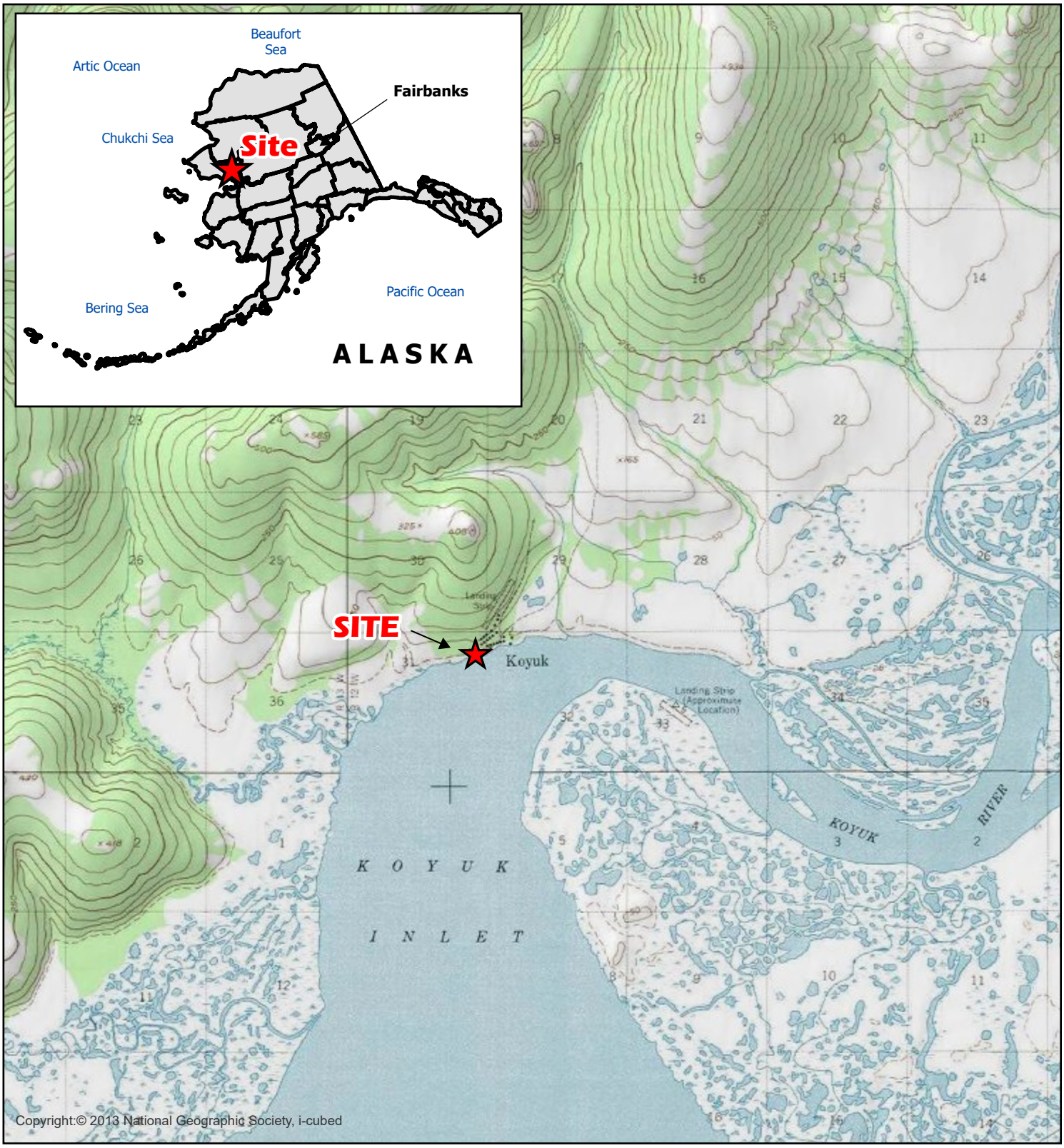
* Koyuk area receives less than 40 inches of annual precipitation
(Based on data for Moses Point and Unalakleet from Western Regional Climate Center)

Sample collected 6/22/23 at 17:21.

a = LOD is greater than the migration-to-groundwater cleanup level

Figures


Second Avenue
Cottonwood Street
Residence
Shipping Containers and Sheds
Portable Storage Tank
Koyuk Native Store
Compressed Gas Cylinders
Horizontal Aboveground Petroleum Storage Tanks
Steel Portable Storage Tank
Collapsed Wooden Structure
Residence
Former Residence



0 Miles 2

Location Map
Former Native Corporation Tank Farm
Koyuk, AK
Figure 1

Esker Associates, LLC

N

0 Feet 400

Site Boundary

Vicinity Map
Former Native Corporation Tank Farm
Koyuk, AK
Figure 2

ESKER

Esker Associates, LLC

Approximate Locations of Former Vertical Aboveground Petroleum Storage Tanks

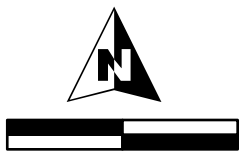
Site Boundary

0 Feet 50

ESKER

Esker Associates, LLC

Site Map
Former Native Corporation Tank Farm
Koyuk, AK
Figure 3



Approximate Locations of Former Vertical Aboveground Petroleum Storage Tanks

Site Boundary

Test Pit & Depth in Feet

Monitoring Well MW1

Culvert

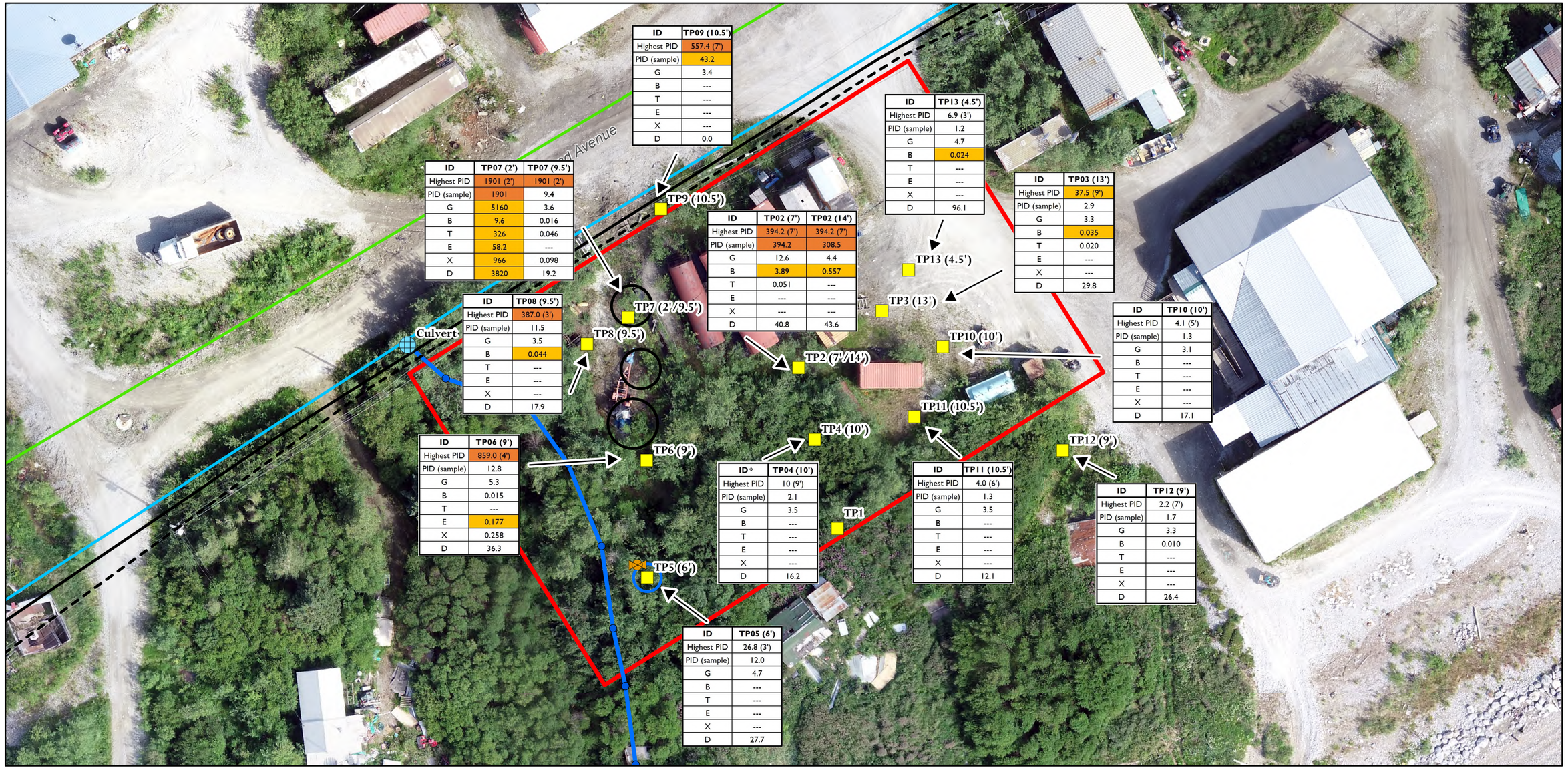
Approximate Creek Channel

Fuel Valve

Sampling Locations
Former Native Corporation Tank Farm
Koyuk, AK
Figure 4

ESKER

Esker Associates, LLC



ID	TP09 (10.5')
Highest PID	557.4 (7')
PID (sample)	43.2
G	3.4
B	---
T	---
E	---
X	---
D	0.0

ID	TP07 (2')	TP07 (9.5')
Highest PID	1901 (2')	1901 (2')
PID (sample)	1901	9.4
G	5160	3.6
B	9.6	0.016
T	326	0.046
E	58.2	---
X	966	0.098
D	3820	19.2

ID	TP02 (7')	TP02 (14')
Highest PID	394.2 (7')	394.2 (7')
PID (sample)	394.2	308.5
G	12.6	4.4
B	3.89	0.557
T	0.051	---
E	---	---
X	---	---
D	40.8	43.6

ID	TP13 (4.5')
Highest PID	6.9 (3')
PID (sample)	1.2
G	4.7
B	0.024
T	---
E	---
X	---
D	96.1

ID	TP03 (13')
Highest PID	37.5 (9')
PID (sample)	2.9
G	3.3
B	0.035
T	0.020
E	---
X	---
D	29.8

ID	TP08 (9.5')
Highest PID	387.0 (3')
PID (sample)	11.5
G	3.5
B	0.044
T	---
E	---
X	---
D	17.9

ID	TP10 (10')
Highest PID	4.1 (5')
PID (sample)	1.3
G	3.1
B	---
T	---
E	---
X	---
D	17.1

ID	TP06 (9')
Highest PID	859.0 (4')
PID (sample)	12.8
G	5.3
B	0.015
T	---
E	0.177
X	0.258
D	36.3

ID	TP04 (10')
Highest PID	10 (9')
PID (sample)	2.1
G	3.5
B	---
T	---
E	---
X	---
D	16.2

ID	TP11 (10.5')
Highest PID	4.0 (6')
PID (sample)	1.3
G	3.5
B	---
T	---
E	---
X	---
D	12.1

ID	TP12 (9')
Highest PID	2.2 (7')
PID (sample)	1.7
G	3.3
B	0.010
T	---
E	---
X	---
D	26.4

ID	TP05 (6')
Highest PID	26.8 (3')
PID (sample)	12.0
G	4.7
B	---
T	---
E	---
X	---
D	27.7

0 Feet 60

ESKER
Esker Associates, LLC

Approximate Locations of Former Vertical Aboveground Petroleum Storage Tanks

Site Boundary

Selected Soil Field Screening and Analytical Results
Former Native Corporation Tank Farm
Koyuk, AK
Figure 5

- See report tables and laboratory report for complete analytical results; soil cleanup levels and data qualifiers are shown in report tables.
- PID = photoionization detector; --- = not applicable or not detected above the reporting limit.
- Laboratory units are milligrams per kilogram (mg/kg); PID units are parts per million (ppm)
- Highlighted cells are elevated PID readings or analytical results detected above one or more cleanup level(s).
- G = gasoline range organics; D = diesel range organics; B = benzene; T = Toluene; E = Ethylbenzene; X = Xylenes
- Highest PID = highest reading measured within a given test pit; PID (sample) = PID reading at the sample depth
- Values in parentheses - e.g., (6') - are depths below ground surface; soil samples were not submitted for laboratory analysis from test pit TP1

0 Feet 50

ESKER

Esker Associates, LLC

- Approximate Locations of Former Vertical Aboveground Petroleum Storage Tanks
- Site Boundary
- Estimated Horizontal Extent of Impacts
- Test Pit
- Monitoring Well MW1
- Culvert
- Approximate Creek Channel
- Fuel Valve

Approximate Horizontal Extent of Petroleum Hydrocarbon Impacts
Former Native Corporation Tank Farm
Koyuk, AK
Figure 6

Appendix A

Site Background Information

SITE REPORT: KOYUK NATIVE CORPORATION TANK FARM

SITE NAME: Koyuk Native Corporation Tank Farm

ADDRESS: John Charles Allotment, Lot 9, Koyuk, AK 99753

FILE NUMBER: 610.38.003

HAZARD ID: 3101

STATUS: Active

STAFF: IC Unit, 9074655229 dec.icunit@alaska.gov

LATITUDE: 64.929856

LONGITUDE: -161.162999

HORIZONTAL DATUM: NAD83

We make every effort to ensure the data presented here is accurate based on the best available information currently on file with DEC. It is therefore subject to change as new information becomes available. We recommend contacting the assigned project staff prior to making decisions based on this information.

Problems/Comments

Report of historical spills at fuel tank farm by neighbor on adjacent property. Repeated complaints to Koyuk Native Corporation (KNC) resulted in no cleanup or change in fuel containment facilities or operation practices. U.S.D.I. B.I.A. Land Management Services hydrologist inspected property 7/16/98 and observed a valve leaking gasoline and overall poor facility condition, however no other visible signs of recent spills. No soil, water, or waste samples were analyzed, however a full site characterization was recommended by the inspector. Tank Farm is on Lot 9, Block 9. Charles cabin (complainant) is on Lot 12, Block 9, USS4390 John Charles Allotment. Lot 9 drains onto lot 12 to the south. Reportedly, a Gas spill occurred at the TF around 1993, and an oil spill occurred around 1988, which flowed onto the lot 12 property. U.S. Coast Guard issued 6/12/1997 letter of warning to Koyuk Native Corporation for Fuel Tank Farm lack of discharge containment and other requirements amounting to 8 violations of the Code of Federal Regulations. U.S. Coast Guard issued notification of civil penalties 9/1/1999 following 7/6/1999 inspection for 6 violations of Code of Federal Regulations. The Koyuk Native Corporation (KNC) owns Tank Farm (TF)#3 and TF #6 as per the DCRA Div. of Energy Bulk Fuel Community Database (see copy in file: printout dated May 31, 2001). TF #3 (Lot 9) has impacted the Charles property (Lot 12). "Minor leakage was observed from the tank joints" in KNC TF #3 in the site reconnaissance work plan dated June 1, 2001. A gasoline line running across the Charles' property for fueling boats was dripping at the time of the inspection by BIA Hydrologist John Brown on 7/16/98. KNC's TF #6 showed no leaks. The December 2001 Site Reconnaissance Report by Bristol E&E shows

analysis of samples collected 9-24-01 with levels of benzene at 0.24 mg/kg in soil sample KYK-S-007 and DRO at 108,000 mg/kg in soil sample KYK-S-009.

Action Information

ACTION DATE	ACTION	DESCRIPTION	DEC STAFF
7/16/1998	Update or Other Action	On this date, U.S.D.I. B.I.A. Land Management Services hydrologist inspected property 7/16/98 and observed a valve leaking gasoline and overall poor facility condition, however no other visible signs of recent spills. No soil, water, or waste samples were analyzed, however a full site characterization was recommended by the inspector. Tank Farm is on Lot 9, Block 9. Charles cabin (complainant) is on Lot 12, Block 9, USS4390 John Charles Allotment. Lot 9 drains onto lot 12 to the south. Reportedly, a Gas spill occurred at the TF around 1993, and an oil spill occurred around 1988, which flowed onto the lot 12 property. Reportedly fuel from the tank farm has historically flowed onto the property evident by sheening.	Grant Lidren
11/29/1999	Update or Other Action	Note to file: U.S. Coast Guard personnel visited site 6/99 and observed no evidence of contaminated surface soil associated with the Native Store Tank Farm.	Greg Light
1/6/2000	Site Ranked Using the AHRM	Initial ranking.	Meilani Clark
1/10/2000	Site Added to Database	Gasoline and oil.	Meilani Clark
2/5/2001	Site Ranked Using the AHRM	Preliminary ranking. Site access changed from 2 to 0; historical spills, contamination underground. Reported spills occurred 5-7 years ago.	Bruce Wanstall
10/11/2001	Update or Other Action	VCP Letter Of Interest invitation sent to RP.	Bruce Wanstall
10/31/2001	Update or Other Action	LC 14897060 established.	David Pikul
12/17/2001	Update or Other Action	Site Reconnaissance Report Koyuk, Alaska submitted by Bristol and recieved by the ADEC on this date. Four AST locations were analyzed for contamination. These sites include: Bering Straights School District Tank Farm, Alaska Village Electric Coop. Tank Farm, Koyuk Native Corp. Tank Farm, and city of Koyuk Tank Farm. Out of these four sites only Koyuk Native Corporation Tank Farm had contamination up to 0.24 mg/kg benzene at 5 feet bgs within the GW interface, and	Grant Lidren

		108,000 mg/kg DRO at 2 feet bgs within the groundwater interface.	
5/19/2004	Site Number Identifier Changed	Corrected Region from 31 to 32.	No Longer Assigned
7/13/2004	Update or Other Action	File number changed from 610.02.003 to 610.38.003	Sarah Cunningham
8/9/2005	GIS Position Updated	Reviewed site location due to new status as potential BF site. Unsure of correct site location, update metadata fields to reflect uncertainty.	Torsten Ernst
11/29/2006	Update or Other Action	Staff transferred from Pikul to Jaynes.	Aggie Blandford
4/17/2008	Exposure Tracking Model Ranking	Initial ranking with ETM completed.	Grant Lidren
12/2/2008	Update or Other Action	Updated problem statement. Need current information to re-rank this site in the ETM.	Pam Clemens
12/3/2008	Update or Other Action	Changed site name to properly reflect the contaminated site's responsible party and location.	Pam Clemens
10/30/2009	Update or Other Action	Updated affilates tab.	Pam Clemens
2/23/2011	Update or Other Action	Spoke with Ruth Otton, President of Koyuk Native Corporation. She informed me that a new consolidated tank farm was constructed in 2003 or 2004. The old tank farm is not in use and the Corporation is exploring funding to reuse the old tank farm area.	Pam Clemens
2/23/2011	Exposure Tracking Model Ranking	A new updated ranking with ETM has been completed for source area 74076 Koyuk Native Corp. ASTs.	Pam Clemens
10/4/2011	Update or Other Action	ADEC sent an Contaminated Site Notification letter on this date.	Grant Lidren
1/13/2012	Potentially Responsible Party/State Interest Letter	PRP letter sent to Koyuk Native Corporation on this date	Grant Lidren
2/27/2012	Update or Other Action	Spoke with KNC on this date. KNC will send ADEC a letter addressing their intended actions with respect to this pollution incident.	Grant Lidren
3/23/2012	Update or Other Action	ADEC received a letter from the KNC on this date. KNC plans on assessing the KNC TF during the summer of 2012.	Grant Lidren
8/19/2013	Update or Other Action	This tank farm originally consisted of five above ground storage tanks (ASTs); three vertical and two horizontal. During a site visit in August of 2013 by the Solid Waste	Joshua Barsis

		Program (SWP), only the two horizontal ASTs remained at this site. The three vertical standing ASTs were removed. According to the SWP, the horizontal tanks were situated on black plastic directly on the ground and the plastic was torn in multiple places. The site is located 250 feet from the Koyuk River.	
11/12/2013	Update or Other Action	Letter sent on this day with brief site history, request for contact, and other pertinent information.	Joshua Barsis
11/12/2013	Exposure Tracking Model Ranking	A new updated ranking with ETM has been completed for source area 74076 Koyuk Native Corp. ASTs.	Joshua Barsis
4/6/2015	Update or Other Action	Letter sent with draft Notice of Environmental Contamination (NEC)	Joshua Barsis
4/9/2015	Public Notice	Notice of Environmental Contamination recorded on this day	Joshua Barsis
4/9/2015	Institutional Control Record Established	Institutional Controls established and entered into the database.	IC Unit
4/21/2016	Institutional Control Update	Issued a letter as a reminder of the NEC currently on the property.	Nathan Maxwell
5/5/2017	Institutional Control Update	A letter was issued as a reminder of the NEC currently recorded on the property.	Kristin Thompson
6/14/2018	Institutional Control Update	A letter was issued as a reminder of the NEC currently recorded on the property.	Kristin Thompson
6/26/2019	Institutional Control Compliance Review	An NEC reminder letter e-mailed to the responsible party on this date.	Mossy Mead
5/27/2022	Institutional Control Update	E-mailed a reminder NEC Letter to the responsible party.	Arika Garcia

Contaminant Information

NAME	LEVEL DESCRIPTION	MEDIA	COMMENTS

Control Type

TYPE	DETAILS
Notice of Environmental Contamination	

Requirements

DESCRIPTION	DETAILS

State of Alaska Department of Environmental Conservation

P.O. Box 111800
Juneau, AK 99811-1800
Phone: 907-465-5066
Fax: 907-465-5245
TDD: 800-770-8973
Physical Location: 410 Willoughby

ALASKA
2015-000269-0
Recording District 201 Nome
04/09/2015 12:29 PM Page 1 of 4

Notice of Environmental Contamination

Grantor: State of Alaska
Department of Environmental Conservation
Contaminated Sites Program

Grantee: Koyuk Native Corporation
City of Koyuk
Koyuk Native Corporation Tank Farm

Legal Description: Lots eight (8) and nine (9), Block nine (9), Tract "C", as shown on the official plat of U.S. Survey 4390, Koyuk Townsite, in Section 31, Township 6 South, Range 12 West, Kateel River, within the Cape Nome Recording District

Recording District: 201 - Cape Nome

Return to: Joshua Barsis
Environmental Program Specialist
555 Cordova Street
Anchorage, AK 99507

State Business- No Charge

NOTICE OF ENVIRONMENTAL CONTAMINATION

As required by the Alaska Department of Environmental Conservation, Grantor, pursuant to 18 AAC 75.375 Koyuk Native Corporation and the City of Koyuk, Grantees, as the owner and operators of the subject property, hereby provides public notice that the property located at:

Lots eight (8) and nine (9), Block nine (9), Tract "C", as shown on the official plat of U.S. Survey 4390, Koyuk Townsite, in Section 31, Township 6 South, Range 12 West, Kateel River, within the Cape Nome Recording District

has been subject to a discharge or release of oil or other hazardous substances, regulated under 18 AAC 75, Article 3, revised as of April 8, 2012. This release is documented in the Alaska Department of Environmental Conservation (ADEC) contaminated sites database at http://www.dec.state.ak.us/spar/csp/db_search.htm under Hazard ID number 3101.

On September 24, 2001, four soil samples were collected from the surface and subsurface soils at this property and contained elevated concentrations of diesel range organics (DRO) and benzene above the default migration to groundwater (MTG) cleanup levels established in 18 AAC 75.341, Method Two, Tables B1 and B2, Under 40 Inch Zone. To date, the extent of soil and groundwater contamination remains undefined. Therefore the following institutional controls (ICs) are required to control exposure risks to contamination, and also serve as notification. These institutional controls consist of the following:

1. Any future change in land use may impact the exposure assumptions cited in this document. If land use and/or ownership changes, current institutional controls may not be protective and ADEC may require additional remediation and/or institutional controls. Therefore, the Owner(s) will report to ADEC to document land use as soon as the Owner(s) becomes aware of any change in land ownership and/or use.

2. Installation of groundwater wells at this site will require approval from ADEC

3. Any proposal to transport soil or groundwater off-site requires ADEC approval in accordance with 18 AAC 75.325. A "site" [as defined by 18 AAC 75.990 (115)] means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. Attached is a site figure that shows locations of existing structures, and the approximate property boundary where contamination is present.

4. Movement or use of potentially contaminated soil in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

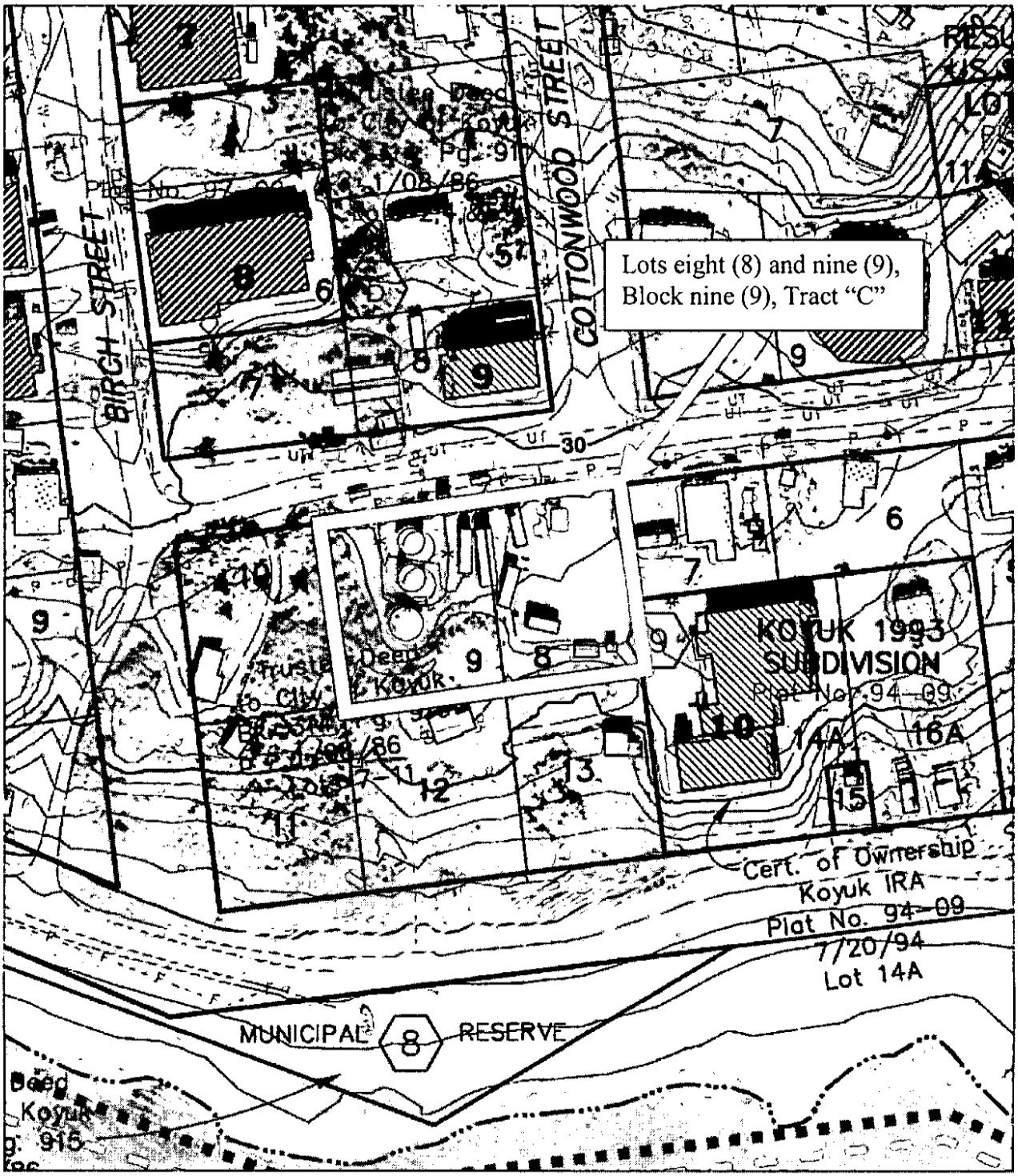
Pursuant to 18 AAC 75.325(i)(1) and (2), DEC approval is required prior to moving soil or groundwater that is, or has been, subject to the cleanup rules found at 18 AAC 75.325-.370. At this site, in the future, if soil is removed from the site or groundwater is brought to the surface it must be characterized and managed following regulations applicable at that time. The site will

remain active on the Contaminated Sites Database until contamination is addressed to the satisfaction of ADEC.

This NEC remains in effect until a written determination from ADEC is recorded that states that soil and groundwater at the site has been shown to meet the most stringent soil cleanup levels in method two of 18 AAC 75.340 and groundwater meets the cleanup levels in Table C in 18 AAC 75.345 and that off-site transportation of soil and groundwater is not a concern.

For more information on the subject site, listed as *Koyuk Native Corporation Tank Farm* (File No. 610.38.003), please see the ADEC Contaminated Sites Database, viewable by the public at this link (http://dec.alaska.gov/spar/csp/db_search.htm).

	4-7-15
Signature of Authorized ADEC Representative	Date



Koyuk Native Corporation Tank Farm Lots eight (8) and nine (9), Block nine (9), Tract "C" ADEC File Number: 610.38.003 ADEC Hazard ID: 3101	
Site Map **March 2015**	**Alaska Department of Environmental Conservation**

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

410 Willoughby Ave., Suite 303
P.O. Box 111800
Juneau, Alaska 99811-1800
Main: 907.465.5390
Fax: 907.465.5218
www.dec.alaska.gov

File No.: 610.38.003

May 5, 2017

Sent via electronic mail only
Koyuk Native Corporation
P.O. Box 53050
Koyuk, AK 99753-3050

Re: Reminder of Notice of Environmental Contamination

This letter is to remind you that contamination in soil and/or groundwater remains at the site known as Koyuk Native Corporation Tank Farm, Hazard ID 3101, located at Lots 8 and 9, between Birch Street and Cottonwood Street. Records available to the Alaska Department of Environmental Contamination (ADEC) indicate that you are the current owner of the above-mentioned property.

The attached Notice of Environmental Contamination was filed with the Alaska Department of Natural Resources Recorders Office in 2015 and it will remain on your property deed until it is demonstrated to ADEC that contaminant concentrations in soil and/or groundwater are below the approved ADEC cleanup levels found in Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75). In addition, you are required to notify the ADEC if there are any changes in land use or ownership.

Alaska Statutes Title 34 outlines your responsibilities with regard to property transfers, which may include environmental disclosures and penalties for non-performance.

This site information is a matter of public record and is available from ADEC's online database at: http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/3101

If you have any questions regarding this site, please contact me at (907) 465-5229 or evonne.reese@alaska.gov and I will be glad to assist you.

Sincerely,

Evonne Reese
Environmental Program Specialist
Institutional Controls Unit

Encl: Notice of Environmental Contamination

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

410 Willoughby Ave., Suite 303
P.O. Box 111800
Juneau, Alaska 99811-1800
Main: 907.465.5390
Fax: 907.465.5218
www.dec.alaska.gov

File No.: 610.38.003

June 14, 2018

Sent via electronic mail only
Koyuk Native Corporation
P.O. Box 53050
Koyuk, AK 99753-3050

Re: Reminder of Notice of Environmental Contamination

This letter is to remind you that contamination in soil and/or groundwater remains at the site known as Koyuk Native Corporation Tank Farm, Hazard ID 3101, located at Lots 8 and 9, between Birch Street and Cottonwood Street. Records available to the Alaska Department of Environmental Contamination (ADEC) indicate that you are the current owner of the above-mentioned property.

The attached Notice of Environmental Contamination was filed with the Alaska Department of Natural Resources Recorders Office in 2015 and it will remain on your property deed until it is demonstrated to ADEC that contaminant concentrations in soil and/or groundwater are below the approved ADEC cleanup levels found in Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75). In addition, you are required to notify the ADEC if there are any changes in land use or ownership.

Alaska Statutes Title 34 outlines your responsibilities with regard to property transfers, which may include environmental disclosures and penalties for non-performance.

This site information is a matter of public record and is available from ADEC's online database at: http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/3101

If you have any questions regarding this site, please contact me at (907) 465-5229 or evonne.reese@alaska.gov and I will be glad to assist you.

Sincerely,

Evonne Reese

Evonne Reese
Environmental Program Specialist
Institutional Controls Unit

Encl: Notice of Environmental Contamination

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Environmental Conservation
DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program
P.O. Box 111800
Juneau, Alaska 99811-1800
Main: 907.465.5250
Fax: 907.465.5245
www.dec.alaska

June 26, 2019 File: 610.38.003

Sent by electronic mail only
Koyuk Native Corporation
P.O. Box 53050
Koyuk, AK 99753-3050

Re: Reminder of Notice of Environmental Contamination

This letter is to remind you that contamination in soil and/or groundwater remains at the site known as Koyuk Native Corporation Tank Farm, Hazard ID 3101, located at Lots 8 and 9, between Birch Street and Cottonwood Street. Records available to the Alaska Department of Environmental Contamination (ADEC) indicate that you are the current owner of the above-mentioned property.

The attached Notice of Environmental Contamination was filed with the Alaska Department of Natural Resources Recorders Office in 2015 and it will remain on your property deed until it is demonstrated to ADEC that contaminant concentrations in soil and/or groundwater are below the approved ADEC cleanup levels found in Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75). In addition, you are required to notify the ADEC if there are any changes in land use or ownership.

Alaska Statutes Title 34 outlines your responsibilities with regard to property transfers, which may include environmental disclosures and penalties for non-performance.

This site information is a matter of public record and is available through ADEC's online database record at: http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/SiteReport/3101

The ADEC will issue a reminder letter such as this on a scheduled basis, once per year. If you have any questions regarding this site, please contact me at (907) 465-5390 or mossy.mead@alaska.gov and I will be glad to assist you.

Sincerely,

Mossy Mead

Mossy Mead
Environmental Program Technician – IC Unit

Encl: 2015 Notice of Environmental Contamination

From:	Microsoft Outlook
To:	koyuknativecorporation@gci.net
Subject:	Relayed: NEC Reminder letter for KNC Tank Farm Site
Date:	Wednesday, June 26, 2019 3:37:45 PM
Attachments:	NEC Reminder letter for KNC Tank Farm Site.msg

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:
koyuknativecorporation@gci.net (koyuknativecorporation@gci.net) <mailto:koyuknativecorporation@gci.net>
Subject: NEC Reminder letter for KNC Tank Farm Site

THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

555 Cordova Street
Anchorage, AK 99501
Main: 907-269-2021
www.dec.alaska.gov

August 5, 2022

ELECTRONIC MAIL ONLY

Anahma Shannon
Environmental Program Director
Natural Resources Division
Kawerak, Inc. – Nome, Alaska
907-443-4249

Re: Petroleum Eligibility Determination – Koyuk Native Corporation Tank Farm Site

Dear Ms. Shannon,

The Alaska Department of Environmental Conservation (DEC) has reviewed information associated with the property identified as the "Koyuk Native Corporation Tank Farm Site" located in Koyuk, Alaska. The review was performed to determine if the site is eligible to receive funding from an EPA grant or service. Based on the review of information provided to us, DEC has determined the site meets eligibility criteria and is eligible to receive funding.

In order to determine the site's eligibility, DEC used the information provided as well as criteria from *Information on Sites Eligible for Brownfields under CERCLA 104(k)* referenced in EPA's "*FY21 Guidelines for Brownfields Assessment Grants*" EPA-OLEM-OBLR-20-06 as a guide.

Section 1.3.2 in the *Information on Sites Eligible for Brownfields under CERCLA §104(k)* Contamination by Petroleum or Petroleum Product states…

For a petroleum-contaminated site(s) that otherwise meets the definition of a brownfield site to be eligible for funding, EPA or the state must determine:

1. There is no viable responsible party.
2. The site will not be assessed, investigated, or cleaned up by a person that is potentially liable for cleaning up the site.
3. The site must not be subject to a corrective action order under the Resource Conservation and Recovery Act (RCRA) §9003(h).

"A Site for Which There is No Viable Responsible Party"
Section 1.3.2 states "…A petroleum-contaminated site may be determined to have no responsible party if the site was last acquired (regardless of whether the site is owned by the applicant) through tax foreclosure, abandonment, or equivalent government proceedings, and the site meets the criteria in (1) below. Any petroleum-contaminated site not acquired by a method will be determined to have a responsible party if the site fails to meet the criteria in both (1) and (2) below.

1. No responsible party has been identified for the site through:
    a. an unresolved judgment rendered in a court of law or an administrative order that would require any party (including the applicant/recipient) to conduct the activities (including assessment, investigation or cleanup) proposed in the grant proposal/submitted as part of a site eligibility determination;
    b. an unresolved enforcement action by federal or state authorities that would require any party (including the applicant/recipient) to conduct the activities (including assessment, investigation, or cleanup) proposed in the grant proposal/submitted as part of a site eligibility determination; or
    c. an unresolved citizen suit, contribution action, or other third party claim brought against the current or immediate past owner for the site that would, if successful, require the activities (including assessment, investigation, or cleanup) proposed in the grant proposal/submitted as part of a site eligibility determination.

2. The current and immediate past owner did not dispense or dispose of, or own the subject property during the dispensing or disposal of, any contamination at the site, and took reasonable steps with regard to the contamination at the site.

Response: The current owner of the property is the City of Koyuk. The immediate past owner is the late State of Alaska.

DEC has not identified any unresolved judgements rendered in a court of law or an administrative order that would require a party to assess, investigate, or cleanup the site. DEC does not have any unresolved enforcement actions against any party to assess, investigate, or cleanup the site. DEC has not identified any unresolved citizen suite, contribution action or other third-party claim brought against the current or former owners that would require a party to assess, investigate or cleanup the site.

According to the information provided to DEC, the City of Koyuk, may have dispensed and/or owned the subject property at the time petroleum was released/spilled into the environment. However, based on the information provided in the EPA Region 10 Eligibility Worksheet and in follow-up conversations and correspondence, DEC agrees with the applicant that the City of Koyuk is not financially capable of conducting the proprosed activities.

Furthermore, DEC staff reviewed the City of Koyuk using EPA's Environmental Justice Screening and Mapping Tool (EJScreen) to assess demographic and socioeconomic information for the community. Based on this assessment, DEC found that 59 percent of residents of the City of Koyuk are characterized as low income, placing the City in the 80 – 90th percentile poverty classification across the country. This screening strengthens the posistion the City of Koyuk is not financially viable or able to issue payment for planned site assessment activities.

In addition, DEC also notes that the immediate past owner is the State of Alaska, who did not dispense or dispose of, or own the property during the dispensing or disposal of petroleum at the site. Conseqeuntly, the former owner is not considered a responsible party at this time.

This determination is solely for the purpose of determining eligibility for this brownfields program funding.

"Cleaned Up by a Person Not Potentially Liable"
Section 1.3.2 states 'Brownfields funding may be awarded for the assessment and cleanup of petroleum-contaminated sites provided they meet the requests below.

1. The applicant/recipient has not dispensed or disposed of or owned the property during the dispensing or disposal of petroleum of or owned the property during the dispensing or disposal of petroleum or petroleum product at the site, and
2. The applicant/recipient did not exacerbate the contamination at the site and took reasonable steps with regard to the contamination at the site."

Response: Kawerak, Inc., the applicant, has not dispensed or disposed of or owned the property during the dispensing or disposal of petroleum product at the site. Petroleum contamination has not been identified or documented on the property at this time that would require the recipient to take reasonable steps in regards to, nor be able to exacerbate.

"Is not subject to any order issued under §9003(h) of the Resources Conservation and Recovery Act (RCRA)".

Response: The property identified as the "Koyuk Native Corporation Tank Farm Site" is not subject to a corrective action order under the Solid Waste Disposal Act of RCRA.

Based on the above discussion, DEC has determined that the site identified as the "Koyuk Native Corporation Tank Farm" is eligible for petroleum funding from an EPA 128(a) grant.

If you have any questions or need clarification of any of the issues addressed in this letter, please do not hesitate to contact me at (907) 269-7503.

Sincerely,

Breanna Mahoney
Environmental Program Specialist
Alaska Department of Environmental Conservation
SPAR/CSP/Brownfields
555 Cordova Street
Anchorage, AK 99501

Attachment: EJScreen Socioeconomic Low Income Map

Electronic cc: Marc Thomas, ADEC

Molly Vaughan, EPA
Brandie Radigan, Kawerak, Inc.

Adam Johnson

From: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>
Sent: Tuesday, August 9, 2022 10:24 AM
To: Brandie D. Radigan; Thomas, Marc M (DEC)
Cc: Adam Johnson; Anahma Shannon
Subject: RE: File No: 610.38.003 Koyuk Native Corporation Tank Farm State Petroleum Determination Letter

Good Morning Brandie,

For purposes of the letter, you are good to go in terms of starting work. We will coordinate with our Institutional Controls folks here at the office and if the letter needs to be modified we will certainly do that. Our mapper indicated that it was owned by Koyuk Native Corporation but I understand the confusion and all of the hard work you put forth regarding research on the actual owner at the time.

In the meantime, please don't let this get in the way of getting site characterization and remediation efforts started. I will be in touch with you if we revise the letter and ensure you get a copy.

Thank you for all of your hard work, Brandie and Anahma!

Best,

Breanna

From: Brandie D. Radigan <BRadigan@kawerak.org>
Sent: Monday, August 8, 2022 4:38 PM
To: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>; Thomas, Marc M (DEC) <marc.thomas@alaska.gov>
Cc: Adam Johnson <ajohnson@newfields.com>; Anahma Shannon <ashannon@kawerak.org>
Subject: RE: File No: 610.38.003 Koyuk Native Corporation Tank Farm State Petroleum Determination Letter

Hello Breanna,
Just a quick thank you so much for getting us these letters. I know it's your job but we really appreciate the time and research these things take and understand that we all must function as a team to accomplish the goal of cleaning up Alaska one site at a time!
I wanted to touch back on the question I asked before about how DEC states in the letter that the Koyuk Native Corporation is the owner of the land at the site and that our records indicate that the land owner is City of Koyuk. If it doesn't matter at this point because the determination for clean-up is assigned to Koyuk Native Corporation then we can stop worrying about it. But I would like to resolve this at some point in the future. Let me know your thoughts on this.
Thanks again and have a great night from all of us!

Respectfully,

Brandie Radigan
bradigan@kawerak.org

Brownfield Coordinator TEMP
Cell 907-960-6970

From: Anahma Shannon <ashannon@kawerak.org>
Sent: Friday, August 5, 2022 5:36 PM
To: Adam Johnson <ajohnson@newfields.com>
Cc: Brandie D. Radigan <BRadigan@kawerak.org>
Subject: FW: File No: 610.38.003 Koyuk Native Corporation Tank Farm State Petroleum Determination Letter

FYI…

From: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>
Sent: Friday, August 5, 2022 5:34 PM
To: Anahma Shannon <ashannon@kawerak.org>
Cc: Thomas, Marc M (DEC) <marc.thomas@alaska.gov>; Brandie D. Radigan <BRadigan@kawerak.org>
Subject: FW: File No: 610.38.003 Koyuk Native Corporation Tank Farm State Petroleum Determination Letter

Good Evening All,

I wanted to follow up concerning this particular site to inform you that we would like to be kept in the loop regarding testing and reports (which we do want to be a part of for all sites, but this one is of specific alarm). Please note that the applicant has indicated that this particular site has been cause for concern for the health of locals due to the potential that petroleum has migrated or leached into the adjacent Koyuk River, which is only approximately a couple of hundred feet from the tank farm. DEC supports these efforts to further characterize the nature and extent of the contamination at this property. DEC notes that an institutional control was placed on this property on April 9, 2015 requiring, among other things, DEC approval for the transport of soil or groundwater off-site. Please work with DEC as appropriate for approval of required work plans and reports.

As such, please reach out to myself or Marc when reports come in and forward them to us for our record so we can be as consistent as possible in updating information on the CS GIS Mapper if need be.

Thank you and have a lovely weekend.

Best,
Breanna

From: Mahoney, Breanna M (DEC)
Sent: Friday, August 5, 2022 3:38 PM
To: Brandie D. Radigan <BRadigan@kawerak.org>
Cc: Thomas, Marc M (DEC) <marc.thomas@alaska.gov>; Vaughan, Molly <Vaughan.Molly@epa.gov>
Subject: File No: 610.38.003 Koyuk Native Corporation Tank Farm State Petroleum Determination Letter

Good Afternoon Brandie,

Attached please find the subject project ADEC Petroleum Determination Letter. I apologize for the delay in these letters (the others will follow after this email), we had to work through some technical wording with the financial viability aspect, I hope you understand. . I hope you have a wonderful weekend 😊

Best,

Breanna

Breanna Mahoney
Environmental Program Specialist
Alaska Dept. of Environmental Conservation
Contaminated Sites Program
555 Cordova Street, Anchorage, Alaska 99501
Phone 907.269.7503

THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

410 Willoughby Ave., Suite 303
P.O. Box 111800
Juneau, Alaska 99811-1800
Main: 907.465.5390
Fax: 907.465.5218
www.dec.alaska.gov

May 27, 2022

File: 610.38.003

Sent by electronic mail only
Koyuk Native Corporation
P.O. Box 53050
Koyuk, AK 99753-3050

Re: Reminder of Notice of Environmental Contamination

This letter is to remind you that contamination in soil and/or groundwater remains at the site known as Koyuk Native Corporation Tank Farm, Hazard ID 3101, located at Lots 8 and 9. Records available to the Alaska Department of Environmental Contamination (ADEC) indicate that you are the current owner of the above-mentioned property.

The attached Notice of Environmental Contamination was filed with the Alaska Department of Natural Resources Recorders Office in 2015 and it will remain on your property deed until it is demonstrated to ADEC that contaminant concentrations in soil and/or groundwater are below the approved ADEC cleanup levels found in Title 18 of the Alaska Administrative Code, Chapter 75 (18 AAC 75). In addition, you are required to notify the ADEC if there are any changes in land use or ownership.

Alaska Statutes Title 34 outlines your responsibilities with regard to property transfers, which may include environmental disclosures and penalties for non-performance.

This site information is a matter of public record and is available from ADEC's online database at: http://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search

If you have any questions regarding this site, please contact me at (907) 465-5229 or evonne.reese@alaska.gov and I will be glad to assist you.

Sincerely,

Evonne Reese

Evonne Reese
Environmental Program Specialist
Institutional Controls Unit

Encl: Notice of Environmental Contamination

EPA - Region 10 Brownfields Site Eligibility Worksheet

(Updated: 12/5/17)

This worksheet is intended for EPA Region 10 Brownfields Cooperative Agreement Recipients (referred to as "grantee") as an aid for determining site eligibility. Brownfields funding can only be used on sites that meet the definition of a Brownfield. While this worksheet outlines many factors to be considered in determining eligibility, it does not capture all requirements. As an optional aid, grantee's may submit the completed form to their EPA Brownfields Project Officer. EPA will review the determination and may require additional information. You may contact your Project Officer if you have any questions.

Grantee name: Kawerak Inc.

Date submitted to EPA: 6/28/2022

Date of proposed work: 8/1/2022

Grant #: BF-01J98901-0

Grant type:

☒ Assessment ☐ Cleanup ☐ Revolving Loan Fund ☐ State & Tribal Response Program

Activity requested:

☒ Phase I ☒ Phase II ☐ ABCA ☐ Cleanup ☐ Other

Explain if other:

Known or Suspected Contaminant(s):

☐ Hazardous Substance(s) ☒ Petroleum ☒ Commingled

If the site has both hazardous substances and petroleum contamination that is commingled (i.e. not easily distinguishable), select the "commingled" box as well as the predominant contaminant. If the contamination is in distinguishable areas, then select both types of contamination.

Section A - Basic Site Information

Please attach a map of the site to assist with the determination.

A.1) Property Name: Koyuk Native Corporation Tank Farm

A.2) Property Address: Latitude: 64.929930/Longitude: -161.163340

A.3) City: Koyuk State: AK Zip Code: 99753

A.4) Cross street (if applicable):

A.5) State Facility # (if applicable):

A.6) Tax Lot Number(s) and County:

A.7) Site Description (acreage, dimensions, GPS coordinates, etc):

Latitude: 64.929930/Longitude: -161.163340 This tank farm is 250 feet from the Koyuk River, Lots 8 and 9, between Birch Street and Cottonwood Street.

A.8) Who is the current property owner? City of Koyuk

A.9) Describe your relationship with the owner and their role in the work to be performed:

Kawerak is filing on behalf of the tribal community members the corporation will sign access agreement.

A.10) Does the grantee have access to, or an access agreement for, this property? ☒ Yes ☐ No

☒ Copy of signed agreement attached

If no, explain how & when access will be acquired:

A.11 Explain why you want to assess/clean-up this property. What is the desired reuse? Is there a prospective purchaser interested in the property? Is the transaction time sensitive? Include any other details that you believe to be relevant.

We want to assess/clean up this property because it has already been acknowledged that there is contamination on the site. In 2018 DEC sent a letter to the Koyuk Native Corporation stating that there is still contaminants on the site and that it is listed as so. However, the Koyuk Native Corporation cannot afford to perform the clean up on the site. There is also concern that since it is only a couple hundred feet from the Koyuk River that some of the contaminants may be leaching into the water and surrounding soils.

The desired reuse plan for the site is to return it to a green space that the community members can safely gather herbs and berries on, a traditional gathering site.

The transaction is time sensitive as the season for working in remote village is very limited due to weather and we would like to start work on the first week of August.

A.12) Describe the type of activities that have been conducted on the property and indicate generally when such activities took place. Identify when and how the site became/may have been contaminated; with what substance(s); the part(s) of the site that are contaminated; and, describe previous known uses. If the land has been vacant for many years or contamination is only suspected, explain why you think it needs assessment or cleanup:

The site is a former tank farm that has not been active since 2005. DEC has classified it as a Contaminated Site (file ID 610.38.003) due to petroleum contamination.

There were 3 vertical tanks removed and they are situated on black plastic directly on the ground and the plastic is torn in multiple places.
There is still a lot of debris on the site.

Only previous uses have been the tank farm.

In 2018, ADEC sent a letter to Koyuk Native Corporation that they were responsible for cleaning up the soils that had been contaminated by a leak in a line.

On May 22, 2022 ADEC sent another letter to Koyuk Native Corporation explaining that they still need to clean up the soils.

We would like to have a current Phase I and Phase II in order to know exactly what they need to clean up in order to be in compliance.

SECTION B - General Eligibility

Complete this section for each site regardless of contamination type.

B.1 - Sites Not Eligible for Funding by Statutes

a) Is the property listed on the National Priority List (NPL) or identified as part of a larger Superfund site under a different name?

☐ Yes ☒ No

b) Is this property located within the boundaries of Superfund site? *If yes, or unsure, check with your Project Officer to determine whether or not it is a contributor.*

☐ Yes ☒ No

c) Is the facility subject to unilateral administrative orders, court orders, administrative orders on consent, or judicial consent decrees issued to or entered into by parties under CERCLA?

☐ Yes ☒ No

d) Is the facility subject to the jurisdiction, custody, or control of the US Government? (Land held in trust by the US government for an Indian tribe *is* eligible)

☐ Yes ☒ No

e) Is any of the work being performed in order to comply with any federal environmental requirements?

☐ Yes ☒ No

B.2 - Sites Only Eligible for Funding with a Property Specific Determination by EPA

NOTE: The following special classes of properties require a "Property-Specific Determination" from EPA to be eligible. EPA's approval of a Property-Specific Determination will be based on whether or not awarding a grant will protect human health and the environment and either promote economic development or enable the property to be used for parks, greenways, and similar recreational or nonprofit purposes.

a) Is the site/facility subject to a planned or ongoing CERCLA removal action?

☐ Yes ☐ No ☒ Unsure

b) Has the site/facility been subject to an order or consent decree, or issued a permit by the U.S. or an authorized state under the Solid Waste Disposal Act (as amended by the Resource Conservation and Recovery Act (RCRA)), the Federal Water Pollution Control Act (FWPCA), the Toxic Substances Control Act (TSCA), or the Safe Drinking Water Act (SWDA)?

☐ Yes ☒ No ☐ Unsure

c) Is the site/facility subject to corrective action orders under RCRA (sections 3004(u) or 3008(h))?

☐ Yes ☐ No ☒ Unsure

d) Is the site/facility a land disposal unit that has submitted a RCRA closure notification under subtitle of RCRA and is subject to closure requirements specified in a closure plan or permit?

☐ Yes ☒ No ☐ Unsure

d) Has the site/facility had a release of polychlorinated biphenyls (PCBs) that is subject to remediation under TSCA?

☐ Yes ☒ No ☐ Unsure

e) Is the site currently receiving funding for remediation from the leaking Underground Storage Tank (LUST) Trust fund?

☐ Yes ☒ No ☐ Unsure

SECTION C - Hazardous Substance/Commingled Sites

Complete this section based on your response to"known or suspected contaminant" on page 1. Skip to Section D if the property is a petroleum site.

C.1 - Grantee

a) Does the grantee own the site?

☐ Yes ☒ No

NOTE: Grantees may assess (or cleanup if a 128(a) State Response Program) hazardous substance/commingled sites which they do not own where there is substantial public benefit or other compelling reason to use public funds for the assessment, even when the owner could be considered a potential responsible party. In such cases EPA recommends documenting the rationale for doing so.

b) Has the grantee ever leased, used, or accessed, or otherwise conducted or directed activities on the property?

☐ Yes ☒ No

i) Have any of these activities contributed to contamination?

☐ Yes ☒ No

c) Did the grantee generate or transport any waste brought to the site?

☐ Yes ☒ No

NOTE: Grantees cannot use EPA funds to conduct assessment or cleanup activities at sites where they operated, generated, or transported hazardous substances.

d) Is the grantee affiliated with the liable, or potentially liable party?

☐ Yes ☒ No

Explain if you answered "yes" to questions b-d:

C.2 - CERCLA Liability Defense

Complete this section only if the grantee owns the property. If the grantee does not own the property, skip to section "D" or "E" as appropriate.

NOTE: Because current owners of contaminated property are potentially liable under CERCLA, the grantee must demonstrate that they are not a liable party by establishing that they meet the requirements of one of the liability protections or defenses set forth in CERCLA. For more information on these liability protections, please refer to the Brownfields Law, the April 2009 Fact Sheet entitled: "EPA Brownfields Grants, CERCLA Liability and All Appropriate Inquiries," (https://www.epa.gov/brownfields/brownfields-all-appropriate-inquiries and the March 6, 2003 EPA guidance entitled Interim Guidance Regarding Criteria Landowners Must Meet in Order to Qualify for Bona Fide Prospective Purchaser, Contiguous Property Owner, or Innocent Landowner Limitations on CERCLA ("Common Elements") (http://www2.epa.gov/sites/production/files/documents/common-elem-guide.pdf). Grantees may also call the Regional Brownfields Contact listed in Section VII with questions about eligibility.

a) If the grantee owns the property, indicate whether one of the following bases for determining that the grantee is not potentially liable as an owner under Section 107(a) of CERCLA applies.

☐ The grantee is a recognized tribal government entity and is not a "person" under the definition of CERCLA.

☐ The grantee acquired the property without knowledge of contamination (Innocent Landowner - CERCLA §101(35)(A)(i)).

☐ The grantee satisfies Bona Fide Prospective Purchaser (BFPP) protection (CERCLA §§101(40) and 107(r)).

☐ The grantee satisfies contiguous property owner protection for migrated contamination (CERCLA §107(q)).

☐ The grantee is a state or local government entity that acquired the property involuntarily through bankruptcy, tax delinquency, abandonment, or by exercising its power of eminent domain (Innocent Landowner - CERCLA §101(35)(A)(ii)).

Explain how the grantee qualifies for the defense selected above:

All Appropriate Inquiry (AAI)

b) Has the owner conducted AAI?

☐ Yes ☐ No

c) When was the property acquired?

d) What is the date of the Phase I report?

Phase I "Shelf Life"

For properties acquired on 11/1/06 or later, one of the following must apply:

1) The Phase 1 was conducted within 180 days prior to property acquisition; OR

2) The Phase I was conducted within 1 year AND an updated report is dated within 180 days prior to acquisition.

e) Indicate which Phase I standard was used to conduct AAI?

☐ ASTM e1527-05 or ASTM e1527-13 (sites purchased after 12/31/13)

☐ ASTM E2247-08 (sites purchased on 3/23/09 or later & qualify as Forestland/Rural)

☐ ASTM e1527-05 (sites purchased between 11/1/06 and 12/31/13)

☐ ASTM e1527-00 or 1527-05 (sites purchased between 11/1/05 and 11/1/06)

☐ ASTM e1527-97 or 1527-00 (sites purchased between 5/31/97 and 11/1/05)

☐ Pre-5/31/97 purchaser standard as outlined in CERCLA§101(35)B)(iv)(I)

Reasonable Steps and Continuing Obligations

f) Has the owner taken reasonable steps with respect to hazardous substance releases?

☐ Yes ☐ No

Reasonable steps are actions taken to:

☐ Stop any continuing releases;

☐ prevent any threatened future release;

☐ prevent or limit exposure to any previously released hazardous substance

g) Has the owner complied with all land use restrictions and institutional controls since acquiring the property?

☐ Yes ☐ No ☐ Not applicable

h) Has the owner provided full cooperation, assistance, and access to persons that are authorized to conduct response actions?

☐ Yes ☐ No ☐ Not applicable

i) Has the owner complied with information requests and administrative subpoenas?

☐ Yes ☐ No ☐ Not applicable

j) Has the owner complied with providing legally required notices?

☐ Yes ☐ No ☐ Not applicable

Explain:

SECTION D - Petroleum Contamination Sites

Complete this section if you selected petroleum under "known or suspected contaminants" on page 1. Skip to Section E if your site is not a petroleum site.

Do you have a State determination letter attached?

☐ Yes ☒ No

NOTE: All petroleum sites need a written determination of eligibility by the State Environmental Agency or EPA based on the answers to Section D. Please answer these questions AND attach the State determination. The determination must address the petroleum eligibility criteria outline in the brownfields grant guidelines. States may apply their own laws and regulations to make the petroleum site determination; if they do so, please provide their determination and rationale.

D.1 - "Relatively Low Risk"

The State or EPA will have to determine that this site is of "Relatively Low Risk" compared to other petroleum-only sites in the State. Two key questions for this determination follow:

a) Have Leaking Underground Storage Tank funds been expended at this site?

☐ Yes ☐ No ☒ Unknown

b) Have Federal Oil Pollution Act response funds been expended at this site?

☐ Yes ☒ No ☐ Unknown

D.2 - "A Site for Which there is No Viable Responsible Party"

The State or EPA will have to determine that there is no viable responsible party using the following criteria.

a) Was the site last acquired through tax foreclosure, abandonment, or equivalent government proceedings?

☐ Yes ☒ No

b) Has a responsible party been identified through:

i) a judgment rendered in a court of law or an administrative order that would require any party to assess, investigate, or cleanup the site?

☐ Yes ☒ No

ii) a filed enforcement action brought by federal or state authorities that would require any party to assess, investigate, or cleanup the site?

☐ Yes ☒ No

iii) a citizen suit, contribution action or other 3rd party claim against the current or immediate past owner, that would, if successful, require that party to assess, investigate, or clean up the site?

☐ Yes ☒ No

Explain if you answered "yes" to any of the above:

c) Has the current owner done any of the following:

i) Dispensed or disposed of petroleum or petroleum product at the site?

☒ Yes ☐ No

ii) Owned the property during the dispensing or disposal of petroleum product at the site?

☒ Yes ☐ No

iii) Exacerbated the contamination at the site?

☐ Yes ☒ No

iv) Taken reasonable steps with regard to contamination at the site?

☒ Yes ☐ No

Explain if you answered "yes" to any of the above:

They built a new safe tank farm site and they have removed a lot of the debris from this site and cleaned up a bit, but there are still propane tanks, large petroleum tanks and underneath a torn up liner. However, the area is still accessible by humans and very close to the creek.
The City of Koyuk owns the site but leased it to the Koyuk Native Corporation which ran the Native Corporation tank farm.

d) Who is the immediate past owner? State of Alaska

e) Has the immediate past owner done any of the following?

i) Dispensed or disposed of petroleum or petroleum product at the site?

☐ Yes ☒ No

ii) Owned the property during the dispensing or disposal of petroleum product at the site?

☐ Yes ☒ No

iii) Exacerbated the contamination at the site?

☐ Yes ☒ No

iv) Taken reasonable steps with regard to contamination at the site?

☐ Yes ☒ No

Explain if you answered "yes" to any of the above:

f) Based on the above, for purposes of brownfields funding, is there a responsible party?

☒ Yes ☐ No

Explain:

Koyuk Native Corporation and City of Koyuk.

g) If answer to f) is yes, is that party viable (has adequate financial resources to pay for assessment of the site)?

☐ Yes ☒ No

Explain:

The Koyuk Native Corporation and or the City of Koyuk do not have the funds to be viable for clean up costs.

The petroleum site is ineligible if there is a viable responsible party. If there is no responsible party, or if there is a responsible party who is not viable, continue.

D.3 - "Cleaned Up By a Person Not Potentially Liable"

The State or EPA must also determine that the site will be cleanup up by a person not potentially liable. This applies to cases where the grantee is not the current owner.

a) Has the grantee ever:

i) Exacerbated the contamination at the site?

☐ Yes ☒ No

Explain:

ii) Dispensed or disposed of petroleum or petroleum product at the site?

☐ Yes ☒ No

Explain:

iii) Explain how the grantee/applicant took "reasonable steps" with respect to the contamination:

D.4 - Sites Not "Subject to a RCRA Corrective Action Order"

a) Is the site "subject to any order issued under Sec. 9003 (h) of the Solid Waste Disposal Act?"

☐ Yes ☒ No

Explain if "yes":

SECTION E - Site Eligibility Determination

Complete your eligibility determination based on the information you provided.

Grantee Determination

☒ The Site is eligible for EPA Brownfields Funds.

☐ The Site is not eligible for EPA Brownfields Funds.

☐ The Site is eligible for EPA Brownfields Funds but requires EPA Property-Specific Determination.

If requiring a property-specific determination, explain why Brownfields financial assistance is needed and how it will protect human health and the environment and either promote economic development or enable the creation of, preservation of, or addition to parks, greenways undeveloped property, other recreational property, or other property used for nonprofit purposes:

Name: Brandie Radigan

Organization: Kawerak, Inc.

Date: 7/20/22

List any attachments that are being included to support your determination:

ADEC Petroleum Eligibility Determination Letter, August 5, 2022

EPA Review Results

☒ EPA accepts the grantee's determination that the site is eligible for brownfields funds.

☐ EPA has determined that the site is not eligible for Browfields funds.

☐ The site would be excluded from the definition of a Brownfields site in 101(39)(B) but EPA has determined the site is eligible for funding per 101(39)(C) based on the information provided by the requestor.

☐ EPA does not have sufficient or appropriate information to accept the grantee's determination.

Comments:

Based on information provided, there will be substantial public benefit in performing this assessment on behalf of the City of Koyuk and the Koyuk Native Corporation.
EPA concurs that the site is eligible, and approves the use of EPA funding under BF-01J98901 for the requested Phase I and Phase II Environmental Site Assessment work.

EPA Project Officer: MOLLY VAUGHAN Digitally signed by MOLLY VAUGHAN Date: 2022.09.02 11:47:54 -08'00'

Date: 9/2/22

EPA Staff Enforcement Screen

☒ Confirmed non-contributor to a Superfund site

Date: 9/2/22 - Molly Vaughan, EPA PO

Adam Johnson

From: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>
Sent: Thursday, May 11, 2023 2:38 PM
To: Adam Johnson
Cc: Brandie D. Radigan; Thomas, Marc M (DEC); Anahma Shannon
Subject: RE: Monitoring wells

Good Morning,

I spoke with Ted Wu our Environmental Specialist 4 and we concluded that it shouldn't be a problem. In talking with him, explaining the circumstances, and reviewing both the 2013 DEC Monitoring Well Guidance and the 2020 DEC Field Sampling Guidance I approve the deviation to install the groundwater well via an excavator for long term groundwater monitoring.

Let me know if you have any further questions and if you don't mind saving this approval for record keeping (I will as well) that would be great.

Thank you and have a good day!

Breanna

Breanna Mahoney
Environmental Program Specialist
Alaska Dept. of Environmental Conservation
Contaminated Sites Program
1700 E. Bogard Rd. Suite B 103, Wasilla, Alaska 99654
Phone 907.269.7503

From: Adam Johnson <adam@eskerassociates.com>
Sent: Thursday, May 11, 2023 10:19 AM
To: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>
Subject: RE: Monitoring wells

Hi Breanna, thanks for checking on this.

The principal reason is the prohibitive cost, and logistical challenges, of getting a drilling rig to these communities.

Adam

From: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>
Sent: Thursday, May 11, 2023 10:06 AM
To: Adam Johnson <adam@eskerassociates.com>
Subject: RE: Monitoring wells

Good Morning Adam,

I am checking on your question today at 10:00 with our technical specialist. I had one quick question though. Is the rationale behind wanting to do excavation installed wells simply because you want long term monitoring or is there another reason like the material out there would be hard to do a push well installation?

Thank you!

Breann

Breanna Mahoney
Environmental Program Specialist
Alaska Dept. of Environmental Conservation
Contaminated Sites Program
1700 E. Bogard Rd. Suite B 103, Wasilla, Alaska 99654
Phone 907.269.7503

From: Adam Johnson <adam@eskerassociates.com>
Sent: Friday, May 5, 2023 11:42 AM
To: Mahoney, Breanna M (DEC) <breanna.mahoney@alaska.gov>; Thomas, Marc M (DEC) <marc.thomas@alaska.gov>
Cc: Brandie D. Radigan <bradigan@kawerak.org>; Kayla Bourdon <klbourdon@kawerak.org>
Subject: Monitoring wells

Hi Breanna and Marc, I was speaking with Brandie today about a portion of the proposed activities for the Phase II ESA work this summer in Kawerak's region. She mentioned that it was ok to contact you on Kawerak's behalf.

The attached doc contains an excerpt of one of the sampling plans that we are finishing up. In summary, the plan is to install monitoring wells in selected test pits if groundwater is encountered. The attachment describes the proposed process and materials. Would you be able to comment on the acceptability of such an approach? The reason I am asking now is because I've been in touch with suppliers of some of the materials we would use, and there is a bit of a lead time required to get the items to the Bering Strait region. I'm also asking because the proposed approach might deviate from ADEC's official guidance.

Also, I wanted to let you know that draft SAPs are nearly ready for the Koyuk Native Corporation Tank Farm and the Golovin Old Landfill. Brandie will send you those documents asap for your review.

Thanks a lot, and have a great weekend.

Adam Johnson
Hydrogeologist
P.O. Box 8083
Missoula, MT 59807
(406) 546-1006
eskerassociates.com

ESKER
Esker Associates, LLC

Appendix B

Health & Safety Documentation

Safety Briefing

The following individuals attended a pre-job safety briefing conducted at 1345 (time) on _____ (date) at 6/22/23 (location) and have read and familiarized themselves with the HASP.

Printed Name	Signature
Charles Swanson	
Kayla Bourdon	
Lauren Jennings	
Harmony Hitsch	

Fully charged Class ABC fire extinguisher available onsite? ☒ Yes ☐ No

Fully stocked First Aid Kit available onsite? ☒ Yes ☐ No

Project personnel advised of the location of the nearest phone? ☒ Yes ☐ No

Project personnel advised of the location of the health clinic? ☒ Yes ☐ No

Field Team Leader or Site Health and Safety Officer:

Printed Name Adam Johnson Signature _____ Date 6/22/23

Appendix C

Field Notes

Kaweraak 6451
Koyuk

Rite in the Rain®
ALL-WEATHER
FIELD
№ 351FX

06/22/23
07:15

Weather: 45°F
Sunny with
partial clouds

Objective: Get to Koyuk to begin field work objectives concerning the old tank farm.

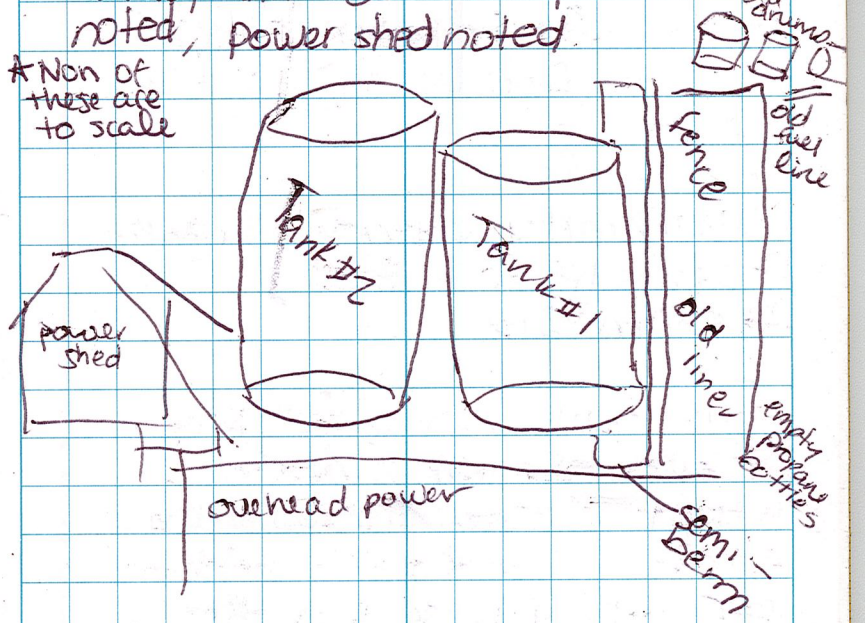
Personnel: Adam Johnson, Kayla Bourdon, Harmony Hirsh, Lauren Jennings.

07:15 Team arrives at Bering Air after field delays due to weather the previous day. That day is not in the field notebook, but consisted of a continous stand by passenger day.

08:00 Team departs Nome on Bering Air en route to Koyuk.

10:00 Team arrives in Koyuk. All gear is accounted for.

10:51 Team assessing site at Tank Farm. Overhead power noted, power shed noted.



Fuel line not in use anymore.

Bulk fuel farm is new fuel source as of 2005.

Old house buts up to tank property.

Power pole & guide line noted to not be connected.

06/22/23

No fiber lines noted on the site.

Earl Merchant, GCI, Nome to get more info on fiber lines

13:29 Safety Meeting conducted.
Overhead hazards - powerlines
slips trips & falls
Sharp debris
Safe ATV traveling
If safety is a question, use stop work authority
Next to store, curious pedestrians

Ex at 1/4 tank fuel at start of project.
Adam paid for fuel.

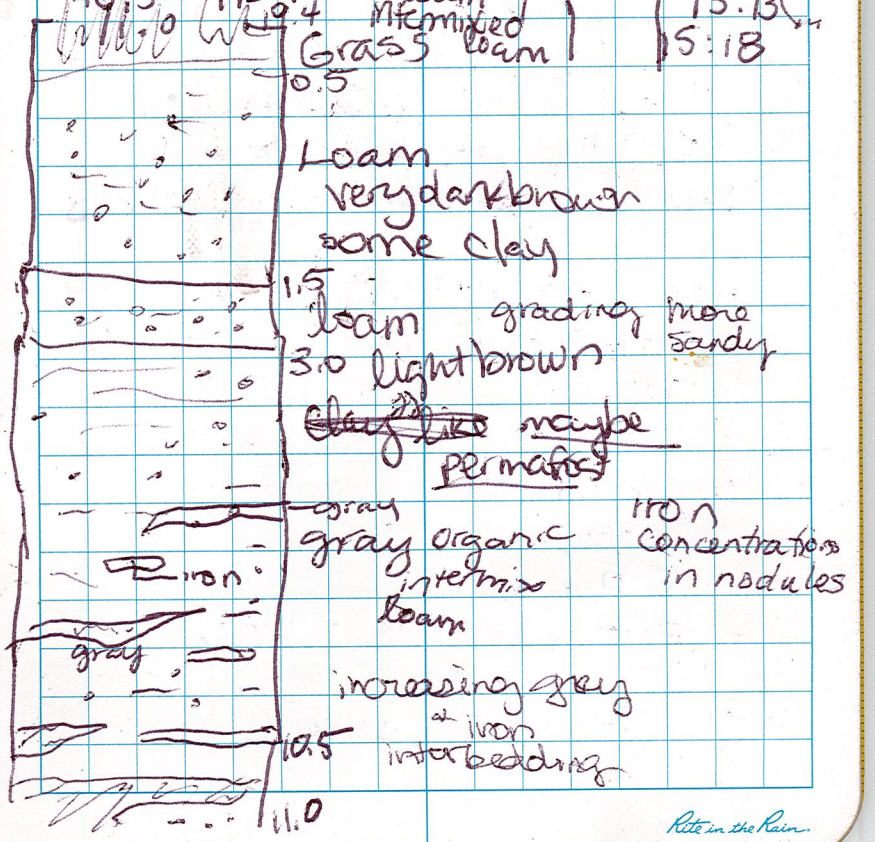
14:14 Calibration PID
Background 0.0
100ppm
Serial # cal gas: 22-9124

14:35 KKA-TP01 started.

06/22/23 cont.

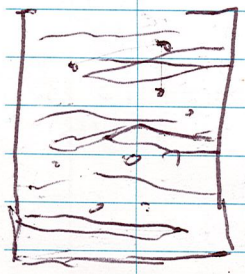
start: 14:35 stop: 15:40

Depth	PID	Material	ID	Time	odor
2.5	9.2	loam	KKA-TP01	14:40	0
5.0	21.5	sandy loam	TP01	14:47	organic
6.0	16.1	loam	↓	14:51	" "
8.0	12.6	loam		14:54	" "
9.0	18.5	intermixed loam		14:59	" "
10.0	17.1	intermixed loam		15:05	" "
10.5	13.1	intermixed loam		15:13	" "
11.0	19.4	Grass		15:18	



06/22/23 cont.

Time	Depth	Sample ID	Material	PID	Odor
15:30	12.0	TP01	organic interbedded	15.4	organic
15:36	13.0	↓		15.9	organic



gray clay/sand material interbedded with loam

12.0 ft

13.0 ft

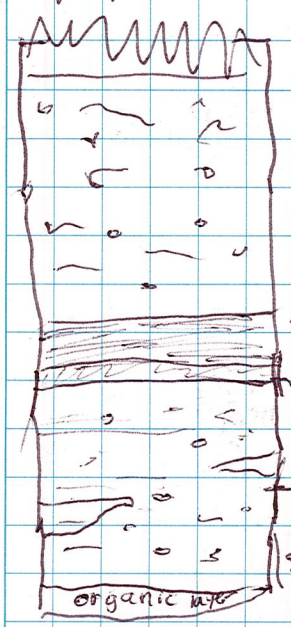
TP02

start: 16:08 stop: 18:00

behind old fuel tanks

Time	Depth	Sample ID	Material	PID	Odor
16:20	1.0	TP02	imported fill	18.8	No
16:23	3.0a		imported fill	19.7	No
16:30	~~3.5~~ 3.0b		~~free product~~ fill	~~52.8~~ 11.4	~~light~~ fuel strong odor
16:32	~~5.5~~ 3.0b		pure fuel soil	~~30.3~~ 11.4	" "
16:34	3.9b		bottom organic sandy loam	38.3	
16:36	5.0			75.3	

06/23/22 cont.



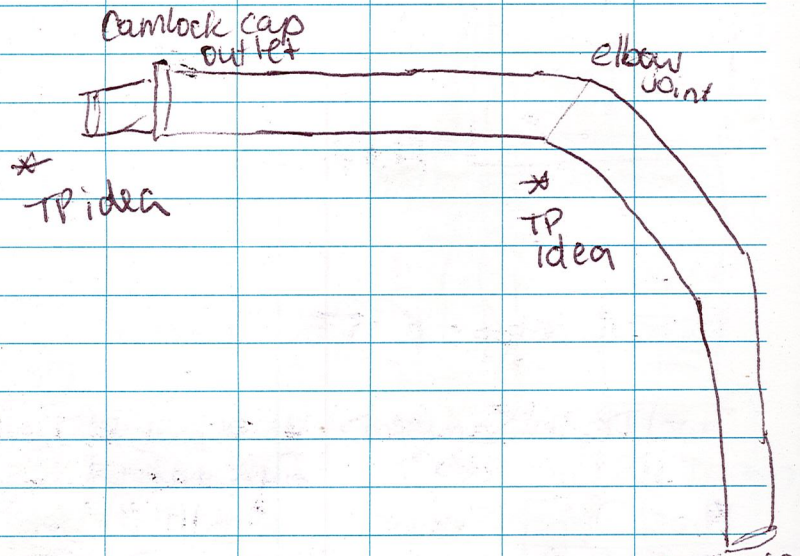
non-representative

Cont. TP-02 restart: 17:12

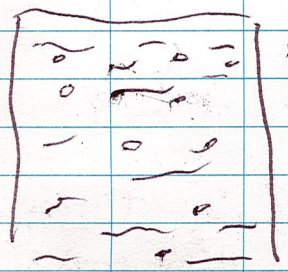
Time	Depth	Sample ID	Material	PID	Odor
X 17:16	5.5	TP2	loam w/ organics	bad scoop	fuel
X 17:19	6.5	↓	"	Bad scoop	
+ 17:21	7.0		"	394.2	fuel
17:24	8.5		"	200.4	light odor
17:29	9.5		" "	350.8	light odor
17:31	10.5		" "	292.2	" "
17:43	11.5		" "	162.0	faint
17:47	13.0		" "	208.0	faint
+ 17:55	14.0		" "	308.5	faint

06/22/23

Fuel line



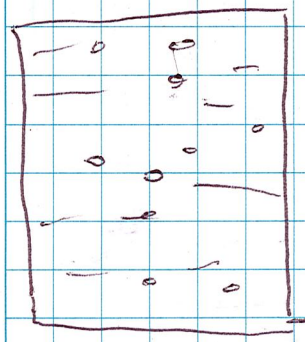
TP02 cont



increasing sandy loam (fine grained)

light fuel smell

06/22/23 cont.



TP03

Start: 18:43 stop: 19:55

Time	Depth	Sample ID	Material	PID	Odor
18:53	2.0	TP03	fill material	1.9	NO
19:00	3.5	↓	permafrost	8.1	↓
19:05	4.0	↓	frozen ground	9.1	fuel
19:10	5.0	↓		11.0	fuel
19:29	6.5	↓	sandy loam	14.3	fuel

0.5 grass

fill material (some permafrost noted)

2.5 (excavated from ~~rest~~ unoccupied landfill material before it went in)

ground water seep (not a lot)

Rite in the Rain

06/22/23 cont.

Fuel smell is noted in frozen ground, but unknown the extent because of ~~fuel~~ frozen extent.

Time	Depth	Sample ID	Material	PID	odor
19:36	9.0	TP03	sandy loam	37.5	fuel
19:41	10.5		" "	9.3	fuel
19:46	12.5		" "	6.7	slight fuel
19:52	13.0		" "	2.9	faint fuel

06/23/22 cont.

20:04 CT head back to school

20:30 CT stayed to help dry decon the mini-ex.

21:10 CT back at school.

06/23/22 Objectives: Test Pit Installs x10 50°F Sunny with partly cloudy

07:00 CT started prep for test pit install + sample QC.

Personnel: Harmony Hirsch, Lauren Jennings, Kayla Bourdon, Adam Johnson

08:40 TP-04 started. Stop 09.30

Time	Depth	Sample	Material	PID	odor
08:50	2.0	TP-04	loam	0.3	No
08:53	3.5	TP-04		3.6	organic
08:55	4.0	TP-04	sandy loam interbedded organics	1.3	No
09:05	5.0	TP-04		1.1	organic
09:10	7.0	TP-04		2.8	organic
09:15	9.0	TP-04		10.0	organic
09:30	10.0	TP-04	sandy loam	2.1	No

06/23/22 cont.

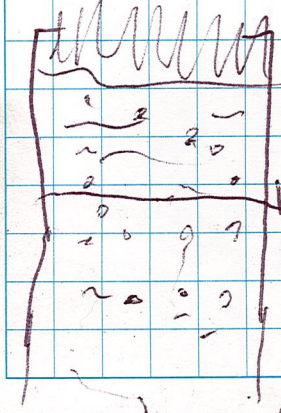
TP-05
start: ~~09:05~~ 10:30 stop: 11:00

06/23/22 cont.

Time	Depth	Sample ID	Material	PID	Odor
10:34	1	TP05	loam	12.2	No
10:47	3.5	↓	frozen loam	26.8	organic
10:51	6	↓	" "	12.9	organic

PID Calibration: 09:35
Background: 0.0 ppm
Calibration: 100 ppm
See previous days notes for calibration notes.

10:03 Before TP-05, stuff had to be moved to access the location.



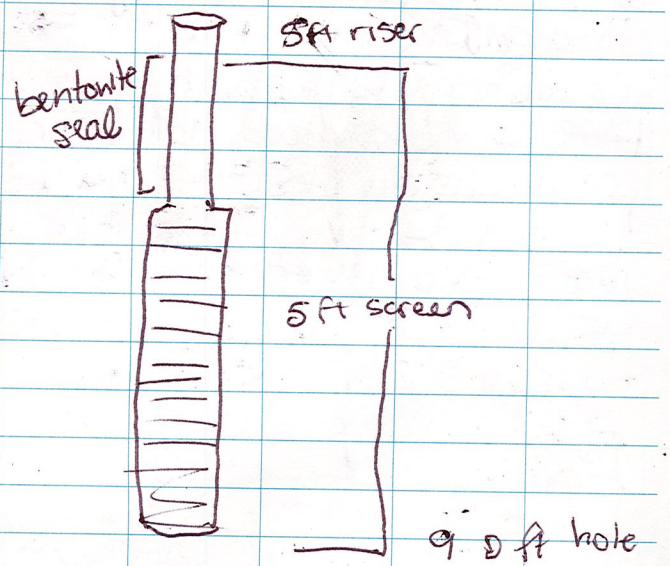
A small sheen noted

inflow noted at 3 ft

Monitoring Well being installed at TP-05.

One 5-ft screen, Well set at ~~10.0~~ 9.0 ft.

~~10.5~~ 5 ft screen riser.

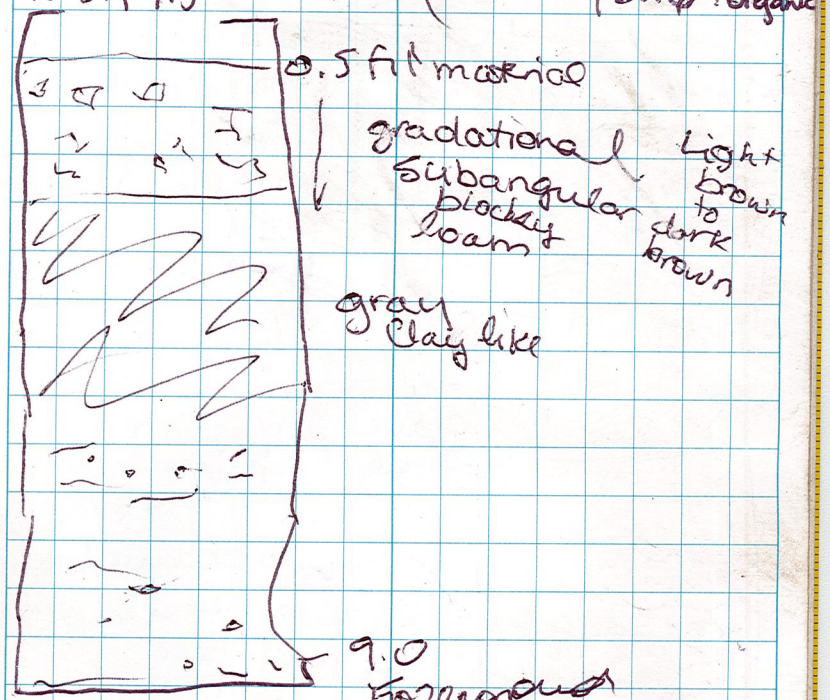


Monitoring well Completed at 14:43

Depth to Water: 5.73 ft
Total Depth: 10.5 ft

TP06
Start: 15:11 Stop 15:48

Time	Depth	Sample ID	Material	PID	Odor
15:15	0.5	TP06	Fill Material	10.6	slight fuel
15:17	1.5	↓	Fill Material	368.0	" "
15:19	2	↓	loam	845.6	fuel
15:21	3.8	↓	gray unnatural loam/gray	859.0	fuel ~~fuel~~
15:25	5.5	↓	" "	28.4	" organic
15:29	7.5	↓	" "	31.6	" "



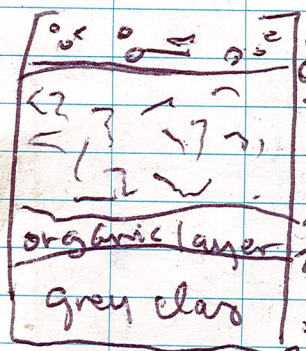
06/23/23 cont.

Time	Depth	Sample ID	PID	Material	Odor
15:32	9.0	TP06	12.8	Sandy loam	

TP-07

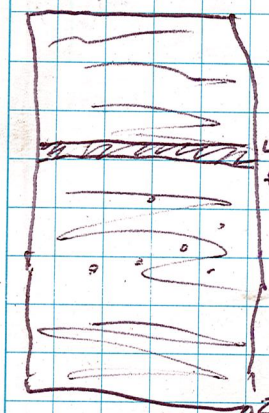
Start: 16:11 Stop: 16:44

Time	Depth	Sample ID	PID	Material	Odor
16:13	0.5	TP07	4.4	gravel fill	NO
16:17	2.0	↓	190.6	loam	very slight fuel
16:21	3.0	↓	659.0	gray clay	fuel
16:24	4.5	↓	479.4	clay	no
16:26	7.0	↓	368	" "	no
16:31	8.0	↓	84	" "	~~no~~ slight odor organic
16:36	9.5	↓	9.4	" "	



gravel fill / loam
blue tarp liner for former tank farm
Subangular blocky loam
organic layer 2.0 seep (may be free product sheen
2.5
grey clay thin
3.0 this may be confining layer

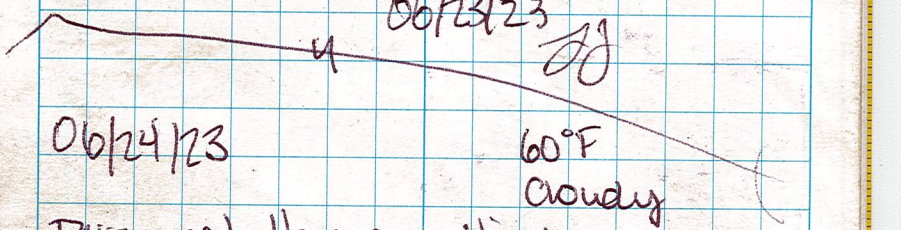
06/23/23 cont.



grey clay (sand rich)
4.5
frozen soil
grey clay (sand rich)
intermitent frozen soil
9' refusal because of permafrost

17:02 CT Team gets gear ready to take back to school / decon process with mini excavator.

18:00 CT processed samples at school.



06/24/23 60°F cloudy

Personnel: Harmony Hirsch, Lauren Jennings, Charles (miner ck)

06/24/23 cont.

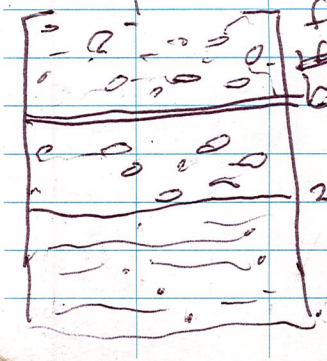
Objective: Complete test pits. Develop groundwater monitoring well.

07:45 CT Safety discussion about water/powerlines. Best way forward for test pits.

TP 08

start: 08:27 stop: 08:57

Time	Depth	Sample ID	PID	Material	Odor
08:39	2.5	TP08	0.9	fill material	~~fuel~~ No
08:41	2.5	↓	387.0	grey clay	strong fuel
08:46	5.5	↓	216.0	" "	light fuel
08:49	8.0	↓	70.5	" "	organic/ fuel
08:51	9.0	↓	37.8	" "	light fuel/
08:53	9.5	↓	11.5	" "	organic
					faint fuel/ organic



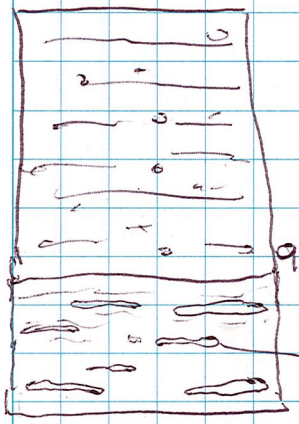
fill material w/gravel (larger rock too) 4-6 inches

blue liner from tanks

2.5

grey organic sandy loam

06/24/23 cont.



grey organic sandy loam poorly sorted

9.0 frozen ground starts

ice chunks

09:22 PID Calibration

Background: 0.0ppm

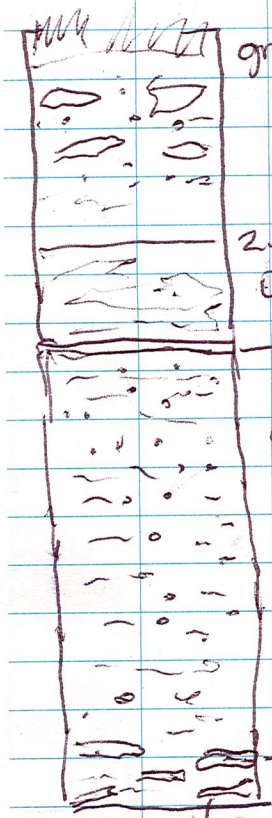
Calibration: 100.0

TP09

start: 09:27 stop: 10:10

Time	Depth	Sample ID	PID	Material	Odor
09:32	Surface	TP09	0.9	Fill	~~fuel~~ No
09:34	1.0	↓	1.6	Fill	~~fuel~~ No
09:36	2.5		94.5	organic	light fuel
09:40	4.0		496	grey clay	strong fuel
09:50	5.0	↓	378.0	dark grey sandy loam	Fuel
09:53	7.0	↓	557.4	" "	Fuel
09:57	8.0	↓	319.3	" "	Fuel
09:59	9.0	↓	4.1	" "	Organic
10:01	10.0	↓	43.2	" "	slight odor

06/24/23



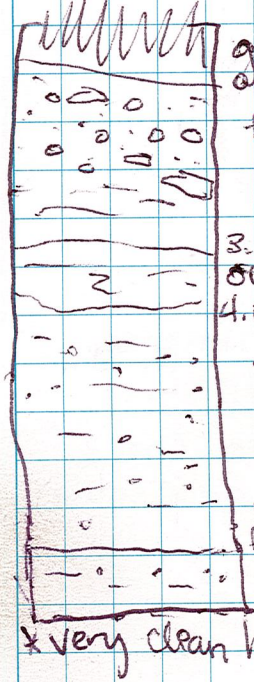
Time	Depth	Sample ID	PID	Odor	Material
10:03	10.0	TP09	2.2	NO	frozen loam

* Refusal met due to frozen soil, 9.0ft might be more representative than 10.0ft due to mixing

TP10

06/24/23 cont. Start 10:43 Stop: 11:07

Time	Depth	Sample ID	PID	Material	Odor
10:45	2.0	TP10	0.6	import fill	NO
10:47	3.5	↓	3.2	organic layer	Organic
10:51	5.0	↓	4.1	sandy loam " "	Slight organic
10:57	8.0	↓	2.8	"	organic
11:01	10.0	↓	1.3	"frozen" interface	organic

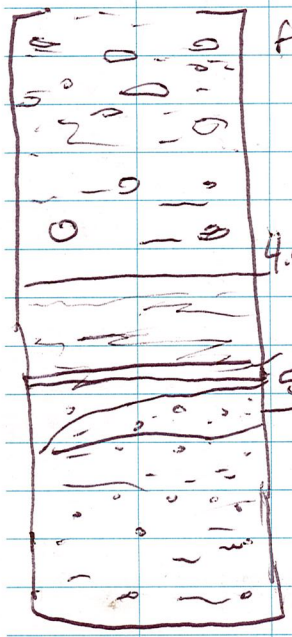


* very clean hole.

06/24/23 Cont.

TP011 start: 11:23 stop: 11:55

Time	Depth	Sample ID	PID	Material	Odor
11:26	2.5	TP11	1.7	Fill	No
11:29	4.0	↓	0.1	organic layer	organic
11:31	5.5	↓	4.0	sandy loam	organic
11:40	8.0	↓	3.0	sandy loam	organic
11:47	10.5	↓	1.3	"	



fill material
* fissure noted on surface due to weak fill.

organic layer/trash

Small seep noted
* Not enough for well.

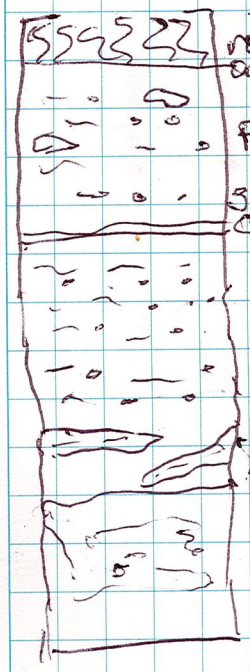
splay
Sandy loam
light brown (not impacted grey color)

06/24/23 cont

TP012

start: 12:22 stop: 13:00

Time	Depth	Sample ID	PID	Material	Odor
12:36	1.0	TP12	1.6	fill material	No
12:40	2.5	↓	1.0	" "	No
12:43	3.5	↓	1.1	sandy loam	No
12:46	5.0	↓	1.2	" "	No
12:51	7.0	↓	2.2	" "	~~No~~ organic
12:53	9.0	↓	1.7	" "	organic



Heavy alder roots, grass organic

Fill

5.5 Organic material

Sandy loam

gray material

5.5

grey Sandy loam

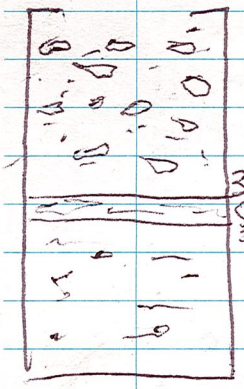
OH
Attic Pipe
Discovered
Abandoned

06/24/23 cont

TP13

Start: 13:30 Stop: 13:50

Time	Depth	Sample ID	PID	Material	Odor
13:35	2.5	TP13	1.3	Import Fill	No
13:40	3.0	↓	6.9	Organics	Organic
13:45	3.5	↓	~~3.3~~	sandy loam	organic
13:47	4.5	↓	1.2	frozen soil	organic



Frozen soil
* met with refusal
mini ex won't
go deeper

13:54 CT help dry decon mini-excavator.

16:35 DTW: 6.69

Developing the well.

* Free Product Noted 8.47

19:00 DTW: 5.38

Total Depth: 8.47 with PVC Cut off

The amount of water is consistent with the seep around the organic layer 3.5-5?+. Not true "recharge".

Depth to bottom is not representative of true water. The seep comes + goes + wets the screen.

19:12 DTW: N/A

Total Depth: 8.47

Not recharging, + stagnant water had free product.

19:16 DTW: 7.3

Total Depth: 8.47

* Free Product noted again

06/24/23 cont

Another purge attempted.

19:13

~~DTW~~ :19 DTW: 8.05

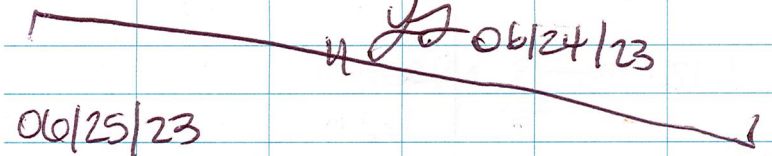
Staying consistent with regional seep theory

*We are at high tide.

19:29 DTW: 7.4

Water is beginning to be less turbid.

19:36 DTW: 8.0



06/25/23

Field personnel: Harmony Hirsch, Lauren Jennings

Objective: Ensure groundwater monitoring well is not able to be sampled, demobilize to Nome.

06/25/23 cont.

08:30 CT Team performed paperwork & organized for demobilization with Koyuk personnel.

10:30 Koyuk personnel arrived (Charles) and informed CT the plane was coming in early. CT Team got everything together to ensure flight was made. Due to deductions made at the monitoring well the previous days deductions. There were indicators of free product in the well and not enough ~~low~~ flow to achieve low flow purging.

11:45 CT departs to Nome.
12:30 CT arrives in Nome.
Got gear to Kawerak shed & checked into Hotel.

06/25/23 cont.

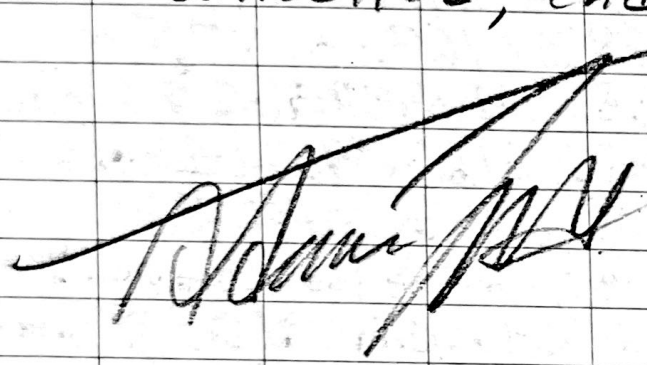
15:00 CT QC'd samples and got ready for shipment to Anchorage.

17:30 CT finished sample QC and arrangements for travel to Golovin the next day.

6/21/23

Koyuk, AK

0715 - arrived Bering Air terminal in Nome & checked in for Koyuk.
0810 - weather delay
1725 - flight to Koyuk cancelled; end of day.



Cessna Caravan 208B
cruising alt. ~ 7,500 feet.

Koyuk NC Tank Farm

6/22/23

0715 - arrived Bering Air terminal
0808 - take off for Koyuk; observed "patterned ground"
0853 - arrived Koyuk
0900 - 1030 set up gear & equipment at the school.
1030 - site recon to review proposed test pit locs
Personnel: Harmony Hirsch, Lauren Jennings, Kayla Bourdon, Charles Swanson, Adam Johnson; wx: partly cloudy; 50°F
1115 - drove to rock quarry to speak with ANTHC excavator operator;
John Deere 470G (LC) will be available tomorrow if needed
- Test pits will be initiated using a Bobcat E85 mini-excavator
1330 - 1400 H&S meeting
1400 - ChemTrack set up for soil sample collection
1420 - filled excavator with fuel
1425 - excavator arrived onsite

6/22/23 - Kotzebue Native Corp. Tank Farm

1435 - began TP-2
1505 - reached 10' bgs; no evidence of impacts
1520 - reached 11' bgs; soil is dark gray, contains organics, and some wood;
1535 - reached 13.0 ft bgs; dark fine-grained soil with no petroleum hydrocarbon odor
1540 - began backfilling TP-1
1605 - recon of TP-2 (south end of horizontal ASTs)
1620 - began TP-2
1630 - encountered possible free petroleum product @ 3'9" depth at bottom; slight odor; sheen on perched water
1640 - reached 5.0'
- Fill to ~3 ft bgs is from the landfill site on the west side of town
1645 - break to collect PID readings; elevated readings (~50 ppm) between 3 & 5 ft. bgs

6/22/23 - Kotzebue Native Corp. Tank farm

1715 - began digging again @ 5 bgs
1800 - reached TD of 14' bgs odors noted from 3-14' bgs.
1830 - completed backfill of TP-2
1845 - began excavating @ TP-3
1715 - dug to 5 feet bgs.
1845 - completed TP-3 to 13 feet bgs.

2000 - end of field day

6/23/23 Kotlik VC TF

Objective: continue test pits @ former tank farm site; @0810 Charles (operator) began clearing a path to TP-4 through the trees; wx 50°F @0800

0840 - began TP-4
0900 - reached 4 ft bgs.
0920 - reached 10 ft bgs; no clear indications of a release;
0925 - began backfilling test Pit TP-4
0950-1015 moving to TP-5
1030 - began digging @TP-5
1035 - frozen ground encountered @ 1.0 feet bgs.
1050 - reached 3.5 ft bgs.
1100 - encountered shallow groundwater entering excavation from approx. 3 feet bgs (test pit depth 6 ft bgs) Will install monitoring well 2" PVC w/ 20/40 sand "U-pack"
1415 - well installed to a depth of 9.0 ft. bgs; 3/8 bentonite chips from 1-4 ft. bgs

6/23/23

1440-1500 placed flags on remaining test pit locations.
1510 - began digging @ TP-6
1520 - left ChemTrack in charge of remaining test pits
1610 - took off for Golovin
1630 - landed Golovin
1645 - took off for White Mountain
1655 - Landed WMO
1710 - took off for Nome
1735 - Landed Nome

End of field day

Adam Lee

Appendix D

Daily Field Reports

CONTRACTOR'S QUALITY CONTROL REPORT (CQC)

Report #: 7 Date: 22-Jun-23 Thursday

CONTRACT NO. AND NAME OF CONTRACTOR:	**DESCRIPTION AND LOCATION OF THE WORK:**
Contract No.: 202315109.01 ChemTrack Alaska, Inc. 11711 S.Gambell St. Anchorage, Alaska 99515	Job# 6451 Job Name Kawerak Esker Koyuk Phase II Location Koyuk, Alaska

WEATHER: Mostly cloudy/Fair, 43-68°F winds variable gusting 0-9mph.

NAME OF CONTRACTOR/SUBCONTRACTORS WITH AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY:

	Contractor's/Subcontractor's Name:	Area of Responsibility:
a.	ChemTrack	Soil Sampling/GW Sampling
b.		

1. WORK PERFORMED TODAY:

07:00hrs - Packed up gear and supplies.
07:15hrs - Arrived at Bering Air for flight to Koyuk.
08:15hrs departed Nome on Bering Air.
09:15hrs arrived in Koyuk, met with Charles Swanson and transported all equipment, gear and supplies to the Koyuk school.

Organized and inventoried to account for all equipment, materials and supplies and located materials staged in the City connex.

Performed site walk of Old Koyuk Native Corporation Tank Farm, noted all obvious hazards such as low hanging overhead powerlines and underground utilities (telephone, water main) within Second Avenue ditch. Tight maneuvering between tanks and large miscellaneous debris scattered across the site.
Esker provided Site Orientation and Safety Meeting, reviewed JSA and discussed potential hazards.
14:15hrs - Obtained local ANTHC Bobcat E85 mini excavator topped off with fuel, and "walked" it to the site.
Began performing test pits at the former Tank Farm. Advanced one to the south/downgradient of the Tank Farm, and two within the former Tank Farm footprint. During test pit excavation field screen samples were collected at varying intervals to investigate for petroleum indicators.
Field Geologist logging test pit lithology strata within excavations/test pits.
Collected soil samples for laboratory analysis for DRO/RRO, RCRA metals, GRO/VOCs from TP-02 (7' [highest PID] and 14' [bottom of hole], and TP-03),
Decontaminated excavator bucket and boom that encountered soils within the test pits.
21:10hrs - Off site.
Packaged samples.
22:00hrs off clock.

2. FUTURE WORK PLANS:

Tomorrow
Continue performing test pits, collecting samples and installing wells in the event groundwater is encountered.

Future
Demobilize and submit samples to laboratory.

3. TYPE AND RESULTS OF INSPECTION: (Indicate whether P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

N/A

4. SAMPLING REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:

Type of Test Performed: Results: Spec Section Covered: Comments:

Collected a total of 34 Field Screen samples - PID results ranged between 2.9pm - 394.2ppm.
Collected three primary and one duplicate soil samples for DRO/RRO, RCRA Metals, GRO/VOCs.

5. VERBAL INSTRUCTIONS RECEIVED: (List any instructions given by Government personnel on construction deficiencies, re-testing required, etc., with action to be taken.)

None.

6. REMARKS: (Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, cause and extent thereof; days of no work with reasons for same, site visitors.)

Obtaining the excavator was challenging as it is currently being used for the installation of the school's new playground.
Have not encountered groundwater in the test pits. Groundwater is deeper than 14-ft.
E85 Excavator reach extent is maxed at 14-ft, will not be able to install GW MW's unless water is found shallower than 14-ft.
City excavator JD 470G is WAY oversized for this project. The ~2CY capacity bucket would cause too large a disturbance to the contaminated soil, and maneuverability is minimal at the site due to tanks and other large debris.
Encountered gross contamination in test pits performed within the former Tank Farm footprint, strong petroleum odor and elevated PID readings.
Esker and handling excavator operator and heavy equipment rental.
Located abandoned fuel line terminus/potentially barge hookup/header in the thick brush at the southwest end of former tank farm gravel pad.

7. SAFETY: (Include any infractions of approved safety plan, safety manual, or instructions from Government personnel. Specify corrective action taken.)

Morning safety briefing.

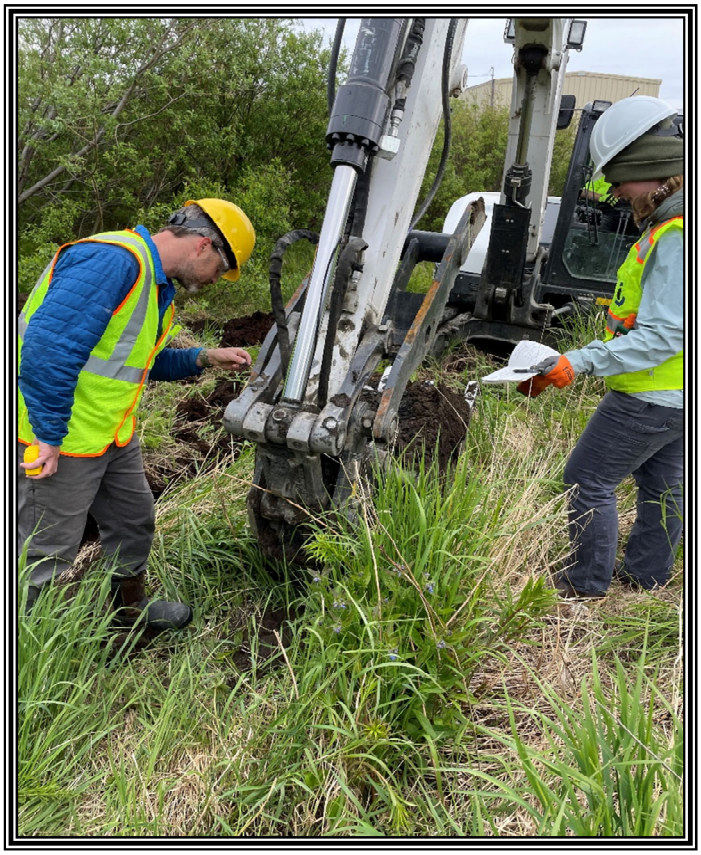
8. EQUIPMENT TYPE:	Usage	Location & Utilization
a. PID	1 DAY	Field screen sampling
b.		
c.		
d.		
e.		
f.		
g.		
h.		

9. PERSONNEL:	Hrs. ST	Hrs. OT	CostCode/Position
a. Harmony Hirsch	8	6	QEP/Sampler - 3-330200
b. Lauren Jennings	8	6	QEP/Sampler - 3-330200
e.			
f.			
f.			
f.			
c.			
d.			

10. MATERIALS BROUGHT ON SITE:	SPEC SECTION	MATERIAL APPROVED? WHEN?
a. Sampling supplies and equipment	Sampling	
b.		
c.		
d.		

CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

7	22-Jun-23	
REPORT #	DATE	CONTRACTOR'S AUTHORIZED REPRESENTATIVE



Photograph 1
Logging TP-01. View to the NE. 22JUN23

Photograph 2
Heated headspace samples collected from TP-01. View down. 22JUN23

Photograph 3
Abandoned capped fuel line, assuming former barge hookup/header and one of several 55-gal drums. View down. 22JUN23

Photograph 4
Logging TP-3. View to the west. 22JUN23

CONTRACTOR'S QUALITY CONTROL REPORT (CQC)

Report #: 8 Date: 23-Jun-23 Friday

CONTRACT NO. AND NAME OF CONTRACTOR:	**DESCRIPTION AND LOCATION OF THE WORK:**
Contract No.: 202315109.01 ChemTrack Alaska, Inc. 11711 S.Gambell St. Anchorage, Alaska 99515	Job# 6451 Job Name Kawerak Esker Koyuk Phase II Location Koyuk, Alaska

WEATHER: Partly cloudy/Fair, 51-70°F winds from the SSE gusting 0-10mph.

NAME OF CONTRACTOR/SUBCONTRACTORS WITH AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY:

	Contractor's/Subcontractor's Name:	Area of Responsibility:
a.	ChemTrack	Soil Sampling/GW Sampling
b.		

1. WORK PERFORMED TODAY:

07:00hrs - Gather supplies and prep for test pit work at the site.
Transported all gear and supplies utilizing local operators personal side by side, "walked" excavator to the site.
08:15hrs - Onsite at the Old Koyuk Tank Farm.
Morning safety briefing.
Continued performing test pits at the former Tank Farm utilizing the Bobcat E85 mini-excavator. Completed a total of four test pits at the former Tank Farm footprint. During test pit excavation field screen samples were collected at varying intervals to investigate for petroleum indicators.
Field Geologist logging test pit lithology strata within excavations/test pits.
Installed one groundwater monitoring well at TP-05. Test pit was observed to have water infiltrating at approximately 3-ft bgs within the highly organic layer of material atop silty compacted materials. Well materials consisted of PVC, 5-ft pre-packed screens, a 5-ft PVC riser, and expansion plug cap.
Collected soil samples for laboratory analysis for DRO/RRO, RCRA metals, GRO/VOCs from TP-04, TP-05, TP-06, TP-07 (2-ft and 9.5-ft).
Decontaminated excavator bucket and boom that encountered soils within the test pits.
17:30hrs - Off site.
Packaged samples.
18:30hrs off clock.

2. FUTURE WORK PLANS:

Tomorrow
Continue performing test pits, develop groundwater monitoring well, collecting samples and installing wells in the event groundwater is encountered.

Future
Demobilize and submit samples to laboratory.

3. TYPE AND RESULTS OF INSPECTION: (Indicate whether P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

N/A

4. SAMPLING REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:

Type of Test Performed: Results: Spec Section Covered: Comments:

Collected a total of 24 Field Screen samples - PID results ranged between 0.3pm - 1901.0ppm.

Collected five primary soil samples for DRO/RRO, RCRA Metals, GRO/VOCs.

5. VERBAL INSTRUCTIONS RECEIVED: (List any instructions given by Government personnel on construction deficiencies, re-testing required, etc., with action to be taken.)

None.

6. REMARKS: (Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, cause and extent thereof; days of no work with reasons for same, site visitors.)

Esker Adam Johnson and Kawerak Kayla Bordoun demobilized from Koyuk on Bering Air at ~16:00hrs.
Encountered gross contamination in test pits performed within the former Tank Farm footprint, strong petroleum odor and elevated PID readings. Highest PID reading to date within TP-07 at 2-ft. Collected characterization sample from this high field

7. SAFETY: (Include any infractions of approved safety plan, safety manual, or instructions from Government personnel. Specify corrective action taken.)

Morning safety briefing.

8. EQUIPMENT TYPE:	Usage	Location & Utilization
a. PID	1 DAY	Field screen sampling
b.		
c.		
d.		
e.		
f.		
g.		
h.		

9. PERSONNEL:	Hrs. ST	Hrs. OT	CostCode/Position
a. Harmony Hirsch	8	3.5	QEP/Sampler - 3-330200
b. Lauren Jennings	8	3.5	QEP/Sampler - 3-330200
e.			
f.			
f.			
f.			
c.			
d.			

10. MATERIALS BROUGHT ON SITE:	SPEC SECTION	MATERIAL APPROVED? WHEN?
a. Sampling supplies and equipment	Sampling	
b.		
c.		
d.		

CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

8	23-Jun-23	
REPORT #	DATE	CONTRACTOR'S AUTHORIZED REPRESENTATIVE

Photograph 1
Excavating TP-04. View to the SE. 23JUN23

Photograph 2
Heated headspace samples collected from TP-04. View down. 23JUN23

Photograph 3
Installing monitoring well within TP-05. View to the north.
23JUN23

Photograph 4
Hydrating bentonite seal at TP-05 (23KKA-MW01). View to the south.
23JUN23

CONTRACTOR'S QUALITY CONTROL REPORT (CQC)

Report #: 9 Date: 24-Jun-23 Saturday

CONTRACT NO. AND NAME OF CONTRACTOR:	**DESCRIPTION AND LOCATION OF THE WORK:**
Contract No.: 202315109.01 ChemTrack Alaska, Inc. 11711 S.Gambell St. Anchorage, Alaska 99515	Job# 6451 Job Name Kawerak Esker Koyuk Phase II Location Koyuk, Alaska

WEATHER: Mostly cloudy/Fair, 54-70°F winds from the SSE gusting 0-12mph.

NAME OF CONTRACTOR/SUBCONTRACTORS WITH AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY:

	Contractor's/Subcontractor's Name:	Area of Responsibility:
a.	ChemTrack	Soil Sampling/GW Sampling
b.		

1. WORK PERFORMED TODAY:

07:45hrs - Gather supplies and prep for test pit work at the site.
Transported all gear and supplies utilizing local operators personal side by side, "walked" excavator to the site.
08:00hrs - Onsite at the Old Koyuk Tank Farm.
Morning safety briefing.

Continued performing test pits at the former Tank Farm utilizing the Bobcat E85 mini-excavator. Completed a total of six test pits. During test pit excavation field screen samples were collected at varying intervals to investigate for petroleum indicators.

Field Geologist logging test pit lithology strata within excavations/test pits.
Collected soil samples for laboratory analysis for DRO/RRO, RCRA metals, GRO/VOCs from TP-08, TP-09, TP-10, TP-11, TP-12 and TP-13 (all samples collected from bottom of hole).
Decontaminated excavator bucket and boom that encountered soils within the test pits.
14:30hrs Excavator and operator offsite/off-clock, refueled and delivered to the school.
Packaged samples.
16:00hrs - Collected materials and supplies to develop groundwater well.
16:35hrs (greater than 24-hours post installation) - Began developing GW MW 23KKA-MW01 (TP-05). Well development was performed utilizing a 2-inch surge block and 1/2-inch PVC, purged a total of ~0.026-gallons of water, well not recharging quickly, purging dry and water contains high sediment load. Attempted to purge multiple times to remove additional water and sediment. Purge water had sheen and petroleum odor. After first purge attempt, groundwater interface probe indicated that free product was present in the well.

Completed well surface completion utilizing cast-iron flush mount well cap encased in concrete, and cut PVC well casing below ground surface.
19:36hrs - Off site.
19:45hrs off clock.

2. FUTURE WORK PLANS:

Tomorrow
Perform quality control on samples collected to date, inventory supplies, package gear and equipment for demobilization, demobilize from Koyuk.

Future
Submit samples to laboratory.

3. TYPE AND RESULTS OF INSPECTION: (Indicate whether P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

N/A

4. SAMPLING REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:

Type of Test Performed: Results: Spec Section Covered: Comments:

Collected a total of 36 Field Screen samples - PID results ranged between 0.6pm - 557.4ppm.

Collected six primary soil samples for DRO/RRO, RCRA Metals, GRO/VOCs.

5. VERBAL INSTRUCTIONS RECEIVED: (List any instructions given by Government personnel on construction deficiencies, re-testing required, etc., with action to be taken.)

None.

6. REMARKS: (Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, cause and extent thereof; days of no work with reasons for same, site visitors.)

23KKA-MW01 Groundwater well is not producing enough water to achieve low flow sampling or to fill sample jars after purging. Depth to groundwater measurements were getting false readings at varying depths due to water infiltrating the screened intervals at ~3-ft bgs and groundwater not being centered/flowing through the screen, rather filling from the surface. Could not sample this well due to low volume of water within well casing and encountering free product.

Encountered impenetrable frozen ground layers at varying depths across the site, limiting total depths of some test pits.

Eliminated two planned test pit locations (one in ditch of Second Ave and one to the east of structure in ditch of Cottonwood St) due to the high risk of encountering overhead live electricity utilities and subsurface water main and telephone line.

One hour lunch break.

7. SAFETY: (Include any infractions of approved safety plan, safety manual, or instructions from Government personnel. Specify corrective action taken.)

Morning safety briefing.

8. EQUIPMENT TYPE:	Usage	Location & Utilization
a. PID	1 DAY	Field screen sampling
b.		
c.		
d.		
e.		
f.		
g.		
h.		

9. PERSONNEL:	Hrs. ST	Hrs. OT	CostCode/Position
a. Harmony Hirsch	8	3	QEP/Sampler - 3-330200
b. Lauren Jennings	8	3	QEP/Sampler - 3-330200
e.			
f.			
f.			
f.			
c.			
d.			

10. MATERIALS BROUGHT ON SITE:	SPEC SECTION	MATERIAL APPROVED? WHEN?
a. Sampling supplies and equipment	Sampling	
b.		
c.		
d.		

CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

9	24-Jun-23	
REPORT #	DATE	CONTRACTOR'S AUTHORIZED REPRESENTATIVE

Photograph 1
Excavating TP-08. View to the SW. 24JUN23

Photograph 2
Impenetrable frozen ground layer encountered at 4.5-ft within TP-13. View to the south. 24JUN23

Photograph 3
Well surface completion. View down. 24JUN23

Photograph 4
Amount of water purged from 23KKA-MW01. View down. 24JUN23

CONTRACTOR'S QUALITY CONTROL REPORT (CQC)

Report #: 10 Date: 25-Jun-23 Sunday

CONTRACT NO. AND NAME OF CONTRACTOR:	**DESCRIPTION AND LOCATION OF THE WORK:**
Contract No.: 202315109.01 ChemTrack Alaska, Inc. 11711 S.Gambell St. Anchorage, Alaska 99515	Job# 6451 Job Name Kawerak Esker Koyuk/Golovin Phase II Location Koyuk/Nome, Alaska

WEATHER: Light rain/Fair, 53-71°F winds variable gusting 3-23mph.

NAME OF CONTRACTOR/SUBCONTRACTORS WITH AREA OF RESPONSIBILITY FOR WORK PERFORMED TODAY:

	Contractor's/Subcontractor's Name:	Area of Responsibility:
a.	ChemTrack	Soil Sampling/GW Sampling
b.		

1. WORK PERFORMED TODAY:

08:30hrs - Worked on daily reporting and began performing final quality control on all soil samples collected to date and packaged samples for shipment.

10:30hrs - Koyuk local Charles Swanson notified ChemTrack that Bering Air flight was scheduled to arrive in approximately 1 hour, almost four hours ahead of schedule.

Performed inventory of remaining supplies staged within the City of Koyuk's connex, transported remaining GW MW materials to be stored within connex.

Packaged all gear, equipment and supplies to be transported back to Nome.

11:15hrs loaded Bering Air Caravan with ALL gear, equipment and supplies.

11:45hrs - Demobilized from Koyuk.

12:30hrs Arrived in Nome, organized gear and supplies at Bering Air to be flown to Golovin tomorrow afternoon. Shipped unnecessary supplies and gear back to Anchorage via Northern Air Cargo. Transported personal gear and other supplies to be stored in the Kawerak shed. Completed final QC of all samples collected in Koyuk.

17:30hrs - Off-clock.

2. FUTURE WORK PLANS:

Tomorrow

Remobilize to Golovin, sample groundwater monitoring wells.

Future

Demobilize and submit samples to laboratory.

3. TYPE AND RESULTS OF INSPECTION: (Indicate whether P-Preparatory, I-Initial, or F-Follow-up and include satisfactory work completed or deficiencies with action to be taken.)

N/A

4. SAMPLING REQUIRED BY PLANS AND/OR SPECIFICATIONS PERFORMED AND RESULTS OF TESTS:

Type of Test Performed:	Results:	Spec Section Covered:	Comments:
None.			
None.			

5. VERBAL INSTRUCTIONS RECEIVED: (List any instructions given by Government personnel on construction deficiencies, re-testing required, etc., with action to be taken.)

None.

6. REMARKS: (Cover any conflicts in plans, specifications or instructions: acceptability of incoming materials; offsite surveillance activities; progress of work, delays, cause and extent thereof; days of no work with reasons for same, site visitors.)

Early plane was unexpected, had to rush to get to the airport in time.
ChemTrack Harmony Hirsch and Lauren Jennings traveled back to Nome on Bering Air at 11:45hrs.
Alaska Airlines Cargo office closed early on Sunday - Will need to Goldstreak sample cooler tomorrow.

7. SAFETY: (Include any infractions of approved safety plan, safety manual, or instructions from Government personnel. Specify corrective action taken.)

Morning safety briefing.

8. EQUIPMENT TYPE:	Usage	Location & Utilization
a. PID	1 DAY	Field screen sampling
b.		
c.		
d.		
e.		
f.		
g.		
h.		

9. PERSONNEL:	Hrs. ST	Hrs. OT	CostCode/Position
a. Harmony Hirsch	8	1	QEP/Sampler - 3-330200
b. Lauren Jennings	8	1	QEP/Sampler - 3-330200
e.			
f.			
f.			
f.			
c.			
d.			

10. MATERIALS BROUGHT ON SITE:	SPEC SECTION	MATERIAL APPROVED? WHEN?
a. None.	None.	
b.		
c.		
d.		

CONTRACTOR'S CERTIFICATION: I certify that the above report is complete and correct and that all material and equipment used, work performed and tests conducted during this reporting period were in strict compliance with the contract plans and specifications except as noted above.

10	25-Jun-23	
REPORT #	DATE	CONTRACTOR'S AUTHORIZED REPRESENTATIVE

Appendix E

Photograph Log

Photograph Log - Phase II ESA
Former Native Corporation Tank Farm
Koyuk, Alaska - June 2023

Photo 1. Bobcat excavator preparing to dig at TP1. View to the east. June 22, 2023.

Photo 2. Test pit TP1. Native topsoil is visible over grayish silt. June 22, 2023.

Photo 3. Silt-rich subsoil from TP1 with iron oxide staining. June 22, 2023.

Photo 4. Test pit TP2, which exhibited a petroleum hydrocarbon odor, soil staining, a sheen on perched subsurface water, and free product at the fill-silt interface.

Photo 5. Test Pit TP2. Soil staining and petroleum product are visible. June 22, 2023.

Photo 6. Test Pit TP3 with petroleum product at the fill-silt interface. June 22, 2023.

Photo 7. Test Pit TP4, which did not exhibit field indications of petroleum hydrocarbon impacts. June 23, 2023.

Photo 8. Test pit TP5 with minor accumulation of subsurface water. Petroleum hydrocarbon product is visible along the wall of the test pit at the fill-silt interface. June 23, 2023.

Photo 9. Test pit TP6, which exhibited soil staining and a minor quantity of perched subsurface water. June 23, 2023.

Photo 10. Test pit TP6. Note soil staining and petroleum hydrocarbon product at the fill-silt interface. June 23, 2023.

Photo 11. Test pit TP6. The upper two feet of the profile is coarse-grained fill material, while silt-rich native soil is present below a depth of two feet. June 23, 2023.

Photo 12. Construction of monitoring well MW1 with tapered end cap and "U-Pack" screen containing silica sand. June 23, 2023.

Photo 13. Monitoring well MW1 with PVC casing, pressure cap, flush-mount manhole, and concrete surface seal. June 24, 2023.

Photo 14. Fuel valve noted near test pit TP5. June 23, 2023.

Photo 15. Small creek and culvert beneath 2nd Avenue near the western site boundary. View to the north. June 23, 2023.

Appendix F

Test Pit Logs

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP01
CLIENT:	Kawerak, Inc.	SCIENTIST:	Adam Johnson/Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Southeastern portion of the site near abandoned residence		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92972347	-161.1630906	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/22/2023 14:35	COMPLETED:	6/22/2023 15:40	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Kayla Bourdon, Charles Swanson		
TOTAL DEPTH:	13.0 FT.	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	NA	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	
2.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	9.2	No odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	21.5	Organic Odor
6	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	16.1	Organic Odor
8	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	12.6	Organic Odor
9	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	18.5	Organic Odor
10	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	17.1	Organic Odor
10.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	13.1	Organic Odor
11	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	19.4	Organic Odor
12	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	15.4	Organic Odor
13	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	15.9	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP02
CLIENT:	Kawerak, Inc.	SCIENTIST:	Adam Johnson/Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Adjacent to southeast extent of horizontal ASTs		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.9298665	-161.1631181	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/22/2023 16:08	COMPLETED:	6/22/2023 18:00	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Kayla Bourdon, Charles Swanson		
TOTAL DEPTH:	14.0 FT.	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	
1	---	Overburden	18.8	No odor
3	23KKA-TP02-3.0a	Imported Fill	528	Strong Fuel Odor
3	---	Imported Fill	11.4	Strong Fuel Odor
3.9	---	Organic Peat Layer	38.3	Strong Fuel Odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	75.3	Strong Fuel Odor
5.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	NA	Bad scoop, no PID taken
6.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	NA	Bad scoop, no PID taken
7	23KKA-TP02-7.0	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	394.2	Light Fuel Odor
8.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	292.2	Light Fuel Odor
10.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	162	Light Fuel Odor
11.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	208	Light Fuel Odor
13	23KKA-TP02-14.0	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	308.5	Light Fuel Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP03
CLIENT:	Kawerak, Inc.	SCIENTIST:	Adam Johnson/Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Northeastern portion of the site near Cottonwood St.		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.929904	-161.1631084	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/22/2023 18:43	DATE/TIME COMPLETED:	6/22/2023 19:55	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Kayla Bourdon, Charles Swanson		
TOTAL DEPTH EXC:	13.0	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	
2	---	Imported Fill	11.9	No odor
3.5	---	Imported Fill	8.1	No odor
4	---	Imported Fill	9.1	No odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	11	No odor
9	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	37.5	Fuel Odor
10.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	9.3	Fuel Odor
12.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	6.7	Light Fuel Odor
13	23KKA-TP03-13	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	2.9	Light Fuel Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP04
CLIENT:	Kawerak, Inc.	SCIENTIST:	Adam Johnson/Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	South of horizontal ASTs		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92980252	-161.1631084	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/23/2023 8:40	DATE/TIME COMPLETED:	6/23/2023 9:30	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Kayla Bourdon, Charles Swanson		
TOTAL DEPTH:	10.0	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	
2	---	Imported Fill	0.3	Organic Odor
3.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	3.6	Organic Odor
4	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.3	Organic Odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.1	Organic Odor
7	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	2.8	Organic Odor
9	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	10	Organic Odor
10	23KKA-TP04-10	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	2.1	No Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP05
CLIENT:	Kawerak, Inc.	SCIENTIST:	Adam Johnson/Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Downslope SE from Old Tank Farm		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92970686	-161.1634905	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/23/2023 10:30	COMPLETED:	6/23/2023 11:00	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Kayla Bourdon, Charles Swanson		
TOTAL DEPTH:	10.5 FT.	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	4.0 FT.	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:	Monitoring well MW01 installed in TP05.		

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	
1	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate. Partially frozen soil.	12.2	No odor
3.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate. Frozen soil.	26	Organic Odor
4	---	Groundwater encountered.	NA	
6	23KKA-TP05-6	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate. Frozen soil.	12	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP06
CLIENT:	Kawerak, Inc.	SCIENTIST:	Adam Johnson/Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	South of location of former vertical ASTs		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92980723	-161.1634467	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/23/2023 15:11	DATE/TIME COMPLETED:	6/23/2023 15:48	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Kayla Bourdon, Charles Swanson		
TOTAL DEPTH:	9.0	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	10.6	Slight Fuel Odor
1.5	---	Imported Fill	368	Fuel Odor
2	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	845.6	Fuel Odor
3.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	859	Fuel Odor
5.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	28.4	No Odor
7.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	31.6	Organic Odor
9	23KKA-TP06-09	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	12.8	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP07
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Location of former ASTs		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92993255	-161.1634467	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/23/2023 16:11	COMPLETED:	6/23/2023 16:44	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	9.5	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	4.4	No Odor
2	23KKA-TP07-02	Imported Fill	1901.1	Fuel Odor
3	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	659	Very Strong Fuel Odor
4.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	477.4	Fuel Odor
7	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	368	No Odor
8	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	84	No Odor
9.5	23KKA-TP07-9.5	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	9.4	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP08
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Location of former vertical ASTs		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92991525	-161.1635382	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/24/2023 8:27	DATE/TIME COMPLETED:	6/24/2023 8:57	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	9.5	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	NA	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	No Odor
1.5	---	Imported Fill	0.9	Fuel Odor
2.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	387	Fuel Odor
5.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	216	Light Fuel Odor
8	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	70.5	Fuel Odor
9	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	37.8	Light Fuel Odor
9.5	23KKA-TP08-9.5	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	11.5	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP09
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Between horizontal ASTs and 2nd Ave		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.9300211	-161.1633461	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/24/2023 9:27	COMPLETED:	6/24/2023 10:10	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	10.5	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	NA	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	0.9	No Odor
1	---	Imported Fill	1.6	No Odor
2.5	---	Organic Peat Material	94.5	Light Fuel Odor
4	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	493.6	Strong Fuel Odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	378	Fuel Odor
7	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	557.4	Fuel Odor
8	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	319.3	Fuel Odor
9	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	4.1	Organic Odor
10	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	43.2	Slight Odor (May have mixed from above)
10.5	23KKA-TP09-10.5	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	2.2	No Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP10
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Northeastern portion of the site near Cottonwood St.		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92986509	-161.1628203	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/24/2023 10:43	DATE/TIME COMPLETED:	6/24/2023 11:07	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	10.0	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	NA	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	No Odor
2	---	Imported Fill	0.6	No Odor
3.5	---	Organic Peat Material	3.2	Organic Odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	4.1	Slightly Organic Odor
8	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	2.8	Organic Odor
10	23KKA-TP10-10	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.3	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP11
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	South of shipping containers		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92980884	-161.1629	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/24/2023 11:23	DATE/TIME COMPLETED:	6/24/2023 11:55	VERT. DATUM	
SURFACE ELEV:		OTHER PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	10.5	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	NA	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	No Odor
2.5	---	Imported Fill	1.7	No Odor
4	---	Organic Peat Material	2.1	Organic Odor
5.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	4	Organic Odor
8	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	3	Organic Odor
10.5	23KKA-TP11-10.5	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.3	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP12
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	Near southern extent of Site		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92975978	-161.1626106	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/24/2023 12:22	COMPLETED:	6/24/2023 13:00	VERT. DATUM	
SURFACE ELEV:		EXC. PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	9.0	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	2 FTx3 FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:			

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	No Odor
1	---	Imported Fill	1.6	No Odor
2.5	---	Imported Fill	1.1	No Odor
3.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.1	No Odor
5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.2	No Odor
7	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	2.2	Organic Odor
9	23KKA-TP12-9	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.7	Organic Odor

TEST PIT LOG

ESKER
Esker Associates, LLC

PROJECT NO:	Esker Proj No. 13	SITE NAME:	Former Koyuk Native Corp. Tank Farm	**TEST PIT ID:**	TP13
CLIENT:	Kawerak, Inc.	SCIENTIST:	Lauren Jennings	STATE:	Alaska
T/R/S (PLSS):		DESCRIPTIVE LOCATION:	South of shipping containers and sheds		
CONTRACTOR:	ChemTrack/Esker	LAT/LON (DEC. DEG.) & METHOD:	64.92993548	-161.1628652	
EXC. METHOD:	Excavator	PROJECT NAME:	Kawerak Brownfields Assessment Grant	HORIZ. DATUM	
STARTED:	6/24/2023 13:30	DATE/TIME COMPLETED:	6/24/2023 13:50	VERT. DATUM	
SURFACE ELEV:		EXC. PERSONNEL:	Harmony Hirsch, Charles Swanson		
TOTAL DEPTH:	4.5	EQUIPMENT:	Bobcat Mini-Excavator S76		
DEPTH TO WATER:	N/A	PIT DIMENSIONS:	FT		
BACKFILL MATERIAL:	Excavated soil	NOTES:	Excavator refusal due to frozen soil.		

DEPTH (FT)	SAMPLE NO.	DESCRIPTION	PID	REMARKS
0.5	---	Grass/Overburden	NA	No Odor
2.5	---	Imported Fill	1.3	No Odor
3	---	Organic Peat Layer	6.9	Organic Odor
3.5	---	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	3.3	Organic Odor
4.5	23KKA-TP123-4.5	Dark gray to brown silt with variable amounts of sand and clay. The silt layer was dense, firm, and slightly plastic. The soil was poorly drained with a slow infiltration rate.	1.2	Organic Odor

Appendix G

Well Lithologic and Completion Log

ESKER
Esker Associates, LLC

WELL LITHOLOGIC AND COMPLETION LOG

PROJECT NO	Esker 13; ChemTrack 6451	SITE NAME	Former Koyuk Native Corp. Tank Farm	WELL ID NO:	**23KKA-MW01**
SITE OWNER	Koyuk Native Corporation	SCIENTISTS	Adam Johnson (Esker), Harmony Hirsch & Lauren Jennings (ChemTrack)	STATE	Alaska
PROJECT NAME	Kawerak, Inc. Brownfields Assessment Grant	DESCRIPTIVE LOCATION:	South of former vertical aboveground storage tanks		
LAT/LONG (DEC. DEG.)	64.92970686; -161.16349052			DEVICE:	Juniper Geode GPS
PROPOSED WELL USE:	Monitoring			TYPE OF WORK (NEW, DEEPEN):	New well
TIME / DATE STARTED:	6/23/2023 10:30			COMPLETED:	6/23/2023 14:43
EXCAVATOR OPERATOR:	Charles Swanson			EQUIPMENT:	Bobcat S76 Mini Excavator
DEPTH EXCAVATED:	10.5 FT			CASING:	2-inch SCH 40 PVC ASTM-480
DEPTH CASED:	9.0 FT			TOP CAP:	J-plug
CASING CONNECTIONS:	Flush-threaded			BOTTOM CAP:	Pointed 2-inch female bond cap
INTERVAL SCREENED:	4.0 - 9.0 FT	PERFS:	Slots (0.010-inch)	SCREEN TYPE:	U-Pack (Instapack)
				COMPLETION:	Flush mount with manhole and concrete pad

SURFACE SEAL TYPE	Bentonite chips	FROM:	0	FT	TO:	3 FT
BACKFILL MATERIAL	Clean Fill	FROM:	3	FT	TO:	4 FT
HOLE PLUG TYPE	N/A	FROM:	N/A	FT	TO:	N/A FT
FILTER PACK	Silica sand	FROM:	4	FT	TO:	9 FT

DEPTH TO FIRST WATER:	5.7 FT	STATIC WATER LEVEL:	Approx. 6 to 8 feet bgs	DATE:	6/23/2023
			METHOD	Water Level Interface Probe	
DEVELOPMENT DATE:	6/24/2023	TOTAL TIME:	3 hours		
DEVELOPMENT METHOD:	Surge block and pump	VOL REMOVED:	Less than 1 gallon		
MONITORING	None (insufficient water produced)				
RESULTS:	Well not developed. Free product noted with Interface Probe at depth of approx. 8.5 feet after surging and pumping.				

DEPTH (FT)	DESCRIPTION & REMARKS	PID READING
0.5	Overburden	N/A
1	Dark gray to brown silt with variable amounts of sand and clay; dense, firm, and slightly plastic; poorly drained; slow infiltration rate; partially frozen soil; no odor	12.2
3.5	Dark gray to brown silt with variable amounts of sand and clay; dense, firm, and slightly plastic; poorly drained; slow infiltration rate; frozen soil; seeps of subsurface water; odor	26
6	Dark gray to brown silt with variable amounts of sand and clay; dense, firm, and slightly plastic; poorly drained; slow infiltration rate; frozen soil; odor; soil sample collected (23KKA-TP05 (6')	12
7	Dark gray to brown silt with variable amounts of sand and clay; dense, firm, and slightly plastic; poorly drained; slow infiltration rate; seeps of subsurface water; PID readings not collected below groundwater interface	N/A
8.5	Dark gray to brown silt with variable amounts of sand and clay; dense, firm, and slightly plastic; poorly drained; slow infiltration rate; groundwater encountered and measured during development; total depth of completed well was 8.5 feet bgs; PID readings not collected below groundwater interface	N/A
10.5	Dark gray to brown silt with variable amounts of sand and clay; dense, firm, and slightly plastic; poorly drained; slow infiltration rate; groundwater encountered and measured during development; bottom of excavation was 10.5 feet; PID readings not collected below groundwater interface	N/A

Appendix H

Laboratory Analytical Report

Laboratory Report of Analysis

To: ChemTrack
11711 South Gambell St.
Anchorage, AK 99515
(907) 250-9120

Report Number: **1232990**

Client Project: **Kawerak/Koyok**

Dear Daniel Wilson,

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 Justin 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.

Justin Nelson
2023.07.31
19:56:37 -08'00'

Justin Nelson Date
Project Manager
Justin.Nelson@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: **ChemTrack**
SGS Project: **1232990**
Project Name/Site: **Kawerak/Koyok**
Project Contact: **Daniel Wilson**

Refer to sample receipt form for information on sample condition.

23KKA.TP07-2 (1232990008) PS

AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.

LCSD for HBN 1857934 [XXX/4810 (1720011) LCSD

AK103 - LCSD RPD for RRO does not meet QC criteria.

1233038016(1720589MSD) (1720591) MSD

8260D - MS/MSD RPD for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated parent sample.
8260D - MSD recoveries for trichlorofluoromethane and hexachlorobutadiene do not meet QC criteria. See LCS for accuracy requirements.

1233014004(1720755MSD) (1720757) MSD

8260D - MSD recovery for trichlorofluoromethane does not meet QC criteria. See LCS for accuracy requirements.

LCS for HBN 1858276 [VXX/40081 (1720848) LCS

8260D - LCS recovery for trichlorofluoromethane does not meet QC criteria. This analyte is not being reported above the LOQ in the associated samples.

1232996030(1720849MS) (1720850) MS

8260D - MS recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated parent sample.

1232996030(1720849MSD) (1720851) MSD

8260D - MSD recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated parent sample.

*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				
1232990008	23KKA.TP07-2	VMS22533	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.

Print Date: 07/31/2023 7:49:06PM

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 (Provisionally Certified as of 6/05/2023 for Orthophosphate SM4500P-E and 7/12/2023 for Nitrate-N and Nitrate-Nitrite as N EPA300.0 & SM4500NO3-F) & 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
23KKA.TP02-7	1232990001	06/22/2023	06/27/2023	Soil/Solid (dry weight)
22KKA.TB-0622	1232990002	06/22/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP02-97	1232990003	06/22/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP02-14	1232990004	06/22/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP04-10'	1232990005	06/23/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP05.6	1232990006	06/23/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP06.9	1232990007	06/23/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP07-2	1232990008	06/23/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP07-9.5	1232990009	06/23/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP08-9.5	1232990010	06/24/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP09-10.5	1232990011	06/24/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP10-10	1232990012	06/24/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP11-10.5	1232990013	06/24/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP12-9	1232990014	06/24/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP13-4.5	1232990015	06/24/2023	06/27/2023	Soil/Solid (dry weight)
23KKA.TP03.13	1232990016	06/22/2023	06/27/2023	Soil/Solid (dry weight)

Method	Method Description
SW8260D	VOC 8260 (S) Field Extracted
AK103	Diesel/Residual Range Organics
AK102	Diesel/Residual Range Organics
SM21 2540G	Percent Solids SM2540G
AK101	Gasoline Range Organics (S)

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **23KKA.TP02-7**
Lab Sample ID: 1232990001

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	40.8	mg/kg
	Residual Range Organics	698	mg/kg
Volatile Fuels	Gasoline Range Organics	12.6	mg/kg
Volatile GC/MS	Acetone	0.501J	mg/kg
	Benzene	3.89	mg/kg
	Toluene	0.0513J	mg/kg

Client Sample ID: **22KKA.TB-0622**
Lab Sample ID: 1232990002

	Parameter	Result	Units
Volatile Fuels	Gasoline Range Organics	1.84J	mg/kg
Volatile GC/MS	Benzene	0.00501J	mg/kg

Client Sample ID: **23KKA.TP02-97**
Lab Sample ID: 1232990003

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	40.4	mg/kg
	Residual Range Organics	637	mg/kg
Volatile Fuels	Gasoline Range Organics	4.47J	mg/kg
Volatile GC/MS	2-Butanone (MEK)	0.243J	mg/kg
	Acetone	0.975	mg/kg
	Benzene	0.483	mg/kg
	Toluene	0.0186J	mg/kg

Client Sample ID: **23KKA.TP02-14**
Lab Sample ID: 1232990004

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	43.6	mg/kg
	Residual Range Organics	323	mg/kg
Volatile Fuels	Gasoline Range Organics	4.37J	mg/kg
Volatile GC/MS	Acetone	0.416J	mg/kg
	Benzene	0.557	mg/kg

Client Sample ID: **23KKA.TP04-10'**
Lab Sample ID: 1232990005

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	16.2J	mg/kg
	Residual Range Organics	274	mg/kg
Volatile Fuels	Gasoline Range Organics	3.45J	mg/kg
Volatile GC/MS	Acetone	0.441J	mg/kg

Client Sample ID: **23KKA.TP05.6**
Lab Sample ID: 1232990006

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	27.7J	mg/kg
	Residual Range Organics	509	mg/kg
Volatile Fuels	Gasoline Range Organics	4.69J	mg/kg

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **23KKA.TP06.9**
Lab Sample ID: 1232990007

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	36.3	mg/kg
	Residual Range Organics	232	mg/kg
Volatile Fuels	Gasoline Range Organics	5.31J	mg/kg
Volatile GC/MS	1,2,4-Trimethylbenzene	0.179J	mg/kg
	Benzene	0.0146J	mg/kg
	Ethylbenzene	0.177	mg/kg
	Isopropylbenzene (Cumene)	0.0696	mg/kg
	n-Propylbenzene	0.0642	mg/kg
	o-Xylene	0.0441J	mg/kg
	P & M -Xylene	0.214	mg/kg
	Xylenes (total)	0.258	mg/kg

Client Sample ID: **23KKA.TP07-2**
Lab Sample ID: 1232990008

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	3820	mg/kg
	Residual Range Organics	297	mg/kg
Volatile Fuels	Gasoline Range Organics	5160	mg/kg
Volatile GC/MS	1,2,4-Trimethylbenzene	244	mg/kg
	1,3,5-Trimethylbenzene	79.3	mg/kg
	4-Isopropyltoluene	3.07	mg/kg
	Benzene	9.60	mg/kg
	Ethylbenzene	58.2	mg/kg
	Isopropylbenzene (Cumene)	7.01	mg/kg
	Naphthalene	18.5	mg/kg
	n-Propylbenzene	9.74	mg/kg
	o-Xylene	256	mg/kg
	P & M -Xylene	710	mg/kg
	sec-Butylbenzene	4.19	mg/kg
	tert-Butylbenzene	21.6	mg/kg
	Toluene	326	mg/kg
	Xylenes (total)	966	mg/kg

Client Sample ID: **23KKA.TP07-9.5**
Lab Sample ID: 1232990009

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	19.2J	mg/kg
	Residual Range Organics	181	mg/kg
Volatile Fuels	Gasoline Range Organics	3.58J	mg/kg
Volatile GC/MS	Benzene	0.0156J	mg/kg
	o-Xylene	0.0176J	mg/kg
	P & M -Xylene	0.0808J	mg/kg
	Toluene	0.0457J	mg/kg
	Xylenes (total)	0.0984J	mg/kg

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Detectable Results Summary

Client Sample ID: **23KKA.TP08-9.5**
Lab Sample ID: 1232990010

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	17.9J	mg/kg
	Residual Range Organics	234	mg/kg
Volatile Fuels	Gasoline Range Organics	3.51J	mg/kg
Volatile GC/MS	Benzene	0.0443	mg/kg

Client Sample ID: **23KKA.TP09-10.5**
Lab Sample ID: 1232990011

	Parameter	Result	Units
Semivolatile Organic Fuels	Residual Range Organics	71.4J	mg/kg
Volatile Fuels	Gasoline Range Organics	3.44J	mg/kg

Client Sample ID: **23KKA.TP10-10**
Lab Sample ID: 1232990012

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	17.1J	mg/kg
	Residual Range Organics	162	mg/kg
Volatile Fuels	Gasoline Range Organics	3.08J	mg/kg
Volatile GC/MS	Acetone	0.254J	mg/kg

Client Sample ID: **23KKA.TP11-10.5**
Lab Sample ID: 1232990013

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	12.1J	mg/kg
	Residual Range Organics	125J	mg/kg
Volatile Fuels	Gasoline Range Organics	3.49J	mg/kg

Client Sample ID: **23KKA.TP12-9**
Lab Sample ID: 1232990014

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	26.4	mg/kg
	Residual Range Organics	256	mg/kg
Volatile Fuels	Gasoline Range Organics	3.28J	mg/kg
Volatile GC/MS	Acetone	0.294J	mg/kg
	Benzene	0.00986J	mg/kg

Client Sample ID: **23KKA.TP13-4.5**
Lab Sample ID: 1232990015

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	96.1	mg/kg
	Residual Range Organics	1360	mg/kg
Volatile Fuels	Gasoline Range Organics	4.70J	mg/kg
Volatile GC/MS	Acetone	0.410J	mg/kg
	Benzene	0.0237J	mg/kg

Client Sample ID: **23KKA.TP03.13**
Lab Sample ID: 1232990016

	Parameter	Result	Units
Semivolatile Organic Fuels	Diesel Range Organics	29.8	mg/kg
	Residual Range Organics	403	mg/kg
Volatile Fuels	Gasoline Range Organics	3.27J	mg/kg
Volatile GC/MS	Acetone	0.301J	mg/kg
	Benzene	0.0354	mg/kg
	Toluene	0.0195J	mg/kg

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Results of **23KKA.TP02-7**

Client Sample ID: **23KKA.TP02-7**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990001
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	40.8		26.9	12.1	13.4	mg/kg	1		07/20/23 03:25
Surrogates									
5a Androstane (surr)	101		50-150			%	1		07/20/23 03:25

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 03:25
Container ID: 1232990001-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.634 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	698		134	57.8	67.0	mg/kg	1		07/20/23 03:25
Surrogates									
n-Triacontane-d62 (surr)	83.9		50-150			%	1		07/20/23 03:25

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 03:25
Container ID: 1232990001-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.634 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP02-7**

Client Sample ID: **23KKA.TP02-7**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990001
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	12.6		5.64	1.69	2.82	mg/kg	1		06/30/23 01:27
Surrogates									
4-Bromofluorobenzene (surr)	97.1		50-150			%	1		06/30/23 01:27

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 01:27
Container ID: 1232990001-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:21
Prep Initial Wt./Vol.: 43.433 g
Prep Extract Vol: 36.2886 mL

Results of **23KKA.TP02-7**

Client Sample ID: **23KKA.TP02-7**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990001
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0226	U	0.0452	0.0140	0.0226	mg/kg	1		07/02/23 23:03
1,1,1-Trichloroethane	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,1,2,2-Tetrachloroethane	0.00226	U	0.00452	0.00140	0.00226	mg/kg	1		07/02/23 23:03
1,1,2-Trichloroethane	0.00113	U	0.00226	0.00113	0.00113	mg/kg	1		07/02/23 23:03
1,1-Dichloroethane	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,1-Dichloroethene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,1-Dichloropropene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,2,3-Trichlorobenzene	0.113	U	0.226	0.0677	0.113	mg/kg	1		07/02/23 23:03
1,2,3-Trichloropropane	0.00226	U	0.00452	0.00140	0.00226	mg/kg	1		07/02/23 23:03
1,2,4-Trichlorobenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,2,4-Trimethylbenzene	0.113	U	0.226	0.0677	0.113	mg/kg	1		07/02/23 23:03
1,2-Dibromo-3-chloropropane	0.113	U	0.226	0.0700	0.113	mg/kg	1		07/02/23 23:03
1,2-Dibromoethane	0.00170	U	0.00339	0.00169	0.00170	mg/kg	1		07/02/23 23:03
1,2-Dichlorobenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,2-Dichloroethane	0.00226	U	0.00452	0.00158	0.00226	mg/kg	1		07/02/23 23:03
1,2-Dichloropropane	0.0113	U	0.0226	0.0113	0.0113	mg/kg	1		07/02/23 23:03
1,3,5-Trimethylbenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,3-Dichlorobenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
1,3-Dichloropropane	0.0113	U	0.0226	0.00700	0.0113	mg/kg	1		07/02/23 23:03
1,4-Dichlorobenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
2,2-Dichloropropane	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
2-Butanone (MEK)	0.282	U	0.564	0.176	0.282	mg/kg	1		07/02/23 23:03
2-Chlorotoluene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
2-Hexanone	0.136	U	0.271	0.135	0.136	mg/kg	1		07/02/23 23:03
4-Chlorotoluene	0.0226	U	0.0452	0.0226	0.0226	mg/kg	1		07/02/23 23:03
4-Isopropyltoluene	0.0905	U	0.181	0.0903	0.0905	mg/kg	1		07/02/23 23:03
4-Methyl-2-pentanone (MIBK)	0.282	U	0.564	0.176	0.282	mg/kg	1		07/02/23 23:03
Acetone	0.501	J	0.564	0.248	0.282	mg/kg	1		07/02/23 23:03
Benzene	3.89		0.0282	0.00881	0.0141	mg/kg	1		07/02/23 23:03
Bromobenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Bromochloromethane	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Bromodichloromethane	0.00226	U	0.00452	0.00140	0.00226	mg/kg	1		07/02/23 23:03
Bromoform	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Bromomethane	0.0226	U	0.0452	0.0181	0.0226	mg/kg	1		07/02/23 23:03
Carbon disulfide	0.113	U	0.226	0.0700	0.113	mg/kg	1		07/02/23 23:03
Carbon tetrachloride	0.0141	U	0.0282	0.00881	0.0141	mg/kg	1		07/02/23 23:03
Chlorobenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03

Results of **23KKA.TP02-7**

Client Sample ID: **23KKA.TP02-7**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990001
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.226	U	0.452	0.140	0.226	mg/kg	1		07/02/23 23:03
Chloroform	0.00675	U	0.0135	0.00677	0.00675	mg/kg	1		07/02/23 23:03
Chloromethane	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
cis-1,2-Dichloroethene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
cis-1,3-Dichloropropene	0.0141	U	0.0282	0.00881	0.0141	mg/kg	1		07/02/23 23:03
Dibromochloromethane	0.00565	U	0.0113	0.00339	0.00565	mg/kg	1		07/02/23 23:03
Dibromomethane	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Dichlorodifluoromethane	0.113	U	0.226	0.0677	0.113	mg/kg	1		07/02/23 23:03
Ethylbenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Freon-113	0.113	U	0.226	0.0700	0.113	mg/kg	1		07/02/23 23:03
Hexachlorobutadiene	0.0226	U	0.0452	0.0140	0.0226	mg/kg	1		07/02/23 23:03
Isopropylbenzene (Cumene)	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Methylene chloride	0.113	U	0.226	0.0700	0.113	mg/kg	1		07/02/23 23:03
Methyl-t-butyl ether	0.113	U	0.226	0.0700	0.113	mg/kg	1		07/02/23 23:03
Naphthalene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
n-Butylbenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
n-Propylbenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
o-Xylene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
P & M -Xylene	0.0565	U	0.113	0.0339	0.0565	mg/kg	1		07/02/23 23:03
sec-Butylbenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Styrene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
tert-Butylbenzene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
Tetrachloroethene	0.0141	U	0.0282	0.00881	0.0141	mg/kg	1		07/02/23 23:03
Toluene	0.0513	J	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
trans-1,2-Dichloroethene	0.0282	U	0.0564	0.0176	0.0282	mg/kg	1		07/02/23 23:03
trans-1,3-Dichloropropene	0.0141	U	0.0282	0.00881	0.0141	mg/kg	1		07/02/23 23:03
Trichloroethene	0.0113	U	0.0226	0.00723	0.0113	mg/kg	1		07/02/23 23:03
Trichlorofluoromethane	0.0565	U	0.113	0.0339	0.0565	mg/kg	1		07/02/23 23:03
Vinyl acetate	0.113	U	0.226	0.0700	0.113	mg/kg	1		07/02/23 23:03
Vinyl chloride	0.000905	U	0.00181	0.000564	0.000905	mg/kg	1		07/02/23 23:03
Xylenes (total)	0.0845	U	0.169	0.0515	0.0845	mg/kg	1		07/02/23 23:03
Surrogates									
1,2-Dichloroethane-D4 (surr)	97.8		71-136			%	1		07/02/23 23:03
4-Bromofluorobenzene (surr)	95.7		55-151			%	1		07/02/23 23:03
Toluene-d8 (surr)	99.1		85-116			%	1		07/02/23 23:03

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP02-7**

Client Sample ID: **23KKA.TP02-7**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990001
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22532
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/02/23 23:03
Container ID: 1232990001-B

Prep Batch: VXX40077
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:21
Prep Initial Wt./Vol.: 43.433 g
Prep Extract Vol: 36.2886 mL

Results of **22KKA.TB-0622**

Client Sample ID: **22KKA.TB-0622**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990002
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	1.84	J	2.52	0.756	1.26	mg/kg	1		06/29/23 23:55
Surrogates									
4-Bromofluorobenzene (surr)	101		50-150			%	1		06/29/23 23:55

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/29/23 23:55
Container ID: 1232990002-A

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:21
Prep Initial Wt./Vol.: 49.604 g
Prep Extract Vol: 25 mL

Results of **22KKA.TB-0622**

Client Sample ID: **22KKA.TB-0622**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990002
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0101	U	0.0202	0.00625	0.0101	mg/kg	1		07/02/23 18:49
1,1,1-Trichloroethane	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,1,2,2-Tetrachloroethane	0.00101	U	0.00202	0.000625	0.00101	mg/kg	1		07/02/23 18:49
1,1,2-Trichloroethane	0.000505	U	0.00101	0.000504	0.000505	mg/kg	1		07/02/23 18:49
1,1-Dichloroethane	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,1-Dichloroethene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,1-Dichloropropene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,2,3-Trichlorobenzene	0.0505	U	0.101	0.0302	0.0505	mg/kg	1		07/02/23 18:49
1,2,3-Trichloropropane	0.00101	U	0.00202	0.000625	0.00101	mg/kg	1		07/02/23 18:49
1,2,4-Trichlorobenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,2,4-Trimethylbenzene	0.0505	U	0.101	0.0302	0.0505	mg/kg	1		07/02/23 18:49
1,2-Dibromo-3-chloropropane	0.0505	U	0.101	0.0312	0.0505	mg/kg	1		07/02/23 18:49
1,2-Dibromoethane	0.000755	U	0.00151	0.000756	0.000755	mg/kg	1		07/02/23 18:49
1,2-Dichlorobenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,2-Dichloroethane	0.00101	U	0.00202	0.000706	0.00101	mg/kg	1		07/02/23 18:49
1,2-Dichloropropane	0.00505	U	0.0101	0.00504	0.00505	mg/kg	1		07/02/23 18:49
1,3,5-Trimethylbenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,3-Dichlorobenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
1,3-Dichloropropane	0.00505	U	0.0101	0.00312	0.00505	mg/kg	1		07/02/23 18:49
1,4-Dichlorobenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
2,2-Dichloropropane	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
2-Butanone (MEK)	0.126	U	0.252	0.0786	0.126	mg/kg	1		07/02/23 18:49
2-Chlorotoluene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
2-Hexanone	0.0605	U	0.121	0.0605	0.0605	mg/kg	1		07/02/23 18:49
4-Chlorotoluene	0.0101	U	0.0202	0.0101	0.0101	mg/kg	1		07/02/23 18:49
4-Isopropyltoluene	0.0403	U	0.0806	0.0403	0.0403	mg/kg	1		07/02/23 18:49
4-Methyl-2-pentanone (MIBK)	0.126	U	0.252	0.0786	0.126	mg/kg	1		07/02/23 18:49
Acetone	0.126	U	0.252	0.111	0.126	mg/kg	1		07/02/23 18:49
Benzene	0.00501	J	0.0126	0.00393	0.00630	mg/kg	1		07/02/23 18:49
Bromobenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Bromochloromethane	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Bromodichloromethane	0.00101	U	0.00202	0.000625	0.00101	mg/kg	1		07/02/23 18:49
Bromoform	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Bromomethane	0.0101	U	0.0202	0.00806	0.0101	mg/kg	1		07/02/23 18:49
Carbon disulfide	0.0505	U	0.101	0.0312	0.0505	mg/kg	1		07/02/23 18:49
Carbon tetrachloride	0.00630	U	0.0126	0.00393	0.00630	mg/kg	1		07/02/23 18:49
Chlorobenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49

Results of **22KKA.TB-0622**

Client Sample ID: **22KKA.TB-0622**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990002
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.101	U	0.202	0.0625	0.101	mg/kg	1		07/02/23 18:49
Chloroform	0.00302	U	0.00605	0.00302	0.00302	mg/kg	1		07/02/23 18:49
Chloromethane	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
cis-1,2-Dichloroethene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
cis-1,3-Dichloropropene	0.00630	U	0.0126	0.00393	0.00630	mg/kg	1		07/02/23 18:49
Dibromochloromethane	0.00252	U	0.00504	0.00151	0.00252	mg/kg	1		07/02/23 18:49
Dibromomethane	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Dichlorodifluoromethane	0.0505	U	0.101	0.0302	0.0505	mg/kg	1		07/02/23 18:49
Ethylbenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Freon-113	0.0505	U	0.101	0.0312	0.0505	mg/kg	1		07/02/23 18:49
Hexachlorobutadiene	0.0101	U	0.0202	0.00625	0.0101	mg/kg	1		07/02/23 18:49
Isopropylbenzene (Cumene)	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Methylene chloride	0.0505	U	0.101	0.0312	0.0505	mg/kg	1		07/02/23 18:49
Methyl-t-butyl ether	0.0505	U	0.101	0.0312	0.0505	mg/kg	1		07/02/23 18:49
Naphthalene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
n-Butylbenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
n-Propylbenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
o-Xylene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
P & M -Xylene	0.0252	U	0.0504	0.0151	0.0252	mg/kg	1		07/02/23 18:49
sec-Butylbenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Styrene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
tert-Butylbenzene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
Tetrachloroethene	0.00630	U	0.0126	0.00393	0.00630	mg/kg	1		07/02/23 18:49
Toluene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
trans-1,2-Dichloroethene	0.0126	U	0.0252	0.00786	0.0126	mg/kg	1		07/02/23 18:49
trans-1,3-Dichloropropene	0.00630	U	0.0126	0.00393	0.00630	mg/kg	1		07/02/23 18:49
Trichloroethene	0.00505	U	0.0101	0.00323	0.00505	mg/kg	1		07/02/23 18:49
Trichlorofluoromethane	0.0252	U	0.0504	0.0151	0.0252	mg/kg	1		07/02/23 18:49
Vinyl acetate	0.0505	U	0.101	0.0312	0.0505	mg/kg	1		07/02/23 18:49
Vinyl chloride	0.000403	U	0.000806	0.000252	0.000403	mg/kg	1		07/02/23 18:49
Xylenes (total)	0.0378	U	0.0756	0.0230	0.0378	mg/kg	1		07/02/23 18:49
Surrogates									
1,2-Dichloroethane-D4 (surr)	102		71-136			%	1		07/02/23 18:49
4-Bromofluorobenzene (surr)	96.9		55-151			%	1		07/02/23 18:49
Toluene-d8 (surr)	99.7		85-116			%	1		07/02/23 18:49

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **22KKA.TB-0622**

Client Sample ID: **22KKA.TB-0622**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990002
Lab Project ID: 1232990

Collection Date: 06/22/23 17:21
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22532
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/02/23 18:49
Container ID: 1232990002-A

Prep Batch: VXX40077
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:21
Prep Initial Wt./Vol.: 49.604 g
Prep Extract Vol: 25 mL

Results of **23KKA.TP02-97**

Client Sample ID: **23KKA.TP02-97**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990003
Lab Project ID: 1232990

Collection Date: 06/22/23 17:28
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	40.4		26.9	12.1	13.4	mg/kg	1		07/20/23 03:35
Surrogates									
5a Androstane (surr)	93.9		50-150			%	1		07/20/23 03:35

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 03:35
Container ID: 1232990003-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.569 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	637		134	57.8	67.0	mg/kg	1		07/20/23 03:35
Surrogates									
n-Triacontane-d62 (surr)	77.3		50-150			%	1		07/20/23 03:35

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 03:35
Container ID: 1232990003-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.569 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP02-97**

Client Sample ID: **23KKA.TP02-97**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990003
Lab Project ID: 1232990

Collection Date: 06/22/23 17:28
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.47	J	5.13	1.54	2.56	mg/kg	1		06/30/23 06:03
Surrogates									
4-Bromofluorobenzene (surr)	118		50-150			%	1		06/30/23 06:03

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 06:03
Container ID: 1232990003-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:28
Prep Initial Wt./Vol.: 49.826 g
Prep Extract Vol: 37.8932 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP02-97**

Client Sample ID: **23KKA.TP02-97**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990003
Lab Project ID: 1232990

Collection Date: 06/22/23 17:28
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0205	U	0.0410	0.0127	0.0205	mg/kg	1		07/02/23 23:19
1,1,1-Trichloroethane	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,1,2,2-Tetrachloroethane	0.00205	U	0.00410	0.00127	0.00205	mg/kg	1		07/02/23 23:19
1,1,2-Trichloroethane	0.00102	U	0.00205	0.00103	0.00102	mg/kg	1		07/02/23 23:19
1,1-Dichloroethane	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,1-Dichloroethene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,1-Dichloropropene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,2,3-Trichlorobenzene	0.103	U	0.205	0.0616	0.103	mg/kg	1		07/02/23 23:19
1,2,3-Trichloropropane	0.00205	U	0.00410	0.00127	0.00205	mg/kg	1		07/02/23 23:19
1,2,4-Trichlorobenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,2,4-Trimethylbenzene	0.103	U	0.205	0.0616	0.103	mg/kg	1		07/02/23 23:19
1,2-Dibromo-3-chloropropane	0.103	U	0.205	0.0636	0.103	mg/kg	1		07/02/23 23:19
1,2-Dibromoethane	0.00154	U	0.00308	0.00154	0.00154	mg/kg	1		07/02/23 23:19
1,2-Dichlorobenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,2-Dichloroethane	0.00205	U	0.00410	0.00144	0.00205	mg/kg	1		07/02/23 23:19
1,2-Dichloropropane	0.0103	U	0.0205	0.0103	0.0103	mg/kg	1		07/02/23 23:19
1,3,5-Trimethylbenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,3-Dichlorobenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
1,3-Dichloropropane	0.0103	U	0.0205	0.00636	0.0103	mg/kg	1		07/02/23 23:19
1,4-Dichlorobenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
2,2-Dichloropropane	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
2-Butanone (MEK)	0.243	J	0.513	0.160	0.257	mg/kg	1		07/02/23 23:19
2-Chlorotoluene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
2-Hexanone	0.123	U	0.246	0.123	0.123	mg/kg	1		07/02/23 23:19
4-Chlorotoluene	0.0205	U	0.0410	0.0205	0.0205	mg/kg	1		07/02/23 23:19
4-Isopropyltoluene	0.0820	U	0.164	0.0821	0.0820	mg/kg	1		07/02/23 23:19
4-Methyl-2-pentanone (MIBK)	0.257	U	0.513	0.160	0.257	mg/kg	1		07/02/23 23:19
Acetone	0.975		0.513	0.226	0.257	mg/kg	1		07/02/23 23:19
Benzene	0.483		0.0257	0.00800	0.0129	mg/kg	1		07/02/23 23:19
Bromobenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Bromochloromethane	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Bromodichloromethane	0.00205	U	0.00410	0.00127	0.00205	mg/kg	1		07/02/23 23:19
Bromoform	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Bromomethane	0.0205	U	0.0410	0.0164	0.0205	mg/kg	1		07/02/23 23:19
Carbon disulfide	0.103	U	0.205	0.0636	0.103	mg/kg	1		07/02/23 23:19
Carbon tetrachloride	0.0129	U	0.0257	0.00800	0.0129	mg/kg	1		07/02/23 23:19
Chlorobenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19

Results of **23KKA.TP02-97**

Client Sample ID: **23KKA.TP02-97**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990003
Lab Project ID: 1232990

Collection Date: 06/22/23 17:28
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.205	U	0.410	0.127	0.205	mg/kg	1		07/02/23 23:19
Chloroform	0.00615	U	0.0123	0.00616	0.00615	mg/kg	1		07/02/23 23:19
Chloromethane	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
cis-1,2-Dichloroethene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
cis-1,3-Dichloropropene	0.0129	U	0.0257	0.00800	0.0129	mg/kg	1		07/02/23 23:19
Dibromochloromethane	0.00515	U	0.0103	0.00308	0.00515	mg/kg	1		07/02/23 23:19
Dibromomethane	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Dichlorodifluoromethane	0.103	U	0.205	0.0616	0.103	mg/kg	1		07/02/23 23:19
Ethylbenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Freon-113	0.103	U	0.205	0.0636	0.103	mg/kg	1		07/02/23 23:19
Hexachlorobutadiene	0.0205	U	0.0410	0.0127	0.0205	mg/kg	1		07/02/23 23:19
Isopropylbenzene (Cumene)	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Methylene chloride	0.103	U	0.205	0.0636	0.103	mg/kg	1		07/02/23 23:19
Methyl-t-butyl ether	0.103	U	0.205	0.0636	0.103	mg/kg	1		07/02/23 23:19
Naphthalene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
n-Butylbenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
n-Propylbenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
o-Xylene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
P & M -Xylene	0.0515	U	0.103	0.0308	0.0515	mg/kg	1		07/02/23 23:19
sec-Butylbenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Styrene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
tert-Butylbenzene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
Tetrachloroethene	0.0129	U	0.0257	0.00800	0.0129	mg/kg	1		07/02/23 23:19
Toluene	0.0186	J	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
trans-1,2-Dichloroethene	0.0256	U	0.0513	0.0160	0.0256	mg/kg	1		07/02/23 23:19
trans-1,3-Dichloropropene	0.0129	U	0.0257	0.00800	0.0129	mg/kg	1		07/02/23 23:19
Trichloroethene	0.0103	U	0.0205	0.00657	0.0103	mg/kg	1		07/02/23 23:19
Trichlorofluoromethane	0.0515	U	0.103	0.0308	0.0515	mg/kg	1		07/02/23 23:19
Vinyl acetate	0.103	U	0.205	0.0636	0.103	mg/kg	1		07/02/23 23:19
Vinyl chloride	0.000820	U	0.00164	0.000513	0.000820	mg/kg	1		07/02/23 23:19
Xylenes (total)	0.0770	U	0.154	0.0468	0.0770	mg/kg	1		07/02/23 23:19
Surrogates									
1,2-Dichloroethane-D4 (surr)	101		71-136			%	1		07/02/23 23:19
4-Bromofluorobenzene (surr)	116		55-151			%	1		07/02/23 23:19
Toluene-d8 (surr)	99.8		85-116			%	1		07/02/23 23:19

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP02-97**

Client Sample ID: **23KKA.TP02-97**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990003
Lab Project ID: 1232990

Collection Date: 06/22/23 17:28
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):74.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22532
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/02/23 23:19
Container ID: 1232990003-B

Prep Batch: VXX40077
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:28
Prep Initial Wt./Vol.: 49.826 g
Prep Extract Vol: 37.8932 mL

Results of **23KKA.TP02-14**

Client Sample ID: **23KKA.TP02-14**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990004
Lab Project ID: 1232990

Collection Date: 06/22/23 17:55
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):77.8
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	43.6		25.6	11.5	12.8	mg/kg	1		07/05/23 23:32
Surrogates									
5a Androstane (surr)	84		50-150			%	1		07/05/23 23:32

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/05/23 23:32
Container ID: 1232990004-A

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 06/29/23 11:17
Prep Initial Wt./Vol.: 22.569 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	323		128	55.1	64.0	mg/kg	1		07/05/23 23:32
Surrogates									
n-Triacontane-d62 (surr)	75.6		50-150			%	1		07/05/23 23:32

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/05/23 23:32
Container ID: 1232990004-A

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 06/29/23 11:17
Prep Initial Wt./Vol.: 22.569 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP02-14**

Client Sample ID: **23KKA.TP02-14**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990004
Lab Project ID: 1232990

Collection Date: 06/22/23 17:55
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):77.8
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.37	J	4.65	1.40	2.33	mg/kg	1		06/30/23 06:22
Surrogates									
4-Bromofluorobenzene (surr)	111		50-150			%	1		06/30/23 06:22

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 06:22
Container ID: 1232990004-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:55
Prep Initial Wt./Vol.: 49.87 g
Prep Extract Vol: 36.0786 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP02-14**

Client Sample ID: **23KKA.TP02-14**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990004
Lab Project ID: 1232990

Collection Date: 06/22/23 17:55
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):77.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0186	U	0.0372	0.0115	0.0186	mg/kg	1		07/02/23 23:34
1,1,1-Trichloroethane	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,1,2,2-Tetrachloroethane	0.00186	U	0.00372	0.00115	0.00186	mg/kg	1		07/02/23 23:34
1,1,2-Trichloroethane	0.000930	U	0.00186	0.000930	0.000930	mg/kg	1		07/02/23 23:34
1,1-Dichloroethane	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,1-Dichloroethene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,1-Dichloropropene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,2,3-Trichlorobenzene	0.0930	U	0.186	0.0558	0.0930	mg/kg	1		07/02/23 23:34
1,2,3-Trichloropropane	0.00186	U	0.00372	0.00115	0.00186	mg/kg	1		07/02/23 23:34
1,2,4-Trichlorobenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,2,4-Trimethylbenzene	0.0930	U	0.186	0.0558	0.0930	mg/kg	1		07/02/23 23:34
1,2-Dibromo-3-chloropropane	0.0930	U	0.186	0.0577	0.0930	mg/kg	1		07/02/23 23:34
1,2-Dibromoethane	0.00140	U	0.00279	0.00140	0.00140	mg/kg	1		07/02/23 23:34
1,2-Dichlorobenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,2-Dichloroethane	0.00186	U	0.00372	0.00130	0.00186	mg/kg	1		07/02/23 23:34
1,2-Dichloropropane	0.00930	U	0.0186	0.00930	0.00930	mg/kg	1		07/02/23 23:34
1,3,5-Trimethylbenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,3-Dichlorobenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
1,3-Dichloropropane	0.00930	U	0.0186	0.00577	0.00930	mg/kg	1		07/02/23 23:34
1,4-Dichlorobenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
2,2-Dichloropropane	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
2-Butanone (MEK)	0.233	U	0.465	0.145	0.233	mg/kg	1		07/02/23 23:34
2-Chlorotoluene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
2-Hexanone	0.112	U	0.223	0.112	0.112	mg/kg	1		07/02/23 23:34
4-Chlorotoluene	0.0186	U	0.0372	0.0186	0.0186	mg/kg	1		07/02/23 23:34
4-Isopropyltoluene	0.0745	U	0.149	0.0744	0.0745	mg/kg	1		07/02/23 23:34
4-Methyl-2-pentanone (MIBK)	0.233	U	0.465	0.145	0.233	mg/kg	1		07/02/23 23:34
Acetone	0.416	J	0.465	0.205	0.233	mg/kg	1		07/02/23 23:34
Benzene	0.557		0.0233	0.00725	0.0117	mg/kg	1		07/02/23 23:34
Bromobenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Bromochloromethane	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Bromodichloromethane	0.00186	U	0.00372	0.00115	0.00186	mg/kg	1		07/02/23 23:34
Bromoform	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Bromomethane	0.0186	U	0.0372	0.0149	0.0186	mg/kg	1		07/02/23 23:34
Carbon disulfide	0.0930	U	0.186	0.0577	0.0930	mg/kg	1		07/02/23 23:34
Carbon tetrachloride	0.0117	U	0.0233	0.00725	0.0117	mg/kg	1		07/02/23 23:34
Chlorobenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34

Results of **23KKA.TP02-14**

Client Sample ID: **23KKA.TP02-14**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990004
Lab Project ID: 1232990

Collection Date: 06/22/23 17:55
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):77.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.186	U	0.372	0.115	0.186	mg/kg	1		07/02/23 23:34
Chloroform	0.00560	U	0.0112	0.00558	0.00560	mg/kg	1		07/02/23 23:34
Chloromethane	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
cis-1,2-Dichloroethene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
cis-1,3-Dichloropropene	0.0117	U	0.0233	0.00725	0.0117	mg/kg	1		07/02/23 23:34
Dibromochloromethane	0.00465	U	0.00930	0.00279	0.00465	mg/kg	1		07/02/23 23:34
Dibromomethane	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Dichlorodifluoromethane	0.0930	U	0.186	0.0558	0.0930	mg/kg	1		07/02/23 23:34
Ethylbenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Freon-113	0.0930	U	0.186	0.0577	0.0930	mg/kg	1		07/02/23 23:34
Hexachlorobutadiene	0.0186	U	0.0372	0.0115	0.0186	mg/kg	1		07/02/23 23:34
Isopropylbenzene (Cumene)	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Methylene chloride	0.0930	U	0.186	0.0577	0.0930	mg/kg	1		07/02/23 23:34
Methyl-t-butyl ether	0.0930	U	0.186	0.0577	0.0930	mg/kg	1		07/02/23 23:34
Naphthalene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
n-Butylbenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
n-Propylbenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
o-Xylene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
P & M -Xylene	0.0465	U	0.0930	0.0279	0.0465	mg/kg	1		07/02/23 23:34
sec-Butylbenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Styrene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
tert-Butylbenzene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
Tetrachloroethene	0.0117	U	0.0233	0.00725	0.0117	mg/kg	1		07/02/23 23:34
Toluene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
trans-1,2-Dichloroethene	0.0233	U	0.0465	0.0145	0.0233	mg/kg	1		07/02/23 23:34
trans-1,3-Dichloropropene	0.0117	U	0.0233	0.00725	0.0117	mg/kg	1		07/02/23 23:34
Trichloroethene	0.00930	U	0.0186	0.00595	0.00930	mg/kg	1		07/02/23 23:34
Trichlorofluoromethane	0.0465	U	0.0930	0.0279	0.0465	mg/kg	1		07/02/23 23:34
Vinyl acetate	0.0930	U	0.186	0.0577	0.0930	mg/kg	1		07/02/23 23:34
Vinyl chloride	0.000745	U	0.00149	0.000465	0.000745	mg/kg	1		07/02/23 23:34
Xylenes (total)	0.0700	U	0.140	0.0424	0.0700	mg/kg	1		07/02/23 23:34
Surrogates									
1,2-Dichloroethane-D4 (surr)	102		71-136			%	1		07/02/23 23:34
4-Bromofluorobenzene (surr)	102		55-151			%	1		07/02/23 23:34
Toluene-d8 (surr)	100		85-116			%	1		07/02/23 23:34

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP02-14**

Client Sample ID: **23KKA.TP02-14**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990004
Lab Project ID: 1232990

Collection Date: 06/22/23 17:55
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):77.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22532
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/02/23 23:34
Container ID: 1232990004-B

Prep Batch: VXX40077
Prep Method: SW5035A
Prep Date/Time: 06/22/23 17:55
Prep Initial Wt./Vol.: 49.87 g
Prep Extract Vol: 36.0786 mL

Results of **23KKA.TP04-10'**

Client Sample ID: **23KKA.TP04-10'**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990005
Lab Project ID: 1232990

Collection Date: 06/23/23 09:20
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.0
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	16.2	J	26.4	11.9	13.2	mg/kg	1		07/05/23 16:04
Surrogates									
5a Androstane (surr)	92.1		50-150			%	1		07/05/23 16:04

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/05/23 16:04
Container ID: 1232990005-A

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 06/29/23 11:17
Prep Initial Wt./Vol.: 22.75 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	274		132	56.7	66.0	mg/kg	1		07/05/23 16:04
Surrogates									
n-Triacontane-d62 (surr)	89.9		50-150			%	1		07/05/23 16:04

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/05/23 16:04
Container ID: 1232990005-A

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 06/29/23 11:17
Prep Initial Wt./Vol.: 22.75 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP04-10'**

Client Sample ID: **23KKA.TP04-10'**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990005
Lab Project ID: 1232990

Collection Date: 06/23/23 09:20
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.0
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.45	J	5.24	1.57	2.62	mg/kg	1		06/30/23 01:46
Surrogates									
4-Bromofluorobenzene (surr)	102		50-150			%	1		06/30/23 01:46

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 01:46
Container ID: 1232990005-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/23/23 09:20
Prep Initial Wt./Vol.: 46.675 g
Prep Extract Vol: 36.6863 mL

Results of **23KKA.TP04-10'**

Client Sample ID: **23KKA.TP04-10'**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990005
Lab Project ID: 1232990

Collection Date: 06/23/23 09:20
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0210	U	0.0419	0.0130	0.0210	mg/kg	1		07/03/23 15:25
1,1,1-Trichloroethane	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,1,2,2-Tetrachloroethane	0.00210	U	0.00419	0.00130	0.00210	mg/kg	1		07/03/23 15:25
1,1,2-Trichloroethane	0.00105	U	0.00210	0.00105	0.00105	mg/kg	1		07/03/23 15:25
1,1-Dichloroethane	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,1-Dichloroethene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,1-Dichloropropene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,2,3-Trichlorobenzene	0.105	U	0.210	0.0629	0.105	mg/kg	1		07/03/23 15:25
1,2,3-Trichloropropane	0.00210	U	0.00419	0.00130	0.00210	mg/kg	1		07/03/23 15:25
1,2,4-Trichlorobenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,2,4-Trimethylbenzene	0.105	U	0.210	0.0629	0.105	mg/kg	1		07/03/23 15:25
1,2-Dibromo-3-chloropropane	0.105	U	0.210	0.0650	0.105	mg/kg	1		07/03/23 15:25
1,2-Dibromoethane	0.00158	U	0.00315	0.00157	0.00158	mg/kg	1		07/03/23 15:25
1,2-Dichlorobenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,2-Dichloroethane	0.00210	U	0.00419	0.00147	0.00210	mg/kg	1		07/03/23 15:25
1,2-Dichloropropane	0.0105	U	0.0210	0.0105	0.0105	mg/kg	1		07/03/23 15:25
1,3,5-Trimethylbenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,3-Dichlorobenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
1,3-Dichloropropane	0.0105	U	0.0210	0.00650	0.0105	mg/kg	1		07/03/23 15:25
1,4-Dichlorobenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
2,2-Dichloropropane	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
2-Butanone (MEK)	0.262	U	0.524	0.164	0.262	mg/kg	1		07/03/23 15:25
2-Chlorotoluene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
2-Hexanone	0.126	U	0.252	0.126	0.126	mg/kg	1		07/03/23 15:25
4-Chlorotoluene	0.0210	U	0.0419	0.0210	0.0210	mg/kg	1		07/03/23 15:25
4-Isopropyltoluene	0.0840	U	0.168	0.0839	0.0840	mg/kg	1		07/03/23 15:25
4-Methyl-2-pentanone (MIBK)	0.262	U	0.524	0.164	0.262	mg/kg	1		07/03/23 15:25
Acetone	0.441	J	0.524	0.231	0.262	mg/kg	1		07/03/23 15:25
Benzene	0.0131	U	0.0262	0.00818	0.0131	mg/kg	1		07/03/23 15:25
Bromobenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Bromochloromethane	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Bromodichloromethane	0.00210	U	0.00419	0.00130	0.00210	mg/kg	1		07/03/23 15:25
Bromoform	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Bromomethane	0.0210	U	0.0419	0.0168	0.0210	mg/kg	1		07/03/23 15:25
Carbon disulfide	0.105	U	0.210	0.0650	0.105	mg/kg	1		07/03/23 15:25
Carbon tetrachloride	0.0131	U	0.0262	0.00818	0.0131	mg/kg	1		07/03/23 15:25
Chlorobenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP04-10'**

Client Sample ID: **23KKA.TP04-10'**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990005
Lab Project ID: 1232990

Collection Date: 06/23/23 09:20
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.0
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.209	U	0.419	0.130	0.209	mg/kg	1		07/03/23 15:25
Chloroform	0.00630	U	0.0126	0.00629	0.00630	mg/kg	1		07/03/23 15:25
Chloromethane	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
cis-1,2-Dichloroethene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
cis-1,3-Dichloropropene	0.0131	U	0.0262	0.00818	0.0131	mg/kg	1		07/03/23 15:25
Dibromochloromethane	0.00525	U	0.0105	0.00315	0.00525	mg/kg	1		07/03/23 15:25
Dibromomethane	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Dichlorodifluoromethane	0.105	U	0.210	0.0629	0.105	mg/kg	1		07/03/23 15:25
Ethylbenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Freon-113	0.105	U	0.210	0.0650	0.105	mg/kg	1		07/03/23 15:25
Hexachlorobutadiene	0.0210	U	0.0419	0.0130	0.0210	mg/kg	1		07/03/23 15:25
Isopropylbenzene (Cumene)	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Methylene chloride	0.105	U	0.210	0.0650	0.105	mg/kg	1		07/03/23 15:25
Methyl-t-butyl ether	0.105	U	0.210	0.0650	0.105	mg/kg	1		07/03/23 15:25
Naphthalene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
n-Butylbenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
n-Propylbenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
o-Xylene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
P & M -Xylene	0.0525	U	0.105	0.0315	0.0525	mg/kg	1		07/03/23 15:25
sec-Butylbenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Styrene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
tert-Butylbenzene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
Tetrachloroethene	0.0131	U	0.0262	0.00818	0.0131	mg/kg	1		07/03/23 15:25
Toluene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
trans-1,2-Dichloroethene	0.0262	U	0.0524	0.0164	0.0262	mg/kg	1		07/03/23 15:25
trans-1,3-Dichloropropene	0.0131	U	0.0262	0.00818	0.0131	mg/kg	1		07/03/23 15:25
Trichloroethene	0.0105	U	0.0210	0.00671	0.0105	mg/kg	1		07/03/23 15:25
Trichlorofluoromethane	0.0525	U	0.105	0.0315	0.0525	mg/kg	1		07/03/23 15:25
Vinyl acetate	0.105	U	0.210	0.0650	0.105	mg/kg	1		07/03/23 15:25
Vinyl chloride	0.000840	U	0.00168	0.000524	0.000840	mg/kg	1		07/03/23 15:25
Xylenes (total)	0.0785	U	0.157	0.0478	0.0785	mg/kg	1		07/03/23 15:25
Surrogates									
1,2-Dichloroethane-D4 (surr)	112		71-136			%	1		07/03/23 15:25
4-Bromofluorobenzene (surr)	97.4		55-151			%	1		07/03/23 15:25
Toluene-d8 (surr)	97.8		85-116			%	1		07/03/23 15:25

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP04-10'**

Client Sample ID: **23KKA.TP04-10'**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990005
Lab Project ID: 1232990

Collection Date: 06/23/23 09:20
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.0
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22533
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 15:25
Container ID: 1232990005-B

Prep Batch: VXX40079
Prep Method: SW5035A
Prep Date/Time: 06/23/23 09:20
Prep Initial Wt./Vol.: 46.675 g
Prep Extract Vol: 36.6863 mL

Results of **23KKA.TP05.6**

Client Sample ID: **23KKA.TP05.6**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990006
Lab Project ID: 1232990

Collection Date: 06/23/23 10:51
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):61.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	27.7	J	31.9	14.4	15.9	mg/kg	1		07/05/23 16:14
Surrogates									
5a Androstane (surr)	83.8		50-150			%	1		07/05/23 16:14

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/05/23 16:14
Container ID: 1232990006-A

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 06/29/23 11:17
Prep Initial Wt./Vol.: 22.951 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	509		160	68.6	80.0	mg/kg	1		07/05/23 16:14
Surrogates									
n-Triacontane-d62 (surr)	79.7		50-150			%	1		07/05/23 16:14

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/05/23 16:14
Container ID: 1232990006-A

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 06/29/23 11:17
Prep Initial Wt./Vol.: 22.951 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP05.6**

Client Sample ID: **23KKA.TP05.6**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990006
Lab Project ID: 1232990

Collection Date: 06/23/23 10:51
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):61.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.69	J	7.50	2.25	3.75	mg/kg	1		06/30/23 02:04
Surrogates									
4-Bromofluorobenzene (surr)	98.3		50-150			%	1		06/30/23 02:04

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 02:04
Container ID: 1232990006-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/23/23 10:51
Prep Initial Wt./Vol.: 46.609 g
Prep Extract Vol: 42.9678 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP05.6**

Client Sample ID: **23KKA.TP05.6**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990006
Lab Project ID: 1232990

Collection Date: 06/23/23 10:51
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):61.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0300	U	0.0600	0.0186	0.0300	mg/kg	1		07/03/23 15:41
1,1,1-Trichloroethane	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,1,2,2-Tetrachloroethane	0.00300	U	0.00600	0.00186	0.00300	mg/kg	1		07/03/23 15:41
1,1,2-Trichloroethane	0.00150	U	0.00300	0.00150	0.00150	mg/kg	1		07/03/23 15:41
1,1-Dichloroethane	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,1-Dichloroethene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,1-Dichloropropene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,2,3-Trichlorobenzene	0.150	U	0.300	0.0900	0.150	mg/kg	1		07/03/23 15:41
1,2,3-Trichloropropane	0.00300	U	0.00600	0.00186	0.00300	mg/kg	1		07/03/23 15:41
1,2,4-Trichlorobenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,2,4-Trimethylbenzene	0.150	U	0.300	0.0900	0.150	mg/kg	1		07/03/23 15:41
1,2-Dibromo-3-chloropropane	0.150	U	0.300	0.0930	0.150	mg/kg	1		07/03/23 15:41
1,2-Dibromoethane	0.00225	U	0.00450	0.00225	0.00225	mg/kg	1		07/03/23 15:41
1,2-Dichlorobenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,2-Dichloroethane	0.00300	U	0.00600	0.00210	0.00300	mg/kg	1		07/03/23 15:41
1,2-Dichloropropane	0.0150	U	0.0300	0.0150	0.0150	mg/kg	1		07/03/23 15:41
1,3,5-Trimethylbenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,3-Dichlorobenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
1,3-Dichloropropane	0.0150	U	0.0300	0.00930	0.0150	mg/kg	1		07/03/23 15:41
1,4-Dichlorobenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
2,2-Dichloropropane	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
2-Butanone (MEK)	0.375	U	0.750	0.234	0.375	mg/kg	1		07/03/23 15:41
2-Chlorotoluene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
2-Hexanone	0.180	U	0.360	0.180	0.180	mg/kg	1		07/03/23 15:41
4-Chlorotoluene	0.0300	U	0.0600	0.0300	0.0300	mg/kg	1		07/03/23 15:41
4-Isopropyltoluene	0.120	U	0.240	0.120	0.120	mg/kg	1		07/03/23 15:41
4-Methyl-2-pentanone (MIBK)	0.375	U	0.750	0.234	0.375	mg/kg	1		07/03/23 15:41
Acetone	0.375	U	0.750	0.330	0.375	mg/kg	1		07/03/23 15:41
Benzene	0.0187	U	0.0375	0.0117	0.0187	mg/kg	1		07/03/23 15:41
Bromobenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Bromochloromethane	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Bromodichloromethane	0.00300	U	0.00600	0.00186	0.00300	mg/kg	1		07/03/23 15:41
Bromoform	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Bromomethane	0.0300	U	0.0600	0.0240	0.0300	mg/kg	1		07/03/23 15:41
Carbon disulfide	0.150	U	0.300	0.0930	0.150	mg/kg	1		07/03/23 15:41
Carbon tetrachloride	0.0187	U	0.0375	0.0117	0.0187	mg/kg	1		07/03/23 15:41
Chlorobenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41

Results of **23KKA.TP05.6**

Client Sample ID: **23KKA.TP05.6**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990006
Lab Project ID: 1232990

Collection Date: 06/23/23 10:51
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):61.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.300	U	0.600	0.186	0.300	mg/kg	1		07/03/23 15:41
Chloroform	0.00900	U	0.0180	0.00900	0.00900	mg/kg	1		07/03/23 15:41
Chloromethane	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
cis-1,2-Dichloroethene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
cis-1,3-Dichloropropene	0.0187	U	0.0375	0.0117	0.0187	mg/kg	1		07/03/23 15:41
Dibromochloromethane	0.00750	U	0.0150	0.00450	0.00750	mg/kg	1		07/03/23 15:41
Dibromomethane	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Dichlorodifluoromethane	0.150	U	0.300	0.0900	0.150	mg/kg	1		07/03/23 15:41
Ethylbenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Freon-113	0.150	U	0.300	0.0930	0.150	mg/kg	1		07/03/23 15:41
Hexachlorobutadiene	0.0300	U	0.0600	0.0186	0.0300	mg/kg	1		07/03/23 15:41
Isopropylbenzene (Cumene)	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Methylene chloride	0.150	U	0.300	0.0930	0.150	mg/kg	1		07/03/23 15:41
Methyl-t-butyl ether	0.150	U	0.300	0.0930	0.150	mg/kg	1		07/03/23 15:41
Naphthalene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
n-Butylbenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
n-Propylbenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
o-Xylene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
P & M -Xylene	0.0750	U	0.150	0.0450	0.0750	mg/kg	1		07/03/23 15:41
sec-Butylbenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Styrene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
tert-Butylbenzene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
Tetrachloroethene	0.0187	U	0.0375	0.0117	0.0187	mg/kg	1		07/03/23 15:41
Toluene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
trans-1,2-Dichloroethene	0.0375	U	0.0750	0.0234	0.0375	mg/kg	1		07/03/23 15:41
trans-1,3-Dichloropropene	0.0187	U	0.0375	0.0117	0.0187	mg/kg	1		07/03/23 15:41
Trichloroethene	0.0150	U	0.0300	0.00960	0.0150	mg/kg	1		07/03/23 15:41
Trichlorofluoromethane	0.0750	U	0.150	0.0450	0.0750	mg/kg	1		07/03/23 15:41
Vinyl acetate	0.150	U	0.300	0.0930	0.150	mg/kg	1		07/03/23 15:41
Vinyl chloride	0.00120	U	0.00240	0.000750	0.00120	mg/kg	1		07/03/23 15:41
Xylenes (total)	0.113	U	0.225	0.0684	0.113	mg/kg	1		07/03/23 15:41
Surrogates									
1,2-Dichloroethane-D4 (surr)	113		71-136			%	1		07/03/23 15:41
4-Bromofluorobenzene (surr)	90.3		55-151			%	1		07/03/23 15:41
Toluene-d8 (surr)	97.5		85-116			%	1		07/03/23 15:41

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP05.6**

Client Sample ID: **23KKA.TP05.6**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990006
Lab Project ID: 1232990

Collection Date: 06/23/23 10:51
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):61.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22533
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 15:41
Container ID: 1232990006-B

Prep Batch: VXX40079
Prep Method: SW5035A
Prep Date/Time: 06/23/23 10:51
Prep Initial Wt./Vol.: 46.609 g
Prep Extract Vol: 42.9678 mL

Results of **23KKA.TP06.9**

Client Sample ID: **23KKA.TP06.9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990007
Lab Project ID: 1232990

Collection Date: 06/23/23 15:32
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):73.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	36.3		27.1	12.2	13.6	mg/kg	1		07/20/23 02:23
Surrogates									
5a Androstane (surr)	83.3		50-150			%	1		07/20/23 02:23

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 02:23
Container ID: 1232990007-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.704 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	232		135	58.3	67.5	mg/kg	1		07/20/23 02:23
Surrogates									
n-Triacontane-d62 (surr)	71.8		50-150			%	1		07/20/23 02:23

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 02:23
Container ID: 1232990007-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.704 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP06.9**

Client Sample ID: **23KKA.TP06.9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990007
Lab Project ID: 1232990

Collection Date: 06/23/23 15:32
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):73.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	5.31	J	5.58	1.67	2.79	mg/kg	1		06/30/23 03:54
Surrogates									
4-Bromofluorobenzene (surr)	111		50-150			%	1		06/30/23 03:54

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 03:54
Container ID: 1232990007-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/23/23 15:32
Prep Initial Wt./Vol.: 45.655 g
Prep Extract Vol: 37.2636 mL

Results of **23KKA.TP06.9**

Client Sample ID: **23KKA.TP06.9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990007
Lab Project ID: 1232990

Collection Date: 06/23/23 15:32
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):73.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0223	U	0.0446	0.0138	0.0223	mg/kg	1		07/03/23 16:14
1,1,1-Trichloroethane	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,1,2,2-Tetrachloroethane	0.00223	U	0.00446	0.00138	0.00223	mg/kg	1		07/03/23 16:14
1,1,2-Trichloroethane	0.00112	U	0.00223	0.00112	0.00112	mg/kg	1		07/03/23 16:14
1,1-Dichloroethane	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,1-Dichloroethene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,1-Dichloropropene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,2,3-Trichlorobenzene	0.112	U	0.223	0.0670	0.112	mg/kg	1		07/03/23 16:14
1,2,3-Trichloropropane	0.00223	U	0.00446	0.00138	0.00223	mg/kg	1		07/03/23 16:14
1,2,4-Trichlorobenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,2,4-Trimethylbenzene	0.179	J	0.223	0.0670	0.112	mg/kg	1		07/03/23 16:14
1,2-Dibromo-3-chloropropane	0.112	U	0.223	0.0692	0.112	mg/kg	1		07/03/23 16:14
1,2-Dibromoethane	0.00168	U	0.00335	0.00167	0.00168	mg/kg	1		07/03/23 16:14
1,2-Dichlorobenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,2-Dichloroethane	0.00223	U	0.00446	0.00156	0.00223	mg/kg	1		07/03/23 16:14
1,2-Dichloropropane	0.0112	U	0.0223	0.0112	0.0112	mg/kg	1		07/03/23 16:14
1,3,5-Trimethylbenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,3-Dichlorobenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
1,3-Dichloropropane	0.0112	U	0.0223	0.00692	0.0112	mg/kg	1		07/03/23 16:14
1,4-Dichlorobenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
2,2-Dichloropropane	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
2-Butanone (MEK)	0.279	U	0.558	0.174	0.279	mg/kg	1		07/03/23 16:14
2-Chlorotoluene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
2-Hexanone	0.134	U	0.268	0.134	0.134	mg/kg	1		07/03/23 16:14
4-Chlorotoluene	0.0223	U	0.0446	0.0223	0.0223	mg/kg	1		07/03/23 16:14
4-Isopropyltoluene	0.0895	U	0.179	0.0893	0.0895	mg/kg	1		07/03/23 16:14
4-Methyl-2-pentanone (MIBK)	0.279	U	0.558	0.174	0.279	mg/kg	1		07/03/23 16:14
Acetone	0.279	U	0.558	0.246	0.279	mg/kg	1		07/03/23 16:14
Benzene	0.0146	J	0.0279	0.00870	0.0139	mg/kg	1		07/03/23 16:14
Bromobenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Bromochloromethane	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Bromodichloromethane	0.00223	U	0.00446	0.00138	0.00223	mg/kg	1		07/03/23 16:14
Bromoform	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Bromomethane	0.0223	U	0.0446	0.0179	0.0223	mg/kg	1		07/03/23 16:14
Carbon disulfide	0.112	U	0.223	0.0692	0.112	mg/kg	1		07/03/23 16:14
Carbon tetrachloride	0.0139	U	0.0279	0.00870	0.0139	mg/kg	1		07/03/23 16:14
Chlorobenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14

Results of **23KKA.TP06.9**

Client Sample ID: **23KKA.TP06.9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990007
Lab Project ID: 1232990

Collection Date: 06/23/23 15:32
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):73.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.223	U	0.446	0.138	0.223	mg/kg	1		07/03/23 16:14
Chloroform	0.00670	U	0.0134	0.00670	0.00670	mg/kg	1		07/03/23 16:14
Chloromethane	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
cis-1,2-Dichloroethene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
cis-1,3-Dichloropropene	0.0139	U	0.0279	0.00870	0.0139	mg/kg	1		07/03/23 16:14
Dibromochloromethane	0.00560	U	0.0112	0.00335	0.00560	mg/kg	1		07/03/23 16:14
Dibromomethane	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Dichlorodifluoromethane	0.112	U	0.223	0.0670	0.112	mg/kg	1		07/03/23 16:14
Ethylbenzene	0.177		0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Freon-113	0.112	U	0.223	0.0692	0.112	mg/kg	1		07/03/23 16:14
Hexachlorobutadiene	0.0223	U	0.0446	0.0138	0.0223	mg/kg	1		07/03/23 16:14
Isopropylbenzene (Cumene)	0.0696		0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Methylene chloride	0.112	U	0.223	0.0692	0.112	mg/kg	1		07/03/23 16:14
Methyl-t-butyl ether	0.112	U	0.223	0.0692	0.112	mg/kg	1		07/03/23 16:14
Naphthalene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
n-Butylbenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
n-Propylbenzene	0.0642		0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
o-Xylene	0.0441	J	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
P & M -Xylene	0.214		0.112	0.0335	0.0560	mg/kg	1		07/03/23 16:14
sec-Butylbenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Styrene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
tert-Butylbenzene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
Tetrachloroethene	0.0139	U	0.0279	0.00870	0.0139	mg/kg	1		07/03/23 16:14
Toluene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
trans-1,2-Dichloroethene	0.0279	U	0.0558	0.0174	0.0279	mg/kg	1		07/03/23 16:14
trans-1,3-Dichloropropene	0.0139	U	0.0279	0.00870	0.0139	mg/kg	1		07/03/23 16:14
Trichloroethene	0.0112	U	0.0223	0.00714	0.0112	mg/kg	1		07/03/23 16:14
Trichlorofluoromethane	0.0560	U	0.112	0.0335	0.0560	mg/kg	1		07/03/23 16:14
Vinyl acetate	0.112	U	0.223	0.0692	0.112	mg/kg	1		07/03/23 16:14
Vinyl chloride	0.000895	U	0.00179	0.000558	0.000895	mg/kg	1		07/03/23 16:14
Xylenes (total)	0.258		0.167	0.0509	0.0835	mg/kg	1		07/03/23 16:14
Surrogates									
1,2-Dichloroethane-D4 (surr)	112		71-136			%	1		07/03/23 16:14
4-Bromofluorobenzene (surr)	94.9		55-151			%	1		07/03/23 16:14
Toluene-d8 (surr)	96.1		85-116			%	1		07/03/23 16:14

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP06.9**

Client Sample ID: **23KKA.TP06.9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990007
Lab Project ID: 1232990

Collection Date: 06/23/23 15:32
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):73.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22533
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 16:14
Container ID: 1232990007-B

Prep Batch: VXX40079
Prep Method: SW5035A
Prep Date/Time: 06/23/23 15:32
Prep Initial Wt./Vol.: 45.655 g
Prep Extract Vol: 37.2636 mL

Results of **23KKA.TP07-2**

Client Sample ID: **23KKA.TP07-2**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990008
Lab Project ID: 1232990

Collection Date: 06/23/23 16:17
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	3820		22.8	10.2	11.4	mg/kg	1		07/20/23 02:33
Surrogates									
5a Androstane (surr)	103		50-150			%	1		07/20/23 02:33

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 02:33
Container ID: 1232990008-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.881 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	297		114	48.9	57.0	mg/kg	1		07/20/23 02:33
Surrogates									
n-Triacontane-d62 (surr)	91.1		50-150			%	1		07/20/23 02:33

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 02:33
Container ID: 1232990008-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.881 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP07-2**

Client Sample ID: **23KKA.TP07-2**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990008
Lab Project ID: 1232990

Collection Date: 06/23/23 16:17
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	5160		367	110	184	mg/kg	100		06/30/23 16:19
Surrogates									
4-Bromofluorobenzene (surr)	3510	*	50-150			%	100		06/30/23 16:19

Batch Information

Analytical Batch: VFC16516
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 16:19
Container ID: 1232990008-B

Prep Batch: VXX40066
Prep Method: SW5035A
Prep Date/Time: 06/23/23 16:17
Prep Initial Wt./Vol.: 50.127 g
Prep Extract Vol: 31.7988 mL

Results of **23KKA.TP07-2**

Client Sample ID: **23KKA.TP07-2**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990008
Lab Project ID: 1232990

Collection Date: 06/23/23 16:17
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.293	U	0.587	0.182	0.293	mg/kg	20		07/03/23 16:31
1,1,1-Trichloroethane	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,1,2,2-Tetrachloroethane	0.0294	U	0.0587	0.0182	0.0294	mg/kg	20		07/03/23 16:31
1,1,2-Trichloroethane	0.0147	U	0.0294	0.0147	0.0147	mg/kg	20		07/03/23 16:31
1,1-Dichloroethane	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,1-Dichloroethene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,1-Dichloropropene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,2,3-Trichlorobenzene	1.47	U	2.94	0.881	1.47	mg/kg	20		07/03/23 16:31
1,2,3-Trichloropropane	0.0294	U	0.0587	0.0182	0.0294	mg/kg	20		07/03/23 16:31
1,2,4-Trichlorobenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,2,4-Trimethylbenzene	244		29.4	8.81	14.7	mg/kg	200		07/03/23 21:12
1,2-Dibromo-3-chloropropane	1.47	U	2.94	0.910	1.47	mg/kg	20		07/03/23 16:31
1,2-Dibromoethane	0.0220	U	0.0440	0.0220	0.0220	mg/kg	20		07/03/23 16:31
1,2-Dichlorobenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,2-Dichloroethane	0.0294	U	0.0587	0.0205	0.0294	mg/kg	20		07/03/23 16:31
1,2-Dichloropropane	0.147	U	0.294	0.147	0.147	mg/kg	20		07/03/23 16:31
1,3,5-Trimethylbenzene	79.3		7.34	2.29	3.67	mg/kg	200		07/03/23 21:12
1,3-Dichlorobenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
1,3-Dichloropropane	0.147	U	0.294	0.0910	0.147	mg/kg	20		07/03/23 16:31
1,4-Dichlorobenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
2,2-Dichloropropane	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
2-Butanone (MEK)	3.67	U	7.34	2.29	3.67	mg/kg	20		07/03/23 16:31
2-Chlorotoluene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
2-Hexanone	1.76	U	3.52	1.76	1.76	mg/kg	20		07/03/23 16:31
4-Chlorotoluene	0.293	U	0.587	0.294	0.293	mg/kg	20		07/03/23 16:31
4-Isopropyltoluene	3.07		2.35	1.17	1.18	mg/kg	20		07/03/23 16:31
4-Methyl-2-pentanone (MIBK)	3.67	U	7.34	2.29	3.67	mg/kg	20		07/03/23 16:31
Acetone	3.67	U	7.34	3.23	3.67	mg/kg	20		07/03/23 16:31
Benzene	9.60		0.367	0.114	0.184	mg/kg	20		07/03/23 16:31
Bromobenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Bromochloromethane	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Bromodichloromethane	0.0294	U	0.0587	0.0182	0.0294	mg/kg	20		07/03/23 16:31
Bromoform	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Bromomethane	0.293	U	0.587	0.235	0.293	mg/kg	20		07/03/23 16:31
Carbon disulfide	1.47	U	2.94	0.910	1.47	mg/kg	20		07/03/23 16:31
Carbon tetrachloride	0.184	U	0.367	0.114	0.184	mg/kg	20		07/03/23 16:31
Chlorobenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31

Results of **23KKA.TP07-2**

Client Sample ID: **23KKA.TP07-2**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990008
Lab Project ID: 1232990

Collection Date: 06/23/23 16:17
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	2.94	U	5.87	1.82	2.94	mg/kg	20		07/03/23 16:31
Chloroform	0.0880	U	0.176	0.0881	0.0880	mg/kg	20		07/03/23 16:31
Chloromethane	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
cis-1,2-Dichloroethene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
cis-1,3-Dichloropropene	0.184	U	0.367	0.114	0.184	mg/kg	20		07/03/23 16:31
Dibromochloromethane	0.0735	U	0.147	0.0440	0.0735	mg/kg	20		07/03/23 16:31
Dibromomethane	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Dichlorodifluoromethane	1.47	U	2.94	0.881	1.47	mg/kg	20		07/03/23 16:31
Ethylbenzene	58.2		0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Freon-113	1.47	U	2.94	0.910	1.47	mg/kg	20		07/03/23 16:31
Hexachlorobutadiene	0.293	U	0.587	0.182	0.293	mg/kg	20		07/03/23 16:31
Isopropylbenzene (Cumene)	7.01		0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Methylene chloride	1.47	U	2.94	0.910	1.47	mg/kg	20		07/03/23 16:31
Methyl-t-butyl ether	1.47	U	2.94	0.910	1.47	mg/kg	20		07/03/23 16:31
Naphthalene	18.5		0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
n-Butylbenzene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
n-Propylbenzene	9.74		0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
o-Xylene	256		7.34	2.29	3.67	mg/kg	200		07/03/23 21:12
P & M -Xylene	710		14.7	4.40	7.35	mg/kg	200		07/03/23 21:12
sec-Butylbenzene	4.19		0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Styrene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
tert-Butylbenzene	21.6		0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
Tetrachloroethene	0.184	U	0.367	0.114	0.184	mg/kg	20		07/03/23 16:31
Toluene	326		7.34	2.29	3.67	mg/kg	200		07/03/23 21:12
trans-1,2-Dichloroethene	0.367	U	0.734	0.229	0.367	mg/kg	20		07/03/23 16:31
trans-1,3-Dichloropropene	0.184	U	0.367	0.114	0.184	mg/kg	20		07/03/23 16:31
Trichloroethene	0.147	U	0.294	0.0939	0.147	mg/kg	20		07/03/23 16:31
Trichlorofluoromethane	0.735	U	1.47	0.440	0.735	mg/kg	20		07/03/23 16:31
Vinyl acetate	1.47	U	2.94	0.910	1.47	mg/kg	20		07/03/23 16:31
Vinyl chloride	0.0118	U	0.0235	0.00734	0.0118	mg/kg	20		07/03/23 16:31
Xylenes (total)	966		22.0	6.69	11.0	mg/kg	200		07/03/23 21:12
Surrogates									
1,2-Dichloroethane-D4 (surr)	105		71-136			%	20		07/03/23 16:31
4-Bromofluorobenzene (surr)	126		55-151			%	20		07/03/23 16:31
Toluene-d8 (surr)	101		85-116			%	20		07/03/23 16:31

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP07-2**

Client Sample ID: **23KKA.TP07-2**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990008
Lab Project ID: 1232990

Collection Date: 06/23/23 16:17
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):86.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22533
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 16:31
Container ID: 1232990008-B

Prep Batch: VXX40079
Prep Method: SW5035A
Prep Date/Time: 06/23/23 16:17
Prep Initial Wt./Vol.: 50.127 g
Prep Extract Vol: 31.7988 mL

Analytical Batch: VMS22533
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 21:12
Container ID: 1232990008-B

Prep Batch: VXX40079
Prep Method: SW5035A
Prep Date/Time: 06/23/23 16:17
Prep Initial Wt./Vol.: 50.127 g
Prep Extract Vol: 31.7988 mL

Results of **23KKA.TP07-9.5**

Client Sample ID: **23KKA.TP07-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990009
Lab Project ID: 1232990

Collection Date: 06/23/23 16:36
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	19.2	J	26.3	11.9	13.2	mg/kg	1		07/20/23 02:43
Surrogates									
5a Androstane (surr)	90.1		50-150			%	1		07/20/23 02:43

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 02:43
Container ID: 1232990009-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.681 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	181		132	56.6	66.0	mg/kg	1		07/20/23 02:43
Surrogates									
n-Triacontane-d62 (surr)	78.1		50-150			%	1		07/20/23 02:43

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 02:43
Container ID: 1232990009-A

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 06/29/23 12:42
Prep Initial Wt./Vol.: 22.681 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP07-9.5**

Client Sample ID: **23KKA.TP07-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990009
Lab Project ID: 1232990

Collection Date: 06/23/23 16:36
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.58	J	5.21	1.56	2.61	mg/kg	1		06/30/23 02:22
Surrogates									
4-Bromofluorobenzene (surr)	110		50-150			%	1		06/30/23 02:22

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 02:22
Container ID: 1232990009-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/23/23 16:36
Prep Initial Wt./Vol.: 46.412 g
Prep Extract Vol: 36.4465 mL

Results of **23KKA.TP07-9.5**

Client Sample ID: **23KKA.TP07-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990009
Lab Project ID: 1232990

Collection Date: 06/23/23 16:36
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0209	U	0.0417	0.0129	0.0209	mg/kg	1		07/03/23 15:58
1,1,1-Trichloroethane	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,1,2,2-Tetrachloroethane	0.00209	U	0.00417	0.00129	0.00209	mg/kg	1		07/03/23 15:58
1,1,2-Trichloroethane	0.00104	U	0.00208	0.00104	0.00104	mg/kg	1		07/03/23 15:58
1,1-Dichloroethane	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,1-Dichloroethene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,1-Dichloropropene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,2,3-Trichlorobenzene	0.104	U	0.208	0.0625	0.104	mg/kg	1		07/03/23 15:58
1,2,3-Trichloropropane	0.00209	U	0.00417	0.00129	0.00209	mg/kg	1		07/03/23 15:58
1,2,4-Trichlorobenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,2,4-Trimethylbenzene	0.104	U	0.208	0.0625	0.104	mg/kg	1		07/03/23 15:58
1,2-Dibromo-3-chloropropane	0.104	U	0.208	0.0646	0.104	mg/kg	1		07/03/23 15:58
1,2-Dibromoethane	0.00157	U	0.00313	0.00156	0.00157	mg/kg	1		07/03/23 15:58
1,2-Dichlorobenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,2-Dichloroethane	0.00209	U	0.00417	0.00146	0.00209	mg/kg	1		07/03/23 15:58
1,2-Dichloropropane	0.0104	U	0.0208	0.0104	0.0104	mg/kg	1		07/03/23 15:58
1,3,5-Trimethylbenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,3-Dichlorobenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
1,3-Dichloropropane	0.0104	U	0.0208	0.00646	0.0104	mg/kg	1		07/03/23 15:58
1,4-Dichlorobenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
2,2-Dichloropropane	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
2-Butanone (MEK)	0.261	U	0.521	0.163	0.261	mg/kg	1		07/03/23 15:58
2-Chlorotoluene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
2-Hexanone	0.125	U	0.250	0.125	0.125	mg/kg	1		07/03/23 15:58
4-Chlorotoluene	0.0209	U	0.0417	0.0208	0.0209	mg/kg	1		07/03/23 15:58
4-Isopropyltoluene	0.0835	U	0.167	0.0834	0.0835	mg/kg	1		07/03/23 15:58
4-Methyl-2-pentanone (MIBK)	0.261	U	0.521	0.163	0.261	mg/kg	1		07/03/23 15:58
Acetone	0.261	U	0.521	0.229	0.261	mg/kg	1		07/03/23 15:58
Benzene	0.0156	J	0.0261	0.00813	0.0131	mg/kg	1		07/03/23 15:58
Bromobenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Bromochloromethane	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Bromodichloromethane	0.00209	U	0.00417	0.00129	0.00209	mg/kg	1		07/03/23 15:58
Bromoform	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Bromomethane	0.0209	U	0.0417	0.0167	0.0209	mg/kg	1		07/03/23 15:58
Carbon disulfide	0.104	U	0.208	0.0646	0.104	mg/kg	1		07/03/23 15:58
Carbon tetrachloride	0.0131	U	0.0261	0.00813	0.0131	mg/kg	1		07/03/23 15:58
Chlorobenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58

Results of **23KKA.TP07-9.5**

Client Sample ID: **23KKA.TP07-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990009
Lab Project ID: 1232990

Collection Date: 06/23/23 16:36
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.208	U	0.417	0.129	0.208	mg/kg	1		07/03/23 15:58
Chloroform	0.00625	U	0.0125	0.00625	0.00625	mg/kg	1		07/03/23 15:58
Chloromethane	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
cis-1,2-Dichloroethene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
cis-1,3-Dichloropropene	0.0131	U	0.0261	0.00813	0.0131	mg/kg	1		07/03/23 15:58
Dibromochloromethane	0.00520	U	0.0104	0.00313	0.00520	mg/kg	1		07/03/23 15:58
Dibromomethane	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Dichlorodifluoromethane	0.104	U	0.208	0.0625	0.104	mg/kg	1		07/03/23 15:58
Ethylbenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Freon-113	0.104	U	0.208	0.0646	0.104	mg/kg	1		07/03/23 15:58
Hexachlorobutadiene	0.0209	U	0.0417	0.0129	0.0209	mg/kg	1		07/03/23 15:58
Isopropylbenzene (Cumene)	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Methylene chloride	0.104	U	0.208	0.0646	0.104	mg/kg	1		07/03/23 15:58
Methyl-t-butyl ether	0.104	U	0.208	0.0646	0.104	mg/kg	1		07/03/23 15:58
Naphthalene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
n-Butylbenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
n-Propylbenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
o-Xylene	0.0176	J	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
P & M -Xylene	0.0808	J	0.104	0.0313	0.0520	mg/kg	1		07/03/23 15:58
sec-Butylbenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Styrene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
tert-Butylbenzene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
Tetrachloroethene	0.0131	U	0.0261	0.00813	0.0131	mg/kg	1		07/03/23 15:58
Toluene	0.0457	J	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
trans-1,2-Dichloroethene	0.0261	U	0.0521	0.0163	0.0261	mg/kg	1		07/03/23 15:58
trans-1,3-Dichloropropene	0.0131	U	0.0261	0.00813	0.0131	mg/kg	1		07/03/23 15:58
Trichloroethene	0.0104	U	0.0208	0.00667	0.0104	mg/kg	1		07/03/23 15:58
Trichlorofluoromethane	0.0520	U	0.104	0.0313	0.0520	mg/kg	1		07/03/23 15:58
Vinyl acetate	0.104	U	0.208	0.0646	0.104	mg/kg	1		07/03/23 15:58
Vinyl chloride	0.000835	U	0.00167	0.000521	0.000835	mg/kg	1		07/03/23 15:58
Xylenes (total)	0.0984	J	0.156	0.0475	0.0780	mg/kg	1		07/03/23 15:58
Surrogates									
1,2-Dichloroethane-D4 (surr)	113		71-136			%	1		07/03/23 15:58
4-Bromofluorobenzene (surr)	101		55-151			%	1		07/03/23 15:58
Toluene-d8 (surr)	97.2		85-116			%	1		07/03/23 15:58

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP07-9.5**

Client Sample ID: **23KKA.TP07-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990009
Lab Project ID: 1232990

Collection Date: 06/23/23 16:36
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22533
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 15:58
Container ID: 1232990009-B

Prep Batch: VXX40079
Prep Method: SW5035A
Prep Date/Time: 06/23/23 16:36
Prep Initial Wt./Vol.: 46.412 g
Prep Extract Vol: 36.4465 mL

Results of **23KKA.TP08-9.5**

Client Sample ID: **23KKA.TP08-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990010
Lab Project ID: 1232990

Collection Date: 06/24/23 08:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	17.9	J	25.4	11.4	12.7	mg/kg	1		07/20/23 15:52
Surrogates									
5a Androstane (surr)	80.7		50-150			%	1		07/20/23 15:52

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 15:52
Container ID: 1232990010-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.655 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	234		127	54.7	63.5	mg/kg	1		07/20/23 15:52
Surrogates									
n-Triacontane-d62 (surr)	75.5		50-150			%	1		07/20/23 15:52

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 15:52
Container ID: 1232990010-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.655 g
Prep Extract Vol: 5 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP08-9.5**

Client Sample ID: **23KKA.TP08-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990010
Lab Project ID: 1232990

Collection Date: 06/24/23 08:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.51	J	5.22	1.57	2.61	mg/kg	1		06/30/23 02:40
Surrogates									
4-Bromofluorobenzene (surr)	96.5		50-150			%	1		06/30/23 02:40

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 02:40
Container ID: 1232990010-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/24/23 08:53
Prep Initial Wt./Vol.: 41.831 g
Prep Extract Vol: 34.1429 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP08-9.5**

Client Sample ID: **23KKA.TP08-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990010
Lab Project ID: 1232990

Collection Date: 06/24/23 08:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0209	U	0.0418	0.0130	0.0209	mg/kg	1		07/03/23 15:20
1,1,1-Trichloroethane	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,1,2,2-Tetrachloroethane	0.00209	U	0.00418	0.00130	0.00209	mg/kg	1		07/03/23 15:20
1,1,2-Trichloroethane	0.00104	U	0.00209	0.00104	0.00104	mg/kg	1		07/03/23 15:20
1,1-Dichloroethane	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,1-Dichloroethene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,1-Dichloropropene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,2,3-Trichlorobenzene	0.105	U	0.209	0.0627	0.105	mg/kg	1		07/03/23 15:20
1,2,3-Trichloropropane	0.00209	U	0.00418	0.00130	0.00209	mg/kg	1		07/03/23 15:20
1,2,4-Trichlorobenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,2,4-Trimethylbenzene	0.105	U	0.209	0.0627	0.105	mg/kg	1		07/03/23 15:20
1,2-Dibromo-3-chloropropane	0.105	U	0.209	0.0648	0.105	mg/kg	1		07/03/23 15:20
1,2-Dibromoethane	0.00157	U	0.00313	0.00157	0.00157	mg/kg	1		07/03/23 15:20
1,2-Dichlorobenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,2-Dichloroethane	0.00209	U	0.00418	0.00146	0.00209	mg/kg	1		07/03/23 15:20
1,2-Dichloropropane	0.0104	U	0.0209	0.0104	0.0104	mg/kg	1		07/03/23 15:20
1,3,5-Trimethylbenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,3-Dichlorobenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
1,3-Dichloropropane	0.0104	U	0.0209	0.00648	0.0104	mg/kg	1		07/03/23 15:20
1,4-Dichlorobenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
2,2-Dichloropropane	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
2-Butanone (MEK)	0.261	U	0.522	0.163	0.261	mg/kg	1		07/03/23 15:20
2-Chlorotoluene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
2-Hexanone	0.126	U	0.251	0.125	0.126	mg/kg	1		07/03/23 15:20
4-Chlorotoluene	0.0209	U	0.0418	0.0209	0.0209	mg/kg	1		07/03/23 15:20
4-Isopropyltoluene	0.0835	U	0.167	0.0836	0.0835	mg/kg	1		07/03/23 15:20
4-Methyl-2-pentanone (MIBK)	0.261	U	0.522	0.163	0.261	mg/kg	1		07/03/23 15:20
Acetone	0.261	U	0.522	0.230	0.261	mg/kg	1		07/03/23 15:20
Benzene	0.0443		0.0261	0.00815	0.0131	mg/kg	1		07/03/23 15:20
Bromobenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Bromochloromethane	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Bromodichloromethane	0.00209	U	0.00418	0.00130	0.00209	mg/kg	1		07/03/23 15:20
Bromoform	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Bromomethane	0.0209	U	0.0418	0.0167	0.0209	mg/kg	1		07/03/23 15:20
Carbon disulfide	0.105	U	0.209	0.0648	0.105	mg/kg	1		07/03/23 15:20
Carbon tetrachloride	0.0131	U	0.0261	0.00815	0.0131	mg/kg	1		07/03/23 15:20
Chlorobenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP08-9.5**

Client Sample ID: **23KKA.TP08-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990010
Lab Project ID: 1232990

Collection Date: 06/24/23 08:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.209	U	0.418	0.130	0.209	mg/kg	1		07/03/23 15:20
Chloroform	0.00625	U	0.0125	0.00627	0.00625	mg/kg	1		07/03/23 15:20
Chloromethane	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
cis-1,2-Dichloroethene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
cis-1,3-Dichloropropene	0.0131	U	0.0261	0.00815	0.0131	mg/kg	1		07/03/23 15:20
Dibromochloromethane	0.00520	U	0.0104	0.00313	0.00520	mg/kg	1		07/03/23 15:20
Dibromomethane	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Dichlorodifluoromethane	0.105	U	0.209	0.0627	0.105	mg/kg	1		07/03/23 15:20
Ethylbenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Freon-113	0.105	U	0.209	0.0648	0.105	mg/kg	1		07/03/23 15:20
Hexachlorobutadiene	0.0209	U	0.0418	0.0130	0.0209	mg/kg	1		07/03/23 15:20
Isopropylbenzene (Cumene)	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Methylene chloride	0.105	U	0.209	0.0648	0.105	mg/kg	1		07/03/23 15:20
Methyl-t-butyl ether	0.105	U	0.209	0.0648	0.105	mg/kg	1		07/03/23 15:20
Naphthalene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
n-Butylbenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
n-Propylbenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
o-Xylene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
P & M -Xylene	0.0520	U	0.104	0.0313	0.0520	mg/kg	1		07/03/23 15:20
sec-Butylbenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Styrene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
tert-Butylbenzene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
Tetrachloroethene	0.0131	U	0.0261	0.00815	0.0131	mg/kg	1		07/03/23 15:20
Toluene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
trans-1,2-Dichloroethene	0.0261	U	0.0522	0.0163	0.0261	mg/kg	1		07/03/23 15:20
trans-1,3-Dichloropropene	0.0131	U	0.0261	0.00815	0.0131	mg/kg	1		07/03/23 15:20
Trichloroethene	0.0104	U	0.0209	0.00668	0.0104	mg/kg	1		07/03/23 15:20
Trichlorofluoromethane	0.0520	U	0.104	0.0313	0.0520	mg/kg	1		07/03/23 15:20
Vinyl acetate	0.105	U	0.209	0.0648	0.105	mg/kg	1		07/03/23 15:20
Vinyl chloride	0.000835	U	0.00167	0.000522	0.000835	mg/kg	1		07/03/23 15:20
Xylenes (total)	0.0785	U	0.157	0.0476	0.0785	mg/kg	1		07/03/23 15:20
Surrogates									
1,2-Dichloroethane-D4 (surr)	103		71-136			%	1		07/03/23 15:20
4-Bromofluorobenzene (surr)	96.1		55-151			%	1		07/03/23 15:20
Toluene-d8 (surr)	100		85-116			%	1		07/03/23 15:20

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP08-9.5**

Client Sample ID: **23KKA.TP08-9.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990010
Lab Project ID: 1232990

Collection Date: 06/24/23 08:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22536
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 15:20
Container ID: 1232990010-B

Prep Batch: VXX40081
Prep Method: SW5035A
Prep Date/Time: 06/24/23 08:53
Prep Initial Wt./Vol.: 41.831 g
Prep Extract Vol: 34.1429 mL

Results of **23KKA.TP09-10.5**

Client Sample ID: **23KKA.TP09-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990011
Lab Project ID: 1232990

Collection Date: 06/24/23 10:03
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):69.6
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	14.2	U	28.3	12.7	14.2	mg/kg	1		07/20/23 15:42
Surrogates									
5a Androstane (surr)	83.5		50-150			%	1		07/20/23 15:42

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 15:42
Container ID: 1232990011-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.82 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	71.4	J	142	60.9	71.0	mg/kg	1		07/20/23 15:42
Surrogates									
n-Triacontane-d62 (surr)	80.8		50-150			%	1		07/20/23 15:42

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 15:42
Container ID: 1232990011-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.82 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP09-10.5**

Client Sample ID: **23KKA.TP09-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990011
Lab Project ID: 1232990

Collection Date: 06/24/23 10:03
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):69.6
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.44	J	5.94	1.78	2.97	mg/kg	1		06/30/23 02:59
Surrogates									
4-Bromofluorobenzene (surr)	116		50-150			%	1		06/30/23 02:59

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 02:59
Container ID: 1232990011-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/24/23 10:03
Prep Initial Wt./Vol.: 47.712 g
Prep Extract Vol: 39.4835 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP09-10.5**

Client Sample ID: **23KKA.TP09-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990011
Lab Project ID: 1232990

Collection Date: 06/24/23 10:03
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):69.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0238	U	0.0475	0.0147	0.0238	mg/kg	1		07/03/23 15:36
1,1,1-Trichloroethane	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,1,2,2-Tetrachloroethane	0.00237	U	0.00475	0.00147	0.00237	mg/kg	1		07/03/23 15:36
1,1,2-Trichloroethane	0.00119	U	0.00238	0.00119	0.00119	mg/kg	1		07/03/23 15:36
1,1-Dichloroethane	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,1-Dichloroethene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,1-Dichloropropene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,2,3-Trichlorobenzene	0.119	U	0.238	0.0713	0.119	mg/kg	1		07/03/23 15:36
1,2,3-Trichloropropane	0.00237	U	0.00475	0.00147	0.00237	mg/kg	1		07/03/23 15:36
1,2,4-Trichlorobenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,2,4-Trimethylbenzene	0.119	U	0.238	0.0713	0.119	mg/kg	1		07/03/23 15:36
1,2-Dibromo-3-chloropropane	0.119	U	0.238	0.0737	0.119	mg/kg	1		07/03/23 15:36
1,2-Dibromoethane	0.00178	U	0.00356	0.00178	0.00178	mg/kg	1		07/03/23 15:36
1,2-Dichlorobenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,2-Dichloroethane	0.00237	U	0.00475	0.00166	0.00237	mg/kg	1		07/03/23 15:36
1,2-Dichloropropane	0.0119	U	0.0238	0.0119	0.0119	mg/kg	1		07/03/23 15:36
1,3,5-Trimethylbenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,3-Dichlorobenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
1,3-Dichloropropane	0.0119	U	0.0238	0.00737	0.0119	mg/kg	1		07/03/23 15:36
1,4-Dichlorobenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
2,2-Dichloropropane	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
2-Butanone (MEK)	0.297	U	0.594	0.185	0.297	mg/kg	1		07/03/23 15:36
2-Chlorotoluene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
2-Hexanone	0.143	U	0.285	0.143	0.143	mg/kg	1		07/03/23 15:36
4-Chlorotoluene	0.0238	U	0.0475	0.0238	0.0238	mg/kg	1		07/03/23 15:36
4-Isopropyltoluene	0.0950	U	0.190	0.0951	0.0950	mg/kg	1		07/03/23 15:36
4-Methyl-2-pentanone (MIBK)	0.297	U	0.594	0.185	0.297	mg/kg	1		07/03/23 15:36
Acetone	0.297	U	0.594	0.261	0.297	mg/kg	1		07/03/23 15:36
Benzene	0.0149	U	0.0297	0.00927	0.0149	mg/kg	1		07/03/23 15:36
Bromobenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Bromochloromethane	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Bromodichloromethane	0.00237	U	0.00475	0.00147	0.00237	mg/kg	1		07/03/23 15:36
Bromoform	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Bromomethane	0.0238	U	0.0475	0.0190	0.0238	mg/kg	1		07/03/23 15:36
Carbon disulfide	0.119	U	0.238	0.0737	0.119	mg/kg	1		07/03/23 15:36
Carbon tetrachloride	0.0149	U	0.0297	0.00927	0.0149	mg/kg	1		07/03/23 15:36
Chlorobenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36

Results of **23KKA.TP09-10.5**

Client Sample ID: **23KKA.TP09-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990011
Lab Project ID: 1232990

Collection Date: 06/24/23 10:03
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):69.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.238	U	0.475	0.147	0.238	mg/kg	1		07/03/23 15:36
Chloroform	0.00715	U	0.0143	0.00713	0.00715	mg/kg	1		07/03/23 15:36
Chloromethane	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
cis-1,2-Dichloroethene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
cis-1,3-Dichloropropene	0.0149	U	0.0297	0.00927	0.0149	mg/kg	1		07/03/23 15:36
Dibromochloromethane	0.00595	U	0.0119	0.00356	0.00595	mg/kg	1		07/03/23 15:36
Dibromomethane	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Dichlorodifluoromethane	0.119	U	0.238	0.0713	0.119	mg/kg	1		07/03/23 15:36
Ethylbenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Freon-113	0.119	U	0.238	0.0737	0.119	mg/kg	1		07/03/23 15:36
Hexachlorobutadiene	0.0238	U	0.0475	0.0147	0.0238	mg/kg	1		07/03/23 15:36
Isopropylbenzene (Cumene)	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Methylene chloride	0.119	U	0.238	0.0737	0.119	mg/kg	1		07/03/23 15:36
Methyl-t-butyl ether	0.119	U	0.238	0.0737	0.119	mg/kg	1		07/03/23 15:36
Naphthalene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
n-Butylbenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
n-Propylbenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
o-Xylene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
P & M -Xylene	0.0595	U	0.119	0.0356	0.0595	mg/kg	1		07/03/23 15:36
sec-Butylbenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Styrene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
tert-Butylbenzene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
Tetrachloroethene	0.0149	U	0.0297	0.00927	0.0149	mg/kg	1		07/03/23 15:36
Toluene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
trans-1,2-Dichloroethene	0.0297	U	0.0594	0.0185	0.0297	mg/kg	1		07/03/23 15:36
trans-1,3-Dichloropropene	0.0149	U	0.0297	0.00927	0.0149	mg/kg	1		07/03/23 15:36
Trichloroethene	0.0119	U	0.0238	0.00760	0.0119	mg/kg	1		07/03/23 15:36
Trichlorofluoromethane	0.0595	U	0.119	0.0356	0.0595	mg/kg	1		07/03/23 15:36
Vinyl acetate	0.119	U	0.238	0.0737	0.119	mg/kg	1		07/03/23 15:36
Vinyl chloride	0.000950	U	0.00190	0.000594	0.000950	mg/kg	1		07/03/23 15:36
Xylenes (total)	0.0890	U	0.178	0.0542	0.0890	mg/kg	1		07/03/23 15:36
Surrogates									
1,2-Dichloroethane-D4 (surr)	98.7		71-136			%	1		07/03/23 15:36
4-Bromofluorobenzene (surr)	121		55-151			%	1		07/03/23 15:36
Toluene-d8 (surr)	100		85-116			%	1		07/03/23 15:36

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP09-10.5**

Client Sample ID: **23KKA.TP09-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990011
Lab Project ID: 1232990

Collection Date: 06/24/23 10:03
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):69.6
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22536
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 15:36
Container ID: 1232990011-B

Prep Batch: VXX40081
Prep Method: SW5035A
Prep Date/Time: 06/24/23 10:03
Prep Initial Wt./Vol.: 47.712 g
Prep Extract Vol: 39.4835 mL

Results of **23KKA.TP10-10**

Client Sample ID: **23KKA.TP10-10**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990012
Lab Project ID: 1232990

Collection Date: 06/24/23 11:01
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.5
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	17.1	J	25.1	11.3	12.6	mg/kg	1		07/20/23 11:49
Surrogates									
5a Androstane (surr)	89.5		50-150			%	1		07/20/23 11:49

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 11:49
Container ID: 1232990012-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.814 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	162		126	54.0	63.0	mg/kg	1		07/20/23 11:49
Surrogates									
n-Triacontane-d62 (surr)	87.2		50-150			%	1		07/20/23 11:49

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 11:49
Container ID: 1232990012-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.814 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP10-10**

Client Sample ID: **23KKA.TP10-10**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990012
Lab Project ID: 1232990

Collection Date: 06/24/23 11:01
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.5
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.08	J	4.83	1.45	2.42	mg/kg	1		06/30/23 03:17
Surrogates									
4-Bromofluorobenzene (surr)	97.4		50-150			%	1		06/30/23 03:17

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 03:17
Container ID: 1232990012-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/24/23 11:01
Prep Initial Wt./Vol.: 45.993 g
Prep Extract Vol: 34.8901 mL

Results of **23KKA.TP10-10**

Client Sample ID: **23KKA.TP10-10**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990012
Lab Project ID: 1232990

Collection Date: 06/24/23 11:01
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0194	U	0.0387	0.0120	0.0194	mg/kg	1		07/03/23 15:52
1,1,1-Trichloroethane	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,1,2,2-Tetrachloroethane	0.00194	U	0.00387	0.00120	0.00194	mg/kg	1		07/03/23 15:52
1,1,2-Trichloroethane	0.000965	U	0.00193	0.000966	0.000965	mg/kg	1		07/03/23 15:52
1,1-Dichloroethane	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,1-Dichloroethene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,1-Dichloropropene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,2,3-Trichlorobenzene	0.0965	U	0.193	0.0580	0.0965	mg/kg	1		07/03/23 15:52
1,2,3-Trichloropropane	0.00194	U	0.00387	0.00120	0.00194	mg/kg	1		07/03/23 15:52
1,2,4-Trichlorobenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,2,4-Trimethylbenzene	0.0965	U	0.193	0.0580	0.0965	mg/kg	1		07/03/23 15:52
1,2-Dibromo-3-chloropropane	0.0965	U	0.193	0.0599	0.0965	mg/kg	1		07/03/23 15:52
1,2-Dibromoethane	0.00145	U	0.00290	0.00145	0.00145	mg/kg	1		07/03/23 15:52
1,2-Dichlorobenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,2-Dichloroethane	0.00194	U	0.00387	0.00135	0.00194	mg/kg	1		07/03/23 15:52
1,2-Dichloropropane	0.00965	U	0.0193	0.00966	0.00965	mg/kg	1		07/03/23 15:52
1,3,5-Trimethylbenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,3-Dichlorobenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
1,3-Dichloropropane	0.00965	U	0.0193	0.00599	0.00965	mg/kg	1		07/03/23 15:52
1,4-Dichlorobenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
2,2-Dichloropropane	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
2-Butanone (MEK)	0.241	U	0.483	0.151	0.241	mg/kg	1		07/03/23 15:52
2-Chlorotoluene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
2-Hexanone	0.116	U	0.232	0.116	0.116	mg/kg	1		07/03/23 15:52
4-Chlorotoluene	0.0194	U	0.0387	0.0193	0.0194	mg/kg	1		07/03/23 15:52
4-Isopropyltoluene	0.0775	U	0.155	0.0773	0.0775	mg/kg	1		07/03/23 15:52
4-Methyl-2-pentanone (MIBK)	0.241	U	0.483	0.151	0.241	mg/kg	1		07/03/23 15:52
Acetone	0.254	J	0.483	0.213	0.241	mg/kg	1		07/03/23 15:52
Benzene	0.0121	U	0.0242	0.00754	0.0121	mg/kg	1		07/03/23 15:52
Bromobenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Bromochloromethane	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Bromodichloromethane	0.00194	U	0.00387	0.00120	0.00194	mg/kg	1		07/03/23 15:52
Bromoform	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Bromomethane	0.0194	U	0.0387	0.0155	0.0194	mg/kg	1		07/03/23 15:52
Carbon disulfide	0.0965	U	0.193	0.0599	0.0965	mg/kg	1		07/03/23 15:52
Carbon tetrachloride	0.0121	U	0.0242	0.00754	0.0121	mg/kg	1		07/03/23 15:52
Chlorobenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52

Results of **23KKA.TP10-10**

Client Sample ID: **23KKA.TP10-10**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990012
Lab Project ID: 1232990

Collection Date: 06/24/23 11:01
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.194	U	0.387	0.120	0.194	mg/kg	1		07/03/23 15:52
Chloroform	0.00580	U	0.0116	0.00580	0.00580	mg/kg	1		07/03/23 15:52
Chloromethane	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
cis-1,2-Dichloroethene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
cis-1,3-Dichloropropene	0.0121	U	0.0242	0.00754	0.0121	mg/kg	1		07/03/23 15:52
Dibromochloromethane	0.00483	U	0.00966	0.00290	0.00483	mg/kg	1		07/03/23 15:52
Dibromomethane	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Dichlorodifluoromethane	0.0965	U	0.193	0.0580	0.0965	mg/kg	1		07/03/23 15:52
Ethylbenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Freon-113	0.0965	U	0.193	0.0599	0.0965	mg/kg	1		07/03/23 15:52
Hexachlorobutadiene	0.0194	U	0.0387	0.0120	0.0194	mg/kg	1		07/03/23 15:52
Isopropylbenzene (Cumene)	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Methylene chloride	0.0965	U	0.193	0.0599	0.0965	mg/kg	1		07/03/23 15:52
Methyl-t-butyl ether	0.0965	U	0.193	0.0599	0.0965	mg/kg	1		07/03/23 15:52
Naphthalene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
n-Butylbenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
n-Propylbenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
o-Xylene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
P & M -Xylene	0.0483	U	0.0966	0.0290	0.0483	mg/kg	1		07/03/23 15:52
sec-Butylbenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Styrene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
tert-Butylbenzene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
Tetrachloroethene	0.0121	U	0.0242	0.00754	0.0121	mg/kg	1		07/03/23 15:52
Toluene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
trans-1,2-Dichloroethene	0.0241	U	0.0483	0.0151	0.0241	mg/kg	1		07/03/23 15:52
trans-1,3-Dichloropropene	0.0121	U	0.0242	0.00754	0.0121	mg/kg	1		07/03/23 15:52
Trichloroethene	0.00965	U	0.0193	0.00618	0.00965	mg/kg	1		07/03/23 15:52
Trichlorofluoromethane	0.0483	U	0.0966	0.0290	0.0483	mg/kg	1		07/03/23 15:52
Vinyl acetate	0.0965	U	0.193	0.0599	0.0965	mg/kg	1		07/03/23 15:52
Vinyl chloride	0.000775	U	0.00155	0.000483	0.000775	mg/kg	1		07/03/23 15:52
Xylenes (total)	0.0725	U	0.145	0.0441	0.0725	mg/kg	1		07/03/23 15:52
Surrogates									
1,2-Dichloroethane-D4 (surr)	102		71-136			%	1		07/03/23 15:52
4-Bromofluorobenzene (surr)	99.4		55-151			%	1		07/03/23 15:52
Toluene-d8 (surr)	99.1		85-116			%	1		07/03/23 15:52

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP10-10**

Client Sample ID: **23KKA.TP10-10**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990012
Lab Project ID: 1232990

Collection Date: 06/24/23 11:01
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):78.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22536
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 15:52
Container ID: 1232990012-B

Prep Batch: VXX40081
Prep Method: SW5035A
Prep Date/Time: 06/24/23 11:01
Prep Initial Wt./Vol.: 45.993 g
Prep Extract Vol: 34.8901 mL

Results of **23KKA.TP11-10.5**

Client Sample ID: **23KKA.TP11-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990013
Lab Project ID: 1232990

Collection Date: 06/24/23 11:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	12.1	J	26.3	11.8	13.2	mg/kg	1		07/20/23 11:59
Surrogates									
5a Androstane (surr)	73.7		50-150			%	1		07/20/23 11:59

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 11:59
Container ID: 1232990013-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.57 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	125	J	131	56.5	65.5	mg/kg	1		07/20/23 11:59
Surrogates									
n-Triacontane-d62 (surr)	60.3		50-150			%	1		07/20/23 11:59

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 11:59
Container ID: 1232990013-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.57 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP11-10.5**

Client Sample ID: **23KKA.TP11-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990013
Lab Project ID: 1232990

Collection Date: 06/24/23 11:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.49	J	5.34	1.60	2.67	mg/kg	1		06/30/23 03:36
Surrogates									
4-Bromofluorobenzene (surr)	103		50-150			%	1		06/30/23 03:36

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 03:36
Container ID: 1232990013-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/24/23 11:47
Prep Initial Wt./Vol.: 43.798 g
Prep Extract Vol: 35.5436 mL

Results of **23KKA.TP11-10.5**

Client Sample ID: **23KKA.TP11-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990013
Lab Project ID: 1232990

Collection Date: 06/24/23 11:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0214	U	0.0428	0.0133	0.0214	mg/kg	1		07/03/23 16:07
1,1,1-Trichloroethane	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,1,2,2-Tetrachloroethane	0.00214	U	0.00428	0.00133	0.00214	mg/kg	1		07/03/23 16:07
1,1,2-Trichloroethane	0.00107	U	0.00214	0.00107	0.00107	mg/kg	1		07/03/23 16:07
1,1-Dichloroethane	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,1-Dichloroethene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,1-Dichloropropene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,2,3-Trichlorobenzene	0.107	U	0.214	0.0641	0.107	mg/kg	1		07/03/23 16:07
1,2,3-Trichloropropane	0.00214	U	0.00428	0.00133	0.00214	mg/kg	1		07/03/23 16:07
1,2,4-Trichlorobenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,2,4-Trimethylbenzene	0.107	U	0.214	0.0641	0.107	mg/kg	1		07/03/23 16:07
1,2-Dibromo-3-chloropropane	0.107	U	0.214	0.0663	0.107	mg/kg	1		07/03/23 16:07
1,2-Dibromoethane	0.00161	U	0.00321	0.00160	0.00161	mg/kg	1		07/03/23 16:07
1,2-Dichlorobenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,2-Dichloroethane	0.00214	U	0.00428	0.00150	0.00214	mg/kg	1		07/03/23 16:07
1,2-Dichloropropane	0.0107	U	0.0214	0.0107	0.0107	mg/kg	1		07/03/23 16:07
1,3,5-Trimethylbenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,3-Dichlorobenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
1,3-Dichloropropane	0.0107	U	0.0214	0.00663	0.0107	mg/kg	1		07/03/23 16:07
1,4-Dichlorobenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
2,2-Dichloropropane	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
2-Butanone (MEK)	0.267	U	0.534	0.167	0.267	mg/kg	1		07/03/23 16:07
2-Chlorotoluene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
2-Hexanone	0.129	U	0.257	0.128	0.129	mg/kg	1		07/03/23 16:07
4-Chlorotoluene	0.0214	U	0.0428	0.0214	0.0214	mg/kg	1		07/03/23 16:07
4-Isopropyltoluene	0.0855	U	0.171	0.0855	0.0855	mg/kg	1		07/03/23 16:07
4-Methyl-2-pentanone (MIBK)	0.267	U	0.534	0.167	0.267	mg/kg	1		07/03/23 16:07
Acetone	0.267	U	0.534	0.235	0.267	mg/kg	1		07/03/23 16:07
Benzene	0.0134	U	0.0267	0.00834	0.0134	mg/kg	1		07/03/23 16:07
Bromobenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Bromochloromethane	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Bromodichloromethane	0.00214	U	0.00428	0.00133	0.00214	mg/kg	1		07/03/23 16:07
Bromoform	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Bromomethane	0.0214	U	0.0428	0.0171	0.0214	mg/kg	1		07/03/23 16:07
Carbon disulfide	0.107	U	0.214	0.0663	0.107	mg/kg	1		07/03/23 16:07
Carbon tetrachloride	0.0134	U	0.0267	0.00834	0.0134	mg/kg	1		07/03/23 16:07
Chlorobenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP11-10.5**

Client Sample ID: **23KKA.TP11-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990013
Lab Project ID: 1232990

Collection Date: 06/24/23 11:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.214	U	0.428	0.133	0.214	mg/kg	1		07/03/23 16:07
Chloroform	0.00640	U	0.0128	0.00641	0.00640	mg/kg	1		07/03/23 16:07
Chloromethane	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
cis-1,2-Dichloroethene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
cis-1,3-Dichloropropene	0.0134	U	0.0267	0.00834	0.0134	mg/kg	1		07/03/23 16:07
Dibromochloromethane	0.00535	U	0.0107	0.00321	0.00535	mg/kg	1		07/03/23 16:07
Dibromomethane	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Dichlorodifluoromethane	0.107	U	0.214	0.0641	0.107	mg/kg	1		07/03/23 16:07
Ethylbenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Freon-113	0.107	U	0.214	0.0663	0.107	mg/kg	1		07/03/23 16:07
Hexachlorobutadiene	0.0214	U	0.0428	0.0133	0.0214	mg/kg	1		07/03/23 16:07
Isopropylbenzene (Cumene)	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Methylene chloride	0.107	U	0.214	0.0663	0.107	mg/kg	1		07/03/23 16:07
Methyl-t-butyl ether	0.107	U	0.214	0.0663	0.107	mg/kg	1		07/03/23 16:07
Naphthalene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
n-Butylbenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
n-Propylbenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
o-Xylene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
P & M -Xylene	0.0535	U	0.107	0.0321	0.0535	mg/kg	1		07/03/23 16:07
sec-Butylbenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Styrene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
tert-Butylbenzene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
Tetrachloroethene	0.0134	U	0.0267	0.00834	0.0134	mg/kg	1		07/03/23 16:07
Toluene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
trans-1,2-Dichloroethene	0.0267	U	0.0534	0.0167	0.0267	mg/kg	1		07/03/23 16:07
trans-1,3-Dichloropropene	0.0134	U	0.0267	0.00834	0.0134	mg/kg	1		07/03/23 16:07
Trichloroethene	0.0107	U	0.0214	0.00684	0.0107	mg/kg	1		07/03/23 16:07
Trichlorofluoromethane	0.0535	U	0.107	0.0321	0.0535	mg/kg	1		07/03/23 16:07
Vinyl acetate	0.107	U	0.214	0.0663	0.107	mg/kg	1		07/03/23 16:07
Vinyl chloride	0.000855	U	0.00171	0.000534	0.000855	mg/kg	1		07/03/23 16:07
Xylenes (total)	0.0800	U	0.160	0.0487	0.0800	mg/kg	1		07/03/23 16:07
Surrogates									
1,2-Dichloroethane-D4 (surr)	102		71-136			%	1		07/03/23 16:07
4-Bromofluorobenzene (surr)	106		55-151			%	1		07/03/23 16:07
Toluene-d8 (surr)	101		85-116			%	1		07/03/23 16:07

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP11-10.5**

Client Sample ID: **23KKA.TP11-10.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990013
Lab Project ID: 1232990

Collection Date: 06/24/23 11:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22536
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 16:07
Container ID: 1232990013-B

Prep Batch: VXX40081
Prep Method: SW5035A
Prep Date/Time: 06/24/23 11:47
Prep Initial Wt./Vol.: 43.798 g
Prep Extract Vol: 35.5436 mL

Results of **23KKA.TP12-9**

Client Sample ID: **23KKA.TP12-9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990014
Lab Project ID: 1232990

Collection Date: 06/24/23 12:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	26.4		25.9	11.7	12.9	mg/kg	1		07/20/23 12:09
Surrogates									
5a Androstane (surr)	94.8		50-150			%	1		07/20/23 12:09

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 12:09
Container ID: 1232990014-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.743 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	256		130	55.8	65.0	mg/kg	1		07/20/23 12:09
Surrogates									
n-Triacontane-d62 (surr)	76.8		50-150			%	1		07/20/23 12:09

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 12:09
Container ID: 1232990014-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.743 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP12-9**

Client Sample ID: **23KKA.TP12-9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990014
Lab Project ID: 1232990

Collection Date: 06/24/23 12:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.28	J	5.02	1.51	2.51	mg/kg	1		06/30/23 05:08
Surrogates									
4-Bromofluorobenzene (surr)	100		50-150			%	1		06/30/23 05:08

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 05:08
Container ID: 1232990014-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/24/23 12:53
Prep Initial Wt./Vol.: 47.306 g
Prep Extract Vol: 36.2226 mL

Results of **23KKA.TP12-9**

Client Sample ID: **23KKA.TP12-9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990014
Lab Project ID: 1232990

Collection Date: 06/24/23 12:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0201	U	0.0402	0.0124	0.0201	mg/kg	1		07/03/23 16:23
1,1,1-Trichloroethane	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,1,2,2-Tetrachloroethane	0.00201	U	0.00402	0.00124	0.00201	mg/kg	1		07/03/23 16:23
1,1,2-Trichloroethane	0.00100	U	0.00201	0.00100	0.00100	mg/kg	1		07/03/23 16:23
1,1-Dichloroethane	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,1-Dichloroethene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,1-Dichloropropene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,2,3-Trichlorobenzene	0.101	U	0.201	0.0602	0.101	mg/kg	1		07/03/23 16:23
1,2,3-Trichloropropane	0.00201	U	0.00402	0.00124	0.00201	mg/kg	1		07/03/23 16:23
1,2,4-Trichlorobenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,2,4-Trimethylbenzene	0.101	U	0.201	0.0602	0.101	mg/kg	1		07/03/23 16:23
1,2-Dibromo-3-chloropropane	0.101	U	0.201	0.0622	0.101	mg/kg	1		07/03/23 16:23
1,2-Dibromoethane	0.00150	U	0.00301	0.00151	0.00150	mg/kg	1		07/03/23 16:23
1,2-Dichlorobenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,2-Dichloroethane	0.00201	U	0.00402	0.00141	0.00201	mg/kg	1		07/03/23 16:23
1,2-Dichloropropane	0.0101	U	0.0201	0.0100	0.0101	mg/kg	1		07/03/23 16:23
1,3,5-Trimethylbenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,3-Dichlorobenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
1,3-Dichloropropane	0.0101	U	0.0201	0.00622	0.0101	mg/kg	1		07/03/23 16:23
1,4-Dichlorobenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
2,2-Dichloropropane	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
2-Butanone (MEK)	0.251	U	0.502	0.157	0.251	mg/kg	1		07/03/23 16:23
2-Chlorotoluene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
2-Hexanone	0.121	U	0.241	0.120	0.121	mg/kg	1		07/03/23 16:23
4-Chlorotoluene	0.0201	U	0.0402	0.0201	0.0201	mg/kg	1		07/03/23 16:23
4-Isopropyltoluene	0.0805	U	0.161	0.0803	0.0805	mg/kg	1		07/03/23 16:23
4-Methyl-2-pentanone (MIBK)	0.251	U	0.502	0.157	0.251	mg/kg	1		07/03/23 16:23
Acetone	0.294	J	0.502	0.221	0.251	mg/kg	1		07/03/23 16:23
Benzene	0.00986	J	0.0251	0.00783	0.0126	mg/kg	1		07/03/23 16:23
Bromobenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Bromochloromethane	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Bromodichloromethane	0.00201	U	0.00402	0.00124	0.00201	mg/kg	1		07/03/23 16:23
Bromoform	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Bromomethane	0.0201	U	0.0402	0.0161	0.0201	mg/kg	1		07/03/23 16:23
Carbon disulfide	0.101	U	0.201	0.0622	0.101	mg/kg	1		07/03/23 16:23
Carbon tetrachloride	0.0126	U	0.0251	0.00783	0.0126	mg/kg	1		07/03/23 16:23
Chlorobenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP12-9**

Client Sample ID: **23KKA.TP12-9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990014
Lab Project ID: 1232990

Collection Date: 06/24/23 12:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.201	U	0.402	0.124	0.201	mg/kg	1		07/03/23 16:23
Chloroform	0.00600	U	0.0120	0.00602	0.00600	mg/kg	1		07/03/23 16:23
Chloromethane	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
cis-1,2-Dichloroethene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
cis-1,3-Dichloropropene	0.0126	U	0.0251	0.00783	0.0126	mg/kg	1		07/03/23 16:23
Dibromochloromethane	0.00500	U	0.0100	0.00301	0.00500	mg/kg	1		07/03/23 16:23
Dibromomethane	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Dichlorodifluoromethane	0.101	U	0.201	0.0602	0.101	mg/kg	1		07/03/23 16:23
Ethylbenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Freon-113	0.101	U	0.201	0.0622	0.101	mg/kg	1		07/03/23 16:23
Hexachlorobutadiene	0.0201	U	0.0402	0.0124	0.0201	mg/kg	1		07/03/23 16:23
Isopropylbenzene (Cumene)	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Methylene chloride	0.101	U	0.201	0.0622	0.101	mg/kg	1		07/03/23 16:23
Methyl-t-butyl ether	0.101	U	0.201	0.0622	0.101	mg/kg	1		07/03/23 16:23
Naphthalene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
n-Butylbenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
n-Propylbenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
o-Xylene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
P & M -Xylene	0.0500	U	0.100	0.0301	0.0500	mg/kg	1		07/03/23 16:23
sec-Butylbenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Styrene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
tert-Butylbenzene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
Tetrachloroethene	0.0126	U	0.0251	0.00783	0.0126	mg/kg	1		07/03/23 16:23
Toluene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
trans-1,2-Dichloroethene	0.0251	U	0.0502	0.0157	0.0251	mg/kg	1		07/03/23 16:23
trans-1,3-Dichloropropene	0.0126	U	0.0251	0.00783	0.0126	mg/kg	1		07/03/23 16:23
Trichloroethene	0.0101	U	0.0201	0.00642	0.0101	mg/kg	1		07/03/23 16:23
Trichlorofluoromethane	0.0500	U	0.100	0.0301	0.0500	mg/kg	1		07/03/23 16:23
Vinyl acetate	0.101	U	0.201	0.0622	0.101	mg/kg	1		07/03/23 16:23
Vinyl chloride	0.000805	U	0.00161	0.000502	0.000805	mg/kg	1		07/03/23 16:23
Xylenes (total)	0.0755	U	0.151	0.0458	0.0755	mg/kg	1		07/03/23 16:23
Surrogates									
1,2-Dichloroethane-D4 (surr)	101		71-136			%	1		07/03/23 16:23
4-Bromofluorobenzene (surr)	97.3		55-151			%	1		07/03/23 16:23
Toluene-d8 (surr)	99.7		85-116			%	1		07/03/23 16:23

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP12-9**

Client Sample ID: **23KKA.TP12-9**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990014
Lab Project ID: 1232990

Collection Date: 06/24/23 12:53
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):76.3
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22536
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 16:23
Container ID: 1232990014-B

Prep Batch: VXX40081
Prep Method: SW5035A
Prep Date/Time: 06/24/23 12:53
Prep Initial Wt./Vol.: 47.306 g
Prep Extract Vol: 36.2226 mL

Results of **23KKA.TP13-4.5**

Client Sample ID: **23KKA.TP13-4.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990015
Lab Project ID: 1232990

Collection Date: 06/24/23 13:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):63.4
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	96.1		31.4	14.1	15.7	mg/kg	1		07/20/23 12:22
Surrogates									
5a Androstane (surr)	98.2		50-150			%	1		07/20/23 12:22

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 12:22
Container ID: 1232990015-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.589 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	1360		157	67.6	78.5	mg/kg	1		07/20/23 12:22
Surrogates									
n-Triacontane-d62 (surr)	69.3		50-150			%	1		07/20/23 12:22

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 12:22
Container ID: 1232990015-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.589 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP13-4.5**

Client Sample ID: **23KKA.TP13-4.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990015
Lab Project ID: 1232990

Collection Date: 06/24/23 13:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):63.4
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	4.70	J	7.21	2.16	3.61	mg/kg	1		06/30/23 05:27
Surrogates									
4-Bromofluorobenzene (surr)	99.8		50-150			%	1		06/30/23 05:27

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 05:27
Container ID: 1232990015-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/24/23 13:47
Prep Initial Wt./Vol.: 45.63 g
Prep Extract Vol: 41.7048 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP13-4.5**

Client Sample ID: **23KKA.TP13-4.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990015
Lab Project ID: 1232990

Collection Date: 06/24/23 13:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):63.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0289	U	0.0577	0.0179	0.0289	mg/kg	1		07/05/23 14:02
1,1,1-Trichloroethane	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,1,2,2-Tetrachloroethane	0.00289	U	0.00577	0.00179	0.00289	mg/kg	1		07/05/23 14:02
1,1,2-Trichloroethane	0.00144	U	0.00288	0.00144	0.00144	mg/kg	1		07/05/23 14:02
1,1-Dichloroethane	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,1-Dichloroethene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,1-Dichloropropene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,2,3-Trichlorobenzene	0.144	U	0.288	0.0865	0.144	mg/kg	1		07/05/23 14:02
1,2,3-Trichloropropane	0.00289	U	0.00577	0.00179	0.00289	mg/kg	1		07/05/23 14:02
1,2,4-Trichlorobenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,2,4-Trimethylbenzene	0.144	U	0.288	0.0865	0.144	mg/kg	1		07/05/23 14:02
1,2-Dibromo-3-chloropropane	0.144	U	0.288	0.0894	0.144	mg/kg	1		07/05/23 14:02
1,2-Dibromoethane	0.00217	U	0.00433	0.00216	0.00217	mg/kg	1		07/05/23 14:02
1,2-Dichlorobenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,2-Dichloroethane	0.00289	U	0.00577	0.00202	0.00289	mg/kg	1		07/05/23 14:02
1,2-Dichloropropane	0.0144	U	0.0288	0.0144	0.0144	mg/kg	1		07/05/23 14:02
1,3,5-Trimethylbenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,3-Dichlorobenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
1,3-Dichloropropane	0.0144	U	0.0288	0.00894	0.0144	mg/kg	1		07/05/23 14:02
1,4-Dichlorobenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
2,2-Dichloropropane	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
2-Butanone (MEK)	0.360	U	0.721	0.225	0.360	mg/kg	1		07/05/23 14:02
2-Chlorotoluene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
2-Hexanone	0.173	U	0.346	0.173	0.173	mg/kg	1		07/05/23 14:02
4-Chlorotoluene	0.0289	U	0.0577	0.0288	0.0289	mg/kg	1		07/05/23 14:02
4-Isopropyltoluene	0.116	U	0.231	0.115	0.116	mg/kg	1		07/05/23 14:02
4-Methyl-2-pentanone (MIBK)	0.360	U	0.721	0.225	0.360	mg/kg	1		07/05/23 14:02
Acetone	0.410	J	0.721	0.317	0.360	mg/kg	1		07/05/23 14:02
Benzene	0.0237	J	0.0360	0.0112	0.0180	mg/kg	1		07/05/23 14:02
Bromobenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Bromochloromethane	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Bromodichloromethane	0.00289	U	0.00577	0.00179	0.00289	mg/kg	1		07/05/23 14:02
Bromoform	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Bromomethane	0.0289	U	0.0577	0.0231	0.0289	mg/kg	1		07/05/23 14:02
Carbon disulfide	0.144	U	0.288	0.0894	0.144	mg/kg	1		07/05/23 14:02
Carbon tetrachloride	0.0180	U	0.0360	0.0112	0.0180	mg/kg	1		07/05/23 14:02
Chlorobenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02

Results of **23KKA.TP13-4.5**

Client Sample ID: **23KKA.TP13-4.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990015
Lab Project ID: 1232990

Collection Date: 06/24/23 13:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):63.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.288	U	0.577	0.179	0.288	mg/kg	1		07/05/23 14:02
Chloroform	0.00865	U	0.0173	0.00865	0.00865	mg/kg	1		07/05/23 14:02
Chloromethane	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
cis-1,2-Dichloroethene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
cis-1,3-Dichloropropene	0.0180	U	0.0360	0.0112	0.0180	mg/kg	1		07/05/23 14:02
Dibromochloromethane	0.00720	U	0.0144	0.00433	0.00720	mg/kg	1		07/05/23 14:02
Dibromomethane	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Dichlorodifluoromethane	0.144	U	0.288	0.0865	0.144	mg/kg	1		07/05/23 14:02
Ethylbenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Freon-113	0.144	U	0.288	0.0894	0.144	mg/kg	1		07/05/23 14:02
Hexachlorobutadiene	0.0289	U	0.0577	0.0179	0.0289	mg/kg	1		07/05/23 14:02
Isopropylbenzene (Cumene)	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Methylene chloride	0.144	U	0.288	0.0894	0.144	mg/kg	1		07/05/23 14:02
Methyl-t-butyl ether	0.144	U	0.288	0.0894	0.144	mg/kg	1		07/05/23 14:02
Naphthalene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
n-Butylbenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
n-Propylbenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
o-Xylene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
P & M -Xylene	0.0720	U	0.144	0.0433	0.0720	mg/kg	1		07/05/23 14:02
sec-Butylbenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Styrene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
tert-Butylbenzene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
Tetrachloroethene	0.0180	U	0.0360	0.0112	0.0180	mg/kg	1		07/05/23 14:02
Toluene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
trans-1,2-Dichloroethene	0.0360	U	0.0721	0.0225	0.0360	mg/kg	1		07/05/23 14:02
trans-1,3-Dichloropropene	0.0180	U	0.0360	0.0112	0.0180	mg/kg	1		07/05/23 14:02
Trichloroethene	0.0144	U	0.0288	0.00923	0.0144	mg/kg	1		07/05/23 14:02
Trichlorofluoromethane	0.0720	U	0.144	0.0433	0.0720	mg/kg	1		07/05/23 14:02
Vinyl acetate	0.144	U	0.288	0.0894	0.144	mg/kg	1		07/05/23 14:02
Vinyl chloride	0.00116	U	0.00231	0.000721	0.00116	mg/kg	1		07/05/23 14:02
Xylenes (total)	0.108	U	0.216	0.0657	0.108	mg/kg	1		07/05/23 14:02
Surrogates									
1,2-Dichloroethane-D4 (surr)	111		71-136			%	1		07/05/23 14:02
4-Bromofluorobenzene (surr)	88.4		55-151			%	1		07/05/23 14:02
Toluene-d8 (surr)	97.3		85-116			%	1		07/05/23 14:02

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP13-4.5**

Client Sample ID: **23KKA.TP13-4.5**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990015
Lab Project ID: 1232990

Collection Date: 06/24/23 13:47
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):63.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22541
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/05/23 14:02
Container ID: 1232990015-B

Prep Batch: VXX40091
Prep Method: SW5035A
Prep Date/Time: 06/24/23 13:47
Prep Initial Wt./Vol.: 45.63 g
Prep Extract Vol: 41.7048 mL

Results of **23KKA.TP03.13**

Client Sample ID: **23KKA.TP03.13**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990016
Lab Project ID: 1232990

Collection Date: 06/22/23 19:52
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Semivolatile Organic Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Diesel Range Organics	29.8		26.1	11.7	13.1	mg/kg	1		07/20/23 12:32
Surrogates									
5a Androstane (surr)	91.3		50-150			%	1		07/20/23 12:32

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK102
Analyst: T.L
Analytical Date/Time: 07/20/23 12:32
Container ID: 1232990016-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.738 g
Prep Extract Vol: 5 mL

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Residual Range Organics	403		130	56.1	65.0	mg/kg	1		07/20/23 12:32
Surrogates									
n-Triacontane-d62 (surr)	73.8		50-150			%	1		07/20/23 12:32

Batch Information

Analytical Batch: XFC16567
Analytical Method: AK103
Analyst: T.L
Analytical Date/Time: 07/20/23 12:32
Container ID: 1232990016-A

Prep Batch: XXX48130
Prep Method: SW3550C
Prep Date/Time: 07/05/23 08:58
Prep Initial Wt./Vol.: 22.738 g
Prep Extract Vol: 5 mL

Results of **23KKA.TP03.13**

Client Sample ID: **23KKA.TP03.13**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990016
Lab Project ID: 1232990

Collection Date: 06/22/23 19:52
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile Fuels**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Gasoline Range Organics	3.27	J	5.12	1.54	2.56	mg/kg	1		06/30/23 05:45
Surrogates									
4-Bromofluorobenzene (surr)	102		50-150			%	1		06/30/23 05:45

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Analyst: JY
Analytical Date/Time: 06/30/23 05:45
Container ID: 1232990016-B

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 06/22/23 19:52
Prep Initial Wt./Vol.: 46.688 g
Prep Extract Vol: 36.2615 mL

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP03.13**

Client Sample ID: **23KKA.TP03.13**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990016
Lab Project ID: 1232990

Collection Date: 06/22/23 19:52
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0204	U	0.0409	0.0127	0.0204	mg/kg	1		07/03/23 16:39
1,1,1-Trichloroethane	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,1,2,2-Tetrachloroethane	0.00204	U	0.00409	0.00127	0.00204	mg/kg	1		07/03/23 16:39
1,1,2-Trichloroethane	0.00102	U	0.00205	0.00102	0.00102	mg/kg	1		07/03/23 16:39
1,1-Dichloroethane	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,1-Dichloroethene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,1-Dichloropropene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,2,3-Trichlorobenzene	0.103	U	0.205	0.0614	0.103	mg/kg	1		07/03/23 16:39
1,2,3-Trichloropropane	0.00204	U	0.00409	0.00127	0.00204	mg/kg	1		07/03/23 16:39
1,2,4-Trichlorobenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,2,4-Trimethylbenzene	0.103	U	0.205	0.0614	0.103	mg/kg	1		07/03/23 16:39
1,2-Dibromo-3-chloropropane	0.103	U	0.205	0.0635	0.103	mg/kg	1		07/03/23 16:39
1,2-Dibromoethane	0.00153	U	0.00307	0.00154	0.00153	mg/kg	1		07/03/23 16:39
1,2-Dichlorobenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,2-Dichloroethane	0.00204	U	0.00409	0.00143	0.00204	mg/kg	1		07/03/23 16:39
1,2-Dichloropropane	0.0103	U	0.0205	0.0102	0.0103	mg/kg	1		07/03/23 16:39
1,3,5-Trimethylbenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,3-Dichlorobenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
1,3-Dichloropropane	0.0103	U	0.0205	0.00635	0.0103	mg/kg	1		07/03/23 16:39
1,4-Dichlorobenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
2,2-Dichloropropane	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
2-Butanone (MEK)	0.256	U	0.512	0.160	0.256	mg/kg	1		07/03/23 16:39
2-Chlorotoluene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
2-Hexanone	0.123	U	0.246	0.123	0.123	mg/kg	1		07/03/23 16:39
4-Chlorotoluene	0.0204	U	0.0409	0.0205	0.0204	mg/kg	1		07/03/23 16:39
4-Isopropyltoluene	0.0820	U	0.164	0.0819	0.0820	mg/kg	1		07/03/23 16:39
4-Methyl-2-pentanone (MIBK)	0.256	U	0.512	0.160	0.256	mg/kg	1		07/03/23 16:39
Acetone	0.301	J	0.512	0.225	0.256	mg/kg	1		07/03/23 16:39
Benzene	0.0354		0.0256	0.00798	0.0128	mg/kg	1		07/03/23 16:39
Bromobenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Bromochloromethane	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Bromodichloromethane	0.00204	U	0.00409	0.00127	0.00204	mg/kg	1		07/03/23 16:39
Bromoform	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Bromomethane	0.0204	U	0.0409	0.0164	0.0204	mg/kg	1		07/03/23 16:39
Carbon disulfide	0.103	U	0.205	0.0635	0.103	mg/kg	1		07/03/23 16:39
Carbon tetrachloride	0.0128	U	0.0256	0.00798	0.0128	mg/kg	1		07/03/23 16:39
Chlorobenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP03.13**

Client Sample ID: **23KKA.TP03.13**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990016
Lab Project ID: 1232990

Collection Date: 06/22/23 19:52
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	LOD	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.205	U	0.409	0.127	0.205	mg/kg	1		07/03/23 16:39
Chloroform	0.00615	U	0.0123	0.00614	0.00615	mg/kg	1		07/03/23 16:39
Chloromethane	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
cis-1,2-Dichloroethene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
cis-1,3-Dichloropropene	0.0128	U	0.0256	0.00798	0.0128	mg/kg	1		07/03/23 16:39
Dibromochloromethane	0.00510	U	0.0102	0.00307	0.00510	mg/kg	1		07/03/23 16:39
Dibromomethane	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Dichlorodifluoromethane	0.103	U	0.205	0.0614	0.103	mg/kg	1		07/03/23 16:39
Ethylbenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Freon-113	0.103	U	0.205	0.0635	0.103	mg/kg	1		07/03/23 16:39
Hexachlorobutadiene	0.0204	U	0.0409	0.0127	0.0204	mg/kg	1		07/03/23 16:39
Isopropylbenzene (Cumene)	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Methylene chloride	0.103	U	0.205	0.0635	0.103	mg/kg	1		07/03/23 16:39
Methyl-t-butyl ether	0.103	U	0.205	0.0635	0.103	mg/kg	1		07/03/23 16:39
Naphthalene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
n-Butylbenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
n-Propylbenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
o-Xylene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
P & M -Xylene	0.0510	U	0.102	0.0307	0.0510	mg/kg	1		07/03/23 16:39
sec-Butylbenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Styrene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
tert-Butylbenzene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
Tetrachloroethene	0.0128	U	0.0256	0.00798	0.0128	mg/kg	1		07/03/23 16:39
Toluene	0.0195	J	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
trans-1,2-Dichloroethene	0.0256	U	0.0512	0.0160	0.0256	mg/kg	1		07/03/23 16:39
trans-1,3-Dichloropropene	0.0128	U	0.0256	0.00798	0.0128	mg/kg	1		07/03/23 16:39
Trichloroethene	0.0103	U	0.0205	0.00655	0.0103	mg/kg	1		07/03/23 16:39
Trichlorofluoromethane	0.0510	U	0.102	0.0307	0.0510	mg/kg	1		07/03/23 16:39
Vinyl acetate	0.103	U	0.205	0.0635	0.103	mg/kg	1		07/03/23 16:39
Vinyl chloride	0.000820	U	0.00164	0.000512	0.000820	mg/kg	1		07/03/23 16:39
Xylenes (total)	0.0770	U	0.154	0.0467	0.0770	mg/kg	1		07/03/23 16:39
Surrogates									
1,2-Dichloroethane-D4 (surr)	102		71-136			%	1		07/03/23 16:39
4-Bromofluorobenzene (surr)	100		55-151			%	1		07/03/23 16:39
Toluene-d8 (surr)	99.4		85-116			%	1		07/03/23 16:39

Print Date: 07/31/2023 7:49:13PM

J flagging is activated

Results of **23KKA.TP03.13**

Client Sample ID: **23KKA.TP03.13**
Client Project ID: **Kawerak/Koyok**
Lab Sample ID: 1232990016
Lab Project ID: 1232990

Collection Date: 06/22/23 19:52
Received Date: 06/27/23 11:52
Matrix: Soil/Solid (dry weight)
Solids (%):75.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS22536
Analytical Method: SW8260D
Analyst: S.S
Analytical Date/Time: 07/03/23 16:39
Container ID: 1232990016-B

Prep Batch: VXX40081
Prep Method: SW5035A
Prep Date/Time: 06/22/23 19:52
Prep Initial Wt./Vol.: 46.688 g
Prep Extract Vol: 36.2615 mL

Method Blank

Blank ID: MB for HBN 1857798 [SPT/11820]
Blank Lab ID: 1719579

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990001, 1232990003, 1232990004, 1232990005, 1232990006

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	LOD	Units
Total Solids	99.7				%

Batch Information

Analytical Batch: SPT11820
Analytical Method: SM21 2540G
Instrument:
Analyst: APS
Analytical Date/Time: 6/27/2023 6:53:00PM

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Duplicate Sample Summary

Original Sample ID: 1232969002
Duplicate Sample ID: 1719581
Analysis Date: 06/27/2023 18:53
Matrix: Soil/Solid (dry weight)

QC for Samples:

1232990001, 1232990003, 1232990004, 1232990005, 1232990006

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	55.2	58.4	%	5.70	(< 15)

Batch Information

Analytical Batch: SPT11820
Analytical Method: SM21 2540G
Instrument:
Analyst: APS

Print Date: 07/31/2023 7:49:20PM

Method Blank

Blank ID: MB for HBN 1857898 [SPT/118210
Blank] aL ID: 171b897

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232bb, , 1461232bb, , 1561232bb, , 19

Results Ly **SM21 2540G**

Parameter	Results	] OQ/C]	D]	] OD	Units
Total Solids	1, ,				%

Batch Information

. nalytiAal BatAh: SPT11821
. nalytiAal Method: SM21 254, c
Instrument:
. nalyst: GTC
. nalytiAal Date/Time: 9/28/2, 23 b:53:, , PM

Duplicate Sample Summary

Original Sample ID: 123299600u
Dcplit a7e Sample ID: 1519868

Analysis Da7e: 06/28/2023 21:M3
x a7io: Sdil/Sdli(w(ry h eig) 7R

Cf R?r Samples:

123299001u4123299001M41232990016

b escl7s Q\y **SM21 2540G**

EAx U	Original	Dcplit a7e	L ni7s	b %D wN R	b %D f ,
Td7al Sdli(s	68.0	68.1	N	0.10	w< 1MR

Batch Information

Analy7it al Ba7t) : S%T11821
Analy7it al x e7) d(: Sx 21 2Mu0G
Ins7rcmen7:
Analys7: WTf

%rin7Da7e: 05/31/2023 5:u9:28%x

Method Blank

Blank ID: MB for HBN 185789[SPT/ 211800]
Blank Lab ID: 171[871

Ma6ti : Potl2Poltx dkr(y etwg6h

QC for Pamples:
1030[[, , , 741030[[, , , 841030[[, , , [41030[[, , 1, 41030[[, , 1141030[[, , 1041030[[, , 13

) esR16s b(SM21 2540G

Tarame6er	) esR16s	LUQ2CL	DL	LUD	unt6s
/ o6al Poltxs	1, ,				O

Batch Information

%nal(6. al Ba6 g: PT/ 11800
%nal(6. al Me6gox: PM01 05A, c
Ins6rRmen6
%nal(s6 G/ C
%nal(6. al Da6e2/ tme: 92082 0, 03 [:, 5:, , %M

Trtn6Da6e: , 72312 0, 03 7:A[:30TM

Duplicate Sample Summary

Original Sample ID: 1232996616
D0pliuace Sample ID: 1t 197t 2

5nal8AiA Dace: 6ys27s2623 69:6/
Macrix: SoilsSolid (dr8 weighc)

QC for SampleA:

123299666t , 1232996667, 1232996669, 1232996616, 1232996611, 1232996612, 1232996613

ReA0lcAb8 **SM21 2540G**

N5ME	Original	D0pliuace	UnicA	RPD (%)	RPD CL
. ocal SolidA	t 74l	t 74l	%	64l1	(T 1/)

Batch Information

5nal8diual <acuh: SP. 11722
5nal8diual Mechod: SM21 2/ B6G
InAcr0menc
5nal8Ac: W C

PrincDace: 6t s31s2623 t :B9:33PM

Method Blank

Blank ID: MB for HBN 1857998 [VXX/40061]
Blank Lab ID: 1720286

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990001, 1232990002, 1232990003, 1232990004, 1232990005, 1232990006, 1232990007, 1232990009, 1232990010, 1232990011, 1232990012, 1232990013, 1232990014, 1232990015, 1232990016

Results by **AK101**

Parameter	Results	LOQ/CL	DL	LOD	Units
Gasoline Range Organics	2.15J	2.50	0.750	1.25	mg/kg
Surrogates					
4-Bromofluorobenzene (surr)	82.7	50-150		0	%

Batch Information

Analytical Batch: VFC16515
Analytical Method: AK101
Instrument: Agilent 7890 PID/FID
Analyst: JY
Analytical Date/Time: 6/29/2023 2:09:00PM

Prep Batch: VXX40061
Prep Method: SW5035A
Prep Date/Time: 6/29/2023 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 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 1232990 [VXX40061]
Blank Spike Lab ID: 1720287
Date Analyzed: 06/29/2023 13:32

Spike Duplicate ID: LCSD for HBN 1232990 [VXX40061]
Spike Duplicate Lab ID: 1720288
Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004, 1232990005, 1232990006, 1232990007, 1232990009, 1232990010, 1232990011, 1232990012, 1232990013, 1232990014, 1232990015, 1232990016

Results by **AK101**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Gasoline Range Organics	12.5	14.8	119	12.5	14.4	115	(60-120)	3.10	(< 20)
Surrogates									
4-Bromofluorobenzene (surr)	1.25		89	1.25		85	(50-150)	3.90	

Batch Information

Analytical Batch: **VFC16515**
Analytical Method: **AK101**
Instrument: **Agilent 7890 PID/FID**
Analyst: **JY**

Prep Batch: **VXX40061**
Prep Method: **SW5035A**
Prep Date/Time: **06/29/2023 06:00**
Spike Init Wt./Vol.: 1.25 mg/kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: 1.25 mg/kg Extract Vol: 25 mL

SGS North America Inc.
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 1858179 [VXX/40066]
Blank Lab ID: 1290474

Ma,rti : Sotl/Soltx dkr(y etwg,h

QC for Samples:
1979330008

) esRl,s b(**AK101**

Oarame,er	) esRl,s	LUQ/CL	DL	LUD	u nt,s
Pasoltne) anwe UrwantGs	1c01.	9c50	0c250	1c95	mw/kw
Surrogates					
4JBromofIRoroben- ene dsRrrh	33c5	50J150		0	z

Batch Information

%nal(,tGal Ba,Gg: VAC16516
%nal(,tGal Me,gox: %F101
Ins,rRmen,: %wtlen, 2830% OID/AID
%nal(s,: . K
%nal(,tGal Da,e/Ytme: 6/70/9097 1:08:00OM

Orep Ba,Gg: VXX40066
Orep Me,gox: ST 5075%
Orep Da,e/Ytme: 6/70/9097 6:00:00%M
Orep Int,tal T ,d Volc 50 w
Orep W ,raG Vol: 95 mL

Ortn, Da,e: 02/71/9097 2:43:44OM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40066]
Blank Spike Lab ID: 1720438
Date Analyzed: 06/30/2023 12:32

Spike Duplicate ID: LCSD for HBN 1232990 [VXX40066]
Spike Duplicate Lab ID: 1720436
Matrix: Soil/Solid (dry weight)

QC for Samples: 123299000,

Results by **AK101**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
5 asoline Range Grganics	120	140	113	120	140	112	(60.120)	0.74	(- 20)
Surrogates									
4.Bromofluorobenzene (surr)	1.28		101	1.28		100	(80.180)	1.0	

Batch Information

Analytical Batch: **VFC16516**
Analytical Method: **AK101**
Instrument: **Agilent 7890A PID/FID**
Analyst: **JY**

Prep Batch: **VXX40066**
Prep Method: **SW5035A**
Prep Date/<ime: **06/30/2023 06:00**
Spike Init T t.Vol. 1.28 mg/kg Wktract Vol: 28 mL
Dupe Init T t.Vol. 1.28 mg/kg Wktract Vol: 28 mL

Print Date: 07/31/2023 7:49:47PM

Method Blank

Blank ID: MB for HBN 1858173 [VXX/40077]
Blank Lab ID: 1720587

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	0.0100	mg/kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	0.00100	mg/kg
1,1,2-Trichloroethane	0.000500U	0.00100	0.000500	0.000500	mg/kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,2,3-Trichlorobenzene	0.0500U	0.100	0.0300	0.0500	mg/kg
1,2,3-Trichloropropane	0.00100U	0.00200	0.000620	0.00100	mg/kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,2,4-Trimethylbenzene	0.0500U	0.100	0.0300	0.0500	mg/kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	0.0500	mg/kg
1,2-Dibromoethane	0.000750U	0.00150	0.000750	0.000750	mg/kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,2-Dichloroethane	0.00100U	0.00200	0.000700	0.00100	mg/kg
1,2-Dichloropropane	0.00500U	0.0100	0.00500	0.00500	mg/kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	0.00500	mg/kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	0.0125	mg/kg
2-Butanone (MEK)	0.125U	0.250	0.0780	0.125	mg/kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	0.0125	mg/kg
2-Hexanone	0.0600U	0.120	0.0600	0.0600	mg/kg
4-Chlorotoluene	0.0100U	0.0200	0.0100	0.0100	mg/kg
4-Isopropyltoluene	0.0400U	0.0800	0.0400	0.0400	mg/kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	0.125	mg/kg
Acetone	0.125U	0.250	0.110	0.125	mg/kg
Benzene	0.00625U	0.0125	0.00390	0.00625	mg/kg
Bromobenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
Bromochloromethane	0.0125U	0.0250	0.00780	0.0125	mg/kg
Bromodichloromethane	0.00100U	0.00200	0.000620	0.00100	mg/kg
Bromoform	0.0125U	0.0250	0.00780	0.0125	mg/kg
Bromomethane	0.0100U	0.0200	0.00800	0.0100	mg/kg
Carbon disulfide	0.0500U	0.100	0.0310	0.0500	mg/kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	0.00625	mg/kg
Chlorobenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
Chloroethane	0.100U	0.200	0.0620	0.100	mg/kg
Chloroform	0.00300U	0.00600	0.00300	0.00300	mg/kg
Chloromethane	0.0125U	0.0250	0.00780	0.0125	mg/kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	0.0125	mg/kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	0.00625	mg/kg

Method Blank

Blank ID: MB for HBN 1858173 [VXX/40077]
Blank Lab ID: 1720587

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

Parameter	Results	LOQ/CL	DL	LOD	Units
Dibromochloromethane	0.00250U	0.00500	0.00150	0.00250	mg/kg
Dibromomethane	0.0125U	0.0250	0.00780	0.0125	mg/kg
Dichlorodifluoromethane	0.0500U	0.100	0.0300	0.0500	mg/kg
Ethylbenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
Freon-113	0.0500U	0.100	0.0310	0.0500	mg/kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	0.0100	mg/kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	0.0125	mg/kg
Methylene chloride	0.0500U	0.100	0.0310	0.0500	mg/kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	0.0500	mg/kg
Naphthalene	0.0125U	0.0250	0.00780	0.0125	mg/kg
n-Butylbenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
n-Propylbenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
o-Xylene	0.0125U	0.0250	0.00780	0.0125	mg/kg
P & M -Xylene	0.0250U	0.0500	0.0150	0.0250	mg/kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
Styrene	0.0125U	0.0250	0.00780	0.0125	mg/kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	0.0125	mg/kg
Tetrachloroethene	0.00625U	0.0125	0.00390	0.00625	mg/kg
Toluene	0.0125U	0.0250	0.00780	0.0125	mg/kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	0.0125	mg/kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	0.00625	mg/kg
Trichloroethene	0.00500U	0.0100	0.00320	0.00500	mg/kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	0.0250	mg/kg
Vinyl acetate	0.0500U	0.100	0.0310	0.0500	mg/kg
Vinyl chloride	0.000400U	0.000800	0.000250	0.000400	mg/kg
Xylenes (total)	0.0375U	0.0750	0.0228	0.0375	mg/kg
Surrogates					
1,2-Dichloroethane-D4 (surr)	102	71-136		0	%
4-Bromofluorobenzene (surr)	106	55-151		0	%
Toluene-d8 (surr)	101	85-116		0	%

Batch Information

Analytical Batch: VMS22532
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/2/2023 3:31:00PM

Prep Batch: VXX40077
Prep Method: SW5035A
Prep Date/Time: 7/2/2023 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 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 1232990 [VXX40077]
Blank Spike Lab ID: 1720588
Date Analyzed: 07/02/2023 15:46

Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.807	108	(78-125)
1,1,1-Trichloroethane	0.750	0.792	106	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.771	103	(70-124)
1,1,2-Trichloroethane	0.750	0.770	103	(78-121)
1,1-Dichloroethane	0.750	0.739	99	(76-125)
1,1-Dichloroethene	0.750	0.788	105	(70-131)
1,1-Dichloropropene	0.750	0.763	102	(76-125)
1,2,3-Trichlorobenzene	0.750	0.756	101	(66-130)
1,2,3-Trichloropropane	0.750	0.734	98	(73-125)
1,2,4-Trichlorobenzene	0.750	0.770	103	(67-129)
1,2,4-Trimethylbenzene	0.750	0.748	100	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.762	102	(61-132)
1,2-Dibromoethane	0.750	0.806	107	(78-122)
1,2-Dichlorobenzene	0.750	0.723	97	(78-121)
1,2-Dichloroethane	0.750	0.724	97	(73-128)
1,2-Dichloropropane	0.750	0.763	102	(76-123)
1,3,5-Trimethylbenzene	0.750	0.739	99	(73-124)
1,3-Dichlorobenzene	0.750	0.728	97	(77-121)
1,3-Dichloropropane	0.750	0.750	100	(77-121)
1,4-Dichlorobenzene	0.750	0.725	97	(75-120)
2,2-Dichloropropane	0.750	0.869	116	(67-133)
2-Butanone (MEK)	2.25	2.49	111	(51-148)
2-Chlorotoluene	0.750	0.725	97	(75-122)
2-Hexanone	2.25	2.49	110	(53-145)
4-Chlorotoluene	0.750	0.726	97	(72-124)
4-Isopropyltoluene	0.750	0.757	101	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.40	107	(65-135)
Acetone	2.25	2.15	96	(36-164)
Benzene	0.750	0.738	98	(77-121)
Bromobenzene	0.750	0.744	99	(78-121)
Bromochloromethane	0.750	0.723	96	(78-125)
Bromodichloromethane	0.750	0.841	112	(75-127)
Bromoform	0.750	0.787	105	(67-132)
Bromomethane	0.750	0.726	97	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40077]
Blank Spike Lab ID: 1720588
Date Analyzed: 07/02/2023 15:46

Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1.13	1.17	104	(63-132)
Carbon tetrachloride	0.750	0.747	100	(70-135)
Chlorobenzene	0.750	0.745	99	(79-120)
Chloroethane	0.750	0.735	98	(59-139)
Chloroform	0.750	0.731	97	(78-123)
Chloromethane	0.750	0.697	93	(50-136)
cis-1,2-Dichloroethene	0.750	0.731	97	(77-123)
cis-1,3-Dichloropropene	0.750	0.780	104	(74-126)
Dibromochloromethane	0.750	0.768	102	(74-126)
Dibromomethane	0.750	0.771	103	(78-125)
Dichlorodifluoromethane	0.750	0.713	95	(29-149)
Ethylbenzene	0.750	0.744	99	(76-122)
Freon-113	1.13	1.12	100	(66-136)
Hexachlorobutadiene	0.750	0.768	102	(61-135)
Isopropylbenzene (Cumene)	0.750	0.742	99	(68-134)
Methylene chloride	0.750	0.720	96	(70-128)
Methyl-t-butyl ether	1.13	1.13	100	(73-125)
Naphthalene	0.750	0.763	102	(62-129)
n-Butylbenzene	0.750	0.750	100	(70-128)
n-Propylbenzene	0.750	0.752	100	(73-125)
o-Xylene	0.750	0.742	99	(77-123)
P & M -Xylene	1.50	1.47	98	(77-124)
sec-Butylbenzene	0.750	0.742	99	(73-126)
Styrene	0.750	0.771	103	(76-124)
tert-Butylbenzene	0.750	0.739	99	(73-125)
Tetrachloroethene	0.750	0.770	103	(73-128)
Toluene	0.750	0.712	95	(77-121)
trans-1,2-Dichloroethene	0.750	0.721	96	(74-125)
trans-1,3-Dichloropropene	0.750	0.782	104	(71-130)
Trichloroethene	0.750	0.756	101	(77-123)
Trichlorofluoromethane	0.750	0.781	104	(62-140)
Vinyl acetate	0.750	0.828	110	(50-151)
Vinyl chloride	0.750	0.775	103	(56-135)
Xylenes (total)	2.25	2.21	98	(78-124)

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 1232990 [VXX40077]
Blank Spike Lab ID: 1720588
Date Analyzed: 07/02/2023 15:46

Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		99	(71-136)
4-Bromofluorobenzene (surr)	0.750		105	(55-151)
Toluene-d8 (surr)	0.750		100	(85-116)

Batch Information

Analytical Batch: **VMS22532**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX40077**
Prep Method: **SW5035A**
Prep Date/Time: **07/02/2023 06:00**
Spike Init Wt./Vol.: 0.750 mg/kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1720589
MS Sample ID: 1720590 MS
MSD Sample ID: 1720591 MSD

Analysis Date: 07/02/2023 19:21
Analysis Date: 07/02/2023 17:14
Analysis Date: 07/02/2023 17:30
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0152U	1.14	1.25	110	1.14	1.26	111	78-125	0.88	(< 20)
1,1,1-Trichloroethane	0.0190U	1.14	1.27	112	1.14	1.28	113	73-130	0.74	(< 20)
1,1,2,2-Tetrachloroethane	0.00152U	1.14	1.22	107	1.14	1.25	110	70-124	2.10	(< 20)
1,1,2-Trichloroethane	0.000760U	1.14	1.17	103	1.14	1.19	104	78-121	1.50	(< 20)
1,1-Dichloroethane	0.0190U	1.14	1.17	103	1.14	1.15	101	76-125	2.00	(< 20)
1,1-Dichloroethene	0.0190U	1.14	1.28	112	1.14	1.27	112	70-131	0.35	(< 20)
1,1-Dichloropropene	0.0190U	1.14	1.23	108	1.14	1.24	109	76-125	0.87	(< 20)
1,2,3-Trichlorobenzene	0.0760U	1.14	1.20	106	1.14	1.39	122	66-130	14.50	(< 20)
1,2,3-Trichloropropane	0.00152U	1.14	1.15	101	1.14	1.17	103	73-125	1.90	(< 20)
1,2,4-Trichlorobenzene	0.0190U	1.14	1.23	108	1.14	1.31	116	67-129	6.80	(< 20)
1,2,4-Trimethylbenzene	0.0760U	1.14	1.19	104	1.14	1.20	106	75-123	1.20	(< 20)
1,2-Dibromo-3-chloropropane	0.0760U	1.14	1.20	106	1.14	1.23	109	61-132	2.90	(< 20)
1,2-Dibromoethane	0.00113U	1.14	1.23	108	1.14	1.25	110	78-122	1.60	(< 20)
1,2-Dichlorobenzene	0.0190U	1.14	1.16	102	1.14	1.19	104	78-121	2.70	(< 20)
1,2-Dichloroethane	0.00152U	1.14	1.12	98	1.14	1.13	99	73-128	0.89	(< 20)
1,2-Dichloropropane	0.00760U	1.14	1.19	105	1.14	1.20	105	76-123	0.52	(< 20)
1,3,5-Trimethylbenzene	0.0190U	1.14	1.21	107	1.14	1.20	106	73-124	0.89	(< 20)
1,3-Dichlorobenzene	0.0190U	1.14	1.15	101	1.14	1.18	104	77-121	2.30	(< 20)
1,3-Dichloropropane	0.00760U	1.14	1.15	101	1.14	1.17	103	77-121	1.50	(< 20)
1,4-Dichlorobenzene	0.0190U	1.14	1.16	102	1.14	1.18	103	75-120	1.60	(< 20)
2,2-Dichloropropane	0.0190U	1.14	1.40	123	1.14	1.41	124	67-133	0.98	(< 20)
2-Butanone (MEK)	0.190U	3.41	3.74	110	3.41	3.69	108	51-148	1.30	(< 20)
2-Chlorotoluene	0.0190U	1.14	1.19	105	1.14	1.21	106	75-122	1.40	(< 20)
2-Hexanone	0.0910U	3.41	3.79	111	3.41	3.81	112	53-145	0.37	(< 20)
4-Chlorotoluene	0.0152U	1.14	1.19	105	1.14	1.20	106	72-124	1.00	(< 20)
4-Isopropyltoluene	0.0605U	1.14	1.23	108	1.14	1.26	110	73-127	1.80	(< 20)
4-Methyl-2-pentanone (MIBK)	0.190U	3.41	3.63	106	3.41	3.70	109	65-135	1.90	(< 20)
Acetone	0.190U	3.41	3.31	97	3.41	3.19	94	36-164	3.80	(< 20)
Benzene	0.00950U	1.14	1.17	103	1.14	1.17	103	77-121	0.18	(< 20)
Bromobenzene	0.0190U	1.14	1.18	104	1.14	1.21	107	78-121	2.80	(< 20)
Bromochloromethane	0.0190U	1.14	1.12	99	1.14	1.17	103	78-125	3.90	(< 20)
Bromodichloromethane	0.00152U	1.14	1.32	116	1.14	1.34	117	75-127	1.40	(< 20)
Bromoform	0.0190U	1.14	1.19	104	1.14	1.22	107	67-132	2.60	(< 20)
Bromomethane	0.0152U	1.14	1.17	103	1.14	1.17	103	53-143	0.31	(< 20)
Carbon disulfide	0.0760U	1.71	1.90	111	1.71	1.95	114	63-132	2.50	(< 20)
Carbon tetrachloride	0.00950U	1.14	1.20	105	1.14	1.23	108	70-135	2.80	(< 20)
Chlorobenzene	0.0190U	1.14	1.17	103	1.14	1.17	103	79-120	0.31	(< 20)

Print Date: 07/31/2023 7:49:54PM

Matrix Spike Summary

Original Sample ID: 1720589
MS Sample ID: 1720590 MS
MSD Sample ID: 1720591 MSD

Analysis Date: 07/02/2023 19:21
Analysis Date: 07/02/2023 17:14
Analysis Date: 07/02/2023 17:30
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)						
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)		CL	RPD (%)	RPD CL
Chloroethane	0.152U	1.14	1.13	100	1.14	1.19	104		59-139	4.60	(< 20)
Chloroform	0.00455U	1.14	1.15	101	1.14	1.16	102		78-123	0.68	(< 20)
Chloromethane	0.0190U	1.14	1.12	99	1.14	1.04	92		50-136	7.70	(< 20)
cis-1,2-Dichloroethene	0.0190U	1.14	1.16	102	1.14	1.16	102		77-123	0.24	(< 20)
cis-1,3-Dichloropropene	0.00950U	1.14	1.22	107	1.14	1.23	108		74-126	0.90	(< 20)
Dibromochloromethane	0.00379U	1.14	1.18	104	1.14	1.21	106		74-126	2.00	(< 20)
Dibromomethane	0.0190U	1.14	1.18	104	1.14	1.20	106		78-125	1.60	(< 20)
Dichlorodifluoromethane	0.0760U	1.14	1.09	96	1.14	1.07	95		29-149	1.30	(< 20)
Ethylbenzene	0.0190U	1.14	1.17	103	1.14	1.17	103		76-122	0.00	(< 20)
Freon-113	0.0760U	1.71	1.82	106	1.71	1.82	106		66-136	0.01	(< 20)
Hexachlorobutadiene	0.0152U	1.14	1.53	135	1.14	1.64	144	*	61-135	6.80	(< 20)
Isopropylbenzene (Cumene)	0.0190U	1.14	1.18	104	1.14	1.19	105		68-134	0.70	(< 20)
Methylene chloride	0.0731J	1.14	1.20	99	1.14	1.21	100		70-128	0.96	(< 20)
Methyl-t-butyl ether	0.0760U	1.71	1.66	97	1.71	1.70	100		73-125	2.30	(< 20)
Naphthalene	0.0190U	1.14	1.23	108	1.14	1.31	115		62-129	6.70	(< 20)
n-Butylbenzene	0.0190U	1.14	1.29	113	1.14	1.28	112		70-128	0.74	(< 20)
n-Propylbenzene	0.0190U	1.14	1.23	108	1.14	1.24	109		73-125	1.10	(< 20)
o-Xylene	0.0190U	1.14	1.17	103	1.14	1.15	102		77-123	0.95	(< 20)
P & M -Xylene	0.0379U	2.27	2.32	102	2.27	2.32	102		77-124	0.15	(< 20)
sec-Butylbenzene	0.0190U	1.14	1.23	108	1.14	1.24	109		73-126	0.73	(< 20)
Styrene	0.0190U	1.14	1.19	104	1.14	1.21	106		76-124	1.80	(< 20)
tert-Butylbenzene	0.0190U	1.14	1.21	107	1.14	1.23	108		73-125	1.50	(< 20)
Tetrachloroethene	0.00950U	1.14	1.23	109	1.14	1.23	108		73-128	0.26	(< 20)
Toluene	0.0190U	1.14	1.13	100	1.14	1.13	99		77-121	0.08	(< 20)
trans-1,2-Dichloroethene	0.0190U	1.14	1.14	100	1.14	1.17	103		74-125	2.70	(< 20)
trans-1,3-Dichloropropene	0.00950U	1.14	1.21	106	1.14	1.23	108		71-130	1.50	(< 20)
Trichloroethene	0.00760U	1.14	1.21	106	1.14	1.22	107		77-123	0.69	(< 20)
Trichlorofluoromethane	0.0379U	1.14	1.20	106	1.14	2.52	221	*	62-140	70.80	* (< 20)
Vinyl acetate	0.0760U	1.14	1.27	112	1.14	1.27	112		50-151	0.14	(< 20)
Vinyl chloride	0.000605U	1.14	1.13	99	1.14	1.15	101		56-135	1.70	(< 20)
Xylenes (total)	0.0570U	3.41	3.48	102	3.41	3.47	102		78-124	0.42	(< 20)
Surrogates											
1,2-Dichloroethane-D4 (surr)		1.14	1.12	99	1.14	1.12	99		71-136	0.30	
4-Bromofluorobenzene (surr)		1.61	1.23	76	1.61	1.27	79		55-151	3.00	
Toluene-d8 (surr)		1.14	1.14	100	1.14	1.14	101		85-116	0.18	

Print Date: 07/31/2023 7:49:54PM

Matrix Spike Summary

Original Sample ID: 1720589
MS Sample ID: 1720590 MS
MSD Sample ID: 1720591 MSD

Analysis Date:
Analysis Date: 07/02/2023 17:14
Analysis Date: 07/02/2023 17:30
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1232990001, 1232990002, 1232990003, 1232990004

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS22532
Analytical Method: SW8260D
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: S.S
Analytical Date/Time: 7/2/2023 5:14:00PM

Prep Batch: VXX40077
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/2/2023 6:00:00AM
Prep Initial Wt./Vol.: 232.20g
Prep Extract Vol: 176.07mL

Print Date: 07/31/2023 7:49:54PM

Method Blank

Blank ID: MB for HBN 185873[VX/ / 4300] Lb
Blank 2aQID: 1] 70] 5[

Mairxd: moxl4molx(y(rwg sxh) iR

CS for map els9:
17[7LL0005, 17[7LL000t , 17[7LL000] , 17[7LL0008, 17[7LL000L

us9Uli9 Qw **SW8260D**

- arap sisr	us9Uli9	2PC4S2	D2	2PD	Onxi9
1,1,1,7Tcsira.) lorosi) ans	0601000	060700	0600t 70	060100	p h4kh
1,1,1Tcrx) lorosi) ans	060175O	060750	0600] 80	060175	p h4kh
1,1,7,7Tcsira.) lorosi) ans	0600100O	0600700	0600t 70	0600100	p h4kh
1,1,7Tcrx) lorosi) ans	0600500O	0600100	0600500	0600500	p h4kh
1,1TDx) lorosi) ans	060175O	060750	0600] 80	060175	p h4kh
1,1TDx) lorosi) sns	060175O	060750	0600] 80	060175	p h4kh
1,1TDx) loroeroesns	060175O	060750	0600] 80	060175	p h4kh
1,7,[Tcrx) loroQsnzsns	060500O	06100	060[00	060500	p h4kh
1,7,[Tcrx) loroeroeans	0600100O	0600700	0600t 70	0600100	p h4kh
1,7,3Tcrx) loroQsnzsns	060175O	060750	0600] 80	060175	p h4kh
1,7,3Tcrxp si) wlQsnzsns	060500O	06100	060[00	060500	p h4kh
1,7TDxQrop oT[T.) loroeroeans	060500O	06100	060[10	060500	p h4kh
1,7TDxQrop osi) ans	0600] 50O	0600150	0600] 50	0600] 50	p h4kh
1,7TDx) loroQsnzsns	060175O	060750	0600] 80	060175	p h4kh
1,7TDx) lorosi) ans	0600100O	0600700	0600] 00	0600100	p h4kh
1,7TDx) loroeroeans	0600500O	060100	0600500	0600500	p h4kh
1,[,5Tcrxp si) wlQsnzsns	060175O	060750	0600] 80	060175	p h4kh
1,[TDx) loroQsnzsns	060175O	060750	0600] 80	060175	p h4kh
1,[TDx) loroeroeans	0600500O	060100	0600[10	0600500	p h4kh
1,3TDx) loroQsnzsns	060175O	060750	0600] 80	060175	p h4kh
7,7TDx) loroeroeans	060175O	060750	0600] 80	060175	p h4kh
7TBUianons yMEKR	06175O	06750	060] 80	06175	p h4kh
7TS) loroiolUsns	060175O	060750	0600] 80	060175	p h4kh
7THsdanons	060t 00O	06170	060t 00	060t 00	p h4kh
3TS) loroiolUsns	060100O	060700	060100	060100	p h4kh
3Tl9oeroewliolUsns	060300O	060800	060300	060300	p h4kh
3TMsi) wlT7Tesnianons yMIBKR	06175O	06750	060] 80	06175	p h4kh
A. sions	06175O	06750	06110	06175	p h4kh
Bsnzsns	0600t 75O	060175	0600[L0	0600t 75	p h4kh
Brop oQsnzsns	060175O	060750	0600] 80	060175	p h4kh
Brop o.) lorop si) ans	060175O	060750	0600] 80	060175	p h4kh
Brop o(x) lorop si) ans	0600100O	0600700	0600t 70	0600100	p h4kh
Brop oforp	060175O	060750	0600] 80	060175	p h4kh
Brop op si) ans	0601100O	060700	0600800	060100	p h4kh
SarQon (x9Ulfx(s	060500O	06100	060[10	060500	p h4kh
SarQon isira.) lorx(s	0600t 75O	060175	0600[L0	0600t 75	p h4kh
S) loroQsnzsns	060175O	060750	0600] 80	060175	p h4kh
S) lorosi) ans	06100O	06700	060t 70	06100	p h4kh
S) loroforp	0600[00O	0600t 00	0600[00	0600[00	p h4kh
S) lorop si) ans	060175O	060750	0600] 80	060175	p h4kh
. x9T1,7TDx) lorosi) sns	060175O	060750	0600] 80	060175	p h4kh
. x9T1,[TDx) loroeroesns	0600t 75O	060175	0600[L0	0600t 75	p h4kh

SGS

Method Blank

Blank ID: MB for HBN 185873[VX/ / 4300] Lb
Blank 2aQID: 1] 70] 5[

Mairxd: moxl4molx(y(rwg sxh) iR

CS for map els9:
17[7LL0005, 17[7LL000t , 17[7LL000] , 17[7LL0008, 17[7LL000L

us9Uli9 QwSW8260D

- arap sisr	us9Uli9	2PC4S2	D2	2PD	Onxi9
DxQrop o.) lorop si) ans	0600750O	0600500	0600150	0600750	p h4kh
DxQrop op si) ans	060175O	060750	0600] 80	060175	p h4kh
Dx) loro(xflUbrop si) ans	060500O	06100	060[00	060500	p h4kh
Ei) wQsnzsns	060175O	060750	0600] 80	060175	p h4kh
FrsonT11[	060500O	06100	060[10	060500	p h4kh
Hsda.) loroQUia(xsns	060100O	060700	0600t 70	060100	p h4kh
I9oeroewQsnzsns ySUp snsR	060175O	060750	0600] 80	060175	p h4kh
Msi) wlsns .) lorx(s	060500O	06100	060[10	060500	p h4kh
Msi) wTiTQUiwl si) sr	060500O	06100	060[10	060500	p h4kh
Nae) i) alsns	060175O	060750	0600] 80	060175	p h4kh
nTBUiwQsnzsns	060175O	060750	0600] 80	060175	p h4kh
nT- roewQsnzsns	060175O	060750	0600] 80	060175	p h4kh
oT wlsns	060175O	060750	0600] 80	060175	p h4kh
- & M T wlsns	060750O	060500	060150	060750	p h4kh
9s. TBUiwQsnzsns	060175O	060750	0600] 80	060175	p h4kh
miwrsns	060175O	060750	0600] 80	060175	p h4kh
isriTBUiwQsnzsns	060175O	060750	0600] 80	060175	p h4kh
csira.) lorosi) sns	0600t 75O	060175	0600[L0	0600t 75	p h4kh
colUsns	060175O	060750	0600] 80	060175	p h4kh
iran9T1,7TDx) lorosi) sns	060175O	060750	0600] 80	060175	p h4kh
iran9T1,[TDx) loroeroesns	0600t 75O	060175	0600[L0	0600t 75	p h4kh
crx) lorosi) sns	0600500O	060100	0600[70	0600500	p h4kh
crx) loroflUbrop si) ans	060750O	060500	060150	060750	p h4kh
Xxnwl a. siais	060500O	06100	060[10	060500	p h4kh
Xxnwl .) lorx(s	0600300O	0600800	0600750	0600300	p h4kh
/ wlsns9 yioialR	060[ ] 5O	060] 50	060778	060[ ] 5	p h4kh
Surrogates					
1,7TDx) lorosi) ansTD3 y9UrrR	110	] 1T1[t		0	%
3TBrop oflUbroQsnzsns y9UrrR	103	55T151		0	%
colUsnsT(8 y9UrrR	L] 6t	85T11t		0	%

Batch Information

Analwix al Bai.) : XMm775[[
Analwix al Msi) o(: mW87t 0D
In9irUp sni: XCA] 8L045L] 5 GS4Mm
Analw9i: m6m
Analwix al Dais4cxp s:] 4{ 4707[11:57:00AM

- rse Bai.) : X/ / 300] L
- rse Msi) o(: mW50[5A
- rse Dais4cxp s:] 4{ 4707[t :00:00AM
- rse Inxixal Wi6XolG 50 h
- rse Edira. i Xol: 75 p 2

- rxni Dais: 0] 4{ 14707[ ] :3L:5t - M

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40079]
Blank Spike Lab ID: 1720754
Da8e t nalAyez: 07d03d2023 12:0/

u a8iM Soild Soliz xzrA (eiwg8n

%C for SaP pleR 1232990005Q123299000, Q1232990007Q123299000/ Q1232990009

6 eRsl8RbA **SW8260D**

Blank Spike xP wdkwh

) araP e8er	Spike	6 eRsl8	6 emxc h	CL
1Q1Q2Q2-Te8amgloroe8gane	0.750	0.749	100	x7/ -125 h
1Q1Q1-Tringloroe8gane	0.750	0./ , /	11,	x73-130 h
1Q1Q2Q2-Te8amgloroe8gane	0.750	0.773	103	x70-124 h
1Q1Q2-Tringloroe8gane	0.750	0.7/ ,	105	x7/ -121 h
1Q1-Dingloroe8gane	0.750	0.771	103	x7, -125 h
1Q1-Dingloroe8gene	0.750	0.7/ 7	105	x70-131 h
1Q3-Dingloropropene	0.750	0./ 01	107	x7, -125 h
1Q2Q3-Tringlorobenyene	0.750	0., 31	/ 4	x, , -130 h
1Q2Q3-Tringloropropane	0.750	0.759	101	x73-125 h
1Q2Q4-Tringlorobenyene	0.750	0., , 9	/ 9	x, 7-129 h
1Q2Q4-TriP e8gAlbenyene	0.750	0.753	100	x75-123 h
1Q2-DibroP o-3-ngloropropane	0.750	0.7, 2	102	x, 1-132 h
1Q2-DibroP oe8gane	0.750	0./ 14	10/	x7/ -122 h
1Q2-Dinglorobenyene	0.750	0.717	9,	x7/ -121 h
1Q2-Dingloroe8gane	0.750	0.7, /	102	x73-12/ h
1Q2-Dingloropropane	0.750	0.779	104	x7, -123 h
1Q3Q5-TriP e8gAlbenyene	0.750	0.751	100	x73-124 h
1Q3-Dinglorobenyene	0.750	0.737	9/	x77-121 h
1Q3-Dingloropropane	0.750	0.742	99	x77-121 h
1Q4-Dinglorobenyene	0.750	0.735	9/	x75-120 h
2Q2-Dingloropropane	0.750	0./ 74	117	x, 7-133 h
2-Bs8anone xu EKh	2.25	2.20	9/	x51-14/ h
2-Cgloro8lsene	0.750	0.744	99	x75-122 h
2-HeManone	2.25	2.24	100	x53-145 h
4-Cgloro8lsene	0.750	0.734	9/	x72-124 h
4-IRopropAl8lsene	0.750	0.7, 5	102	x73-127 h
4-u e8gAl-2-pen8anone xu IBKh	2.25	2.30	102	x, 5-135 h
t me8ne	2.25	1.95	/ 7	x3, -1, 4 h
Benyene	0.750	0.757	101	x77-121 h
BroP obenyene	0.750	0.7, 9	102	x7/ -121 h
BroP omgloroP e8gane	0.750	0.797	10,	x7/ -125 h
BroP ozingloroP e8gane	0.750	0.915	122	x75-127 h
BroP oforP	0.750	0.7/ 0	104	x, 7-132 h
BroP oP e8gane	0.750	0.797	10,	x53-143 h

) rin8Da8e: 07d81d2023 7:49:5/) u

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40079]
Blank Spike Lab ID: 1720754
Da8e t nalAyez: 07d03d2023 12:0/

u a8iM Soild Soliz xzrA (eiwg8n

%C for SaP pleR 1232990005Q123299000, Q1232990007Q123299000/ Q1232990009

6 eRsl8RbA **SW8260D**

Blank Spike xP wdkwh

) araP e8er	Spike	6 eRsl8	6 emxc h	CL
Carbon ziRslfize	1.13	1.29	115	x, 3-132 h
Carbon 8e8amglorize	0.750	0./ 53	114	x70-135 h
Cglorobenyene	0.750	0.737	9/	x79-120 h
Cgloroe8gane	0.750	0.7/ 2	104	x59-139 h
CgloroforP	0.750	0./ 0/	10/	x7/ -123 h
CgloroP e8gane	0.750	0.729	97	x50-13, h
miR-1Q2-Dimgloroe8gene	0.750	0.77,	103	x77-123 h
miR-1Q3-Dimgloropropene	0.750	0./ 01	107	x74-12, h
DibroP omgloroP e8gane	0.750	0.7/ 1	104	x74-12, h
DibroP oP e8gane	0.750	0./ 09	10/	x7/ -125 h
Dimglorozifl soroP e8gane	0.750	0.77/	104	x29-149 h
E8gAlbenyene	0.750	0.729	97	x7, -122 h
Freon-113	1.13	1.17	104	x, , -13, h
HeMamglorobs8aziene	0.750	0.75,	101	x, 1-135 h
IRopropAlbenyene xCsP eneh	0.750	0.739	99	x, / -134 h
u e8gAlene mglorize	0.750	0.7, ,	102	x70-12/ h
u e8gAl-8bs8Al e8ger	1.13	1.11	99	x73-125 h
Napg8galene	0.750	0., 49	/ 7	x, 2-129 h
n-Bs8Albenyene	0.750	0.779	104	x70-12/ h
n-) ropAlbenyene	0.750	0.751	100	x73-125 h
o-XAlene	0.750	0.725	97	x77-123 h
) & u -XAlene	1.50	1.45	9,	x77-124 h
RemBs8Albenyene	0.750	0.747	100	x73-12, h
S8Arene	0.750	0.751	100	x7, -124 h
8er8Bs8Albenyene	0.750	0.753	100	x73-125 h
Te8amgloroe8gene	0.750	0.742	99	x73-12/ h
Tolsene	0.750	0., 95	93	x77-121 h
8anR-1Q2-Dimgloroe8gene	0.750	0.794	10,	x74-125 h
8anR-1Q3-Dimgloropropene	0.750	0.755	101	x71-130 h
Trimgloroe8gene	0.750	0./ 07	10/	x77-123 h
TrimgloroflsoroP e8gane	0.750	1.04	139	x, 2-140 h
VinAl ame8a8e	0.750	0./ 52	114	x50-151 h
VinAl mglorize	0.750	0.7, 0	101	x5, -135 h
XAleneRxb8alh	2.25	2.17	97	x7/ -124 h

) rin8Da8e: 07d81d2023 7:49:5/) u

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40079]
Blank Spike Lab ID: 1720754
Da8e t nalAyez: 07d03d2023 12:0/

u a8iM SoildSoliz xzrA(eiwg8n

%C for SaP pleR 1232990005Q123299000, Q1232990007Q123299000/ Q1232990009

6eRsl8RbA SW8260D

Blank Spike xPwdkwh

) araPe8er	Spike	6eRsl8	6emxc h	CL
Surrogates				
1Q2-Dimgloroe8gane-D4 xRsrrh	0.750		103	x71-13, h
4-BroPofIsorobenyene xRsrrh	0.750		105	x55-151 h
Tolsene-z/ xRsrrh	0.750		97	x/ 5-11, h

Batch Information

t nalA8mal Ba8mg: **VMS22533**
t nalA8mal u e8goz: **SW8260D**
InR8sPen8 **VQA 7890/5975 GC/MS**
t nalAR8 **S.S**

) rep Ba8mg: **VXX40079**
) rep u e8goz: **SW5035A**
) rep Da8edTiPe: **07/03/2023 06:00**
Spike Ini8W8dVol.: 0.750 Pwdkw EM8am8Vol: 25 PL
Dspe Ini8W8dVol.: EM8am8Vol:

) rin8Da8e: 07d81d2023 7:49:5/) u

Matrix Spike Summary

Original Sample ID: 1720755
MS Sample ID: 1720756 MS
MSD Sample ID: 1720757 MSD

Analysis Date: 07/03/2023 15:09
Analysis Date: 07/03/2023 13:29
Analysis Date: 07/03/2023 13:46
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1232990005, 1232990006, 1232990007, 1232990008, 1232990009

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.00845U	0.633	0.659	104	0.633	0.662	105	78-125	0.54	(< 20)
1,1,1-Trichloroethane	0.0106U	0.633	0.731	115	0.633	0.726	115	73-130	0.67	(< 20)
1,1,2,2-Tetrachloroethane	0.000845U	0.633	0.662	104	0.633	0.662	104	70-124	0.03	(< 20)
1,1,2-Trichloroethane	0.000422U	0.633	0.692	109	0.633	0.697	110	78-121	0.70	(< 20)
1,1-Dichloroethane	0.0106U	0.633	0.639	101	0.633	0.634	100	76-125	0.79	(< 20)
1,1-Dichloroethene	0.0106U	0.633	0.667	105	0.633	0.667	105	70-131	0.00	(< 20)
1,1-Dichloropropene	0.0106U	0.633	0.682	108	0.633	0.672	106	76-125	1.50	(< 20)
1,2,3-Trichlorobenzene	0.0422U	0.633	0.554	88	0.633	0.559	88	66-130	0.84	(< 20)
1,2,3-Trichloropropane	0.000845U	0.633	0.632	100	0.633	0.631	100	73-125	0.23	(< 20)
1,2,4-Trichlorobenzene	0.0106U	0.633	0.576	91	0.633	0.578	91	67-129	0.33	(< 20)
1,2,4-Trimethylbenzene	0.0422U	0.633	0.632	100	0.633	0.620	98	75-123	1.90	(< 20)
1,2-Dibromo-3-chloropropane	0.0422U	0.633	0.657	104	0.633	0.647	102	61-132	1.40	(< 20)
1,2-Dibromoethane	0.000635U	0.633	0.724	114	0.633	0.728	115	78-122	0.53	(< 20)
1,2-Dichlorobenzene	0.0106U	0.633	0.609	96	0.633	0.595	94	78-121	2.20	(< 20)
1,2-Dichloroethane	0.000845U	0.633	0.632	100	0.633	0.623	98	73-128	1.40	(< 20)
1,2-Dichloropropane	0.00422U	0.633	0.651	103	0.633	0.642	101	76-123	1.40	(< 20)
1,3,5-Trimethylbenzene	0.0106U	0.633	0.643	101	0.633	0.621	98	73-124	3.40	(< 20)
1,3-Dichlorobenzene	0.0106U	0.633	0.618	98	0.633	0.610	96	77-121	1.30	(< 20)
1,3-Dichloropropane	0.00422U	0.633	0.653	103	0.633	0.663	105	77-121	1.50	(< 20)
1,4-Dichlorobenzene	0.0106U	0.633	0.621	98	0.633	0.608	96	75-120	2.10	(< 20)
2,2-Dichloropropane	0.0106U	0.633	0.737	116	0.633	0.732	116	67-133	0.73	(< 20)
2-Butanone (MEK)	0.106U	1.90	1.85	97	1.90	1.77	93	51-148	4.40	(< 20)
2-Chlorotoluene	0.0106U	0.633	0.636	100	0.633	0.622	98	75-122	2.10	(< 20)
2-Hexanone	0.0505U	1.90	1.95	103	1.90	1.93	101	53-145	1.10	(< 20)
4-Chlorotoluene	0.00845U	0.633	0.631	100	0.633	0.616	97	72-124	2.40	(< 20)
4-Isopropyltoluene	0.0338U	0.633	0.658	104	0.633	0.638	101	73-127	3.20	(< 20)
4-Methyl-2-pentanone (MIBK)	0.106U	1.90	1.91	100	1.90	1.88	99	65-135	1.40	(< 20)
Acetone	0.106U	1.90	1.65	87	1.90	1.57	82	36-164	5.30	(< 20)
Benzene	0.00530U	0.633	0.644	102	0.633	0.635	100	77-121	1.40	(< 20)
Bromobenzene	0.0106U	0.633	0.645	102	0.633	0.638	101	78-121	1.00	(< 20)
Bromochloromethane	0.0106U	0.633	0.640	101	0.633	0.645	102	78-125	0.75	(< 20)
Bromodichloromethane	0.000845U	0.633	0.753	119	0.633	0.747	118	75-127	0.85	(< 20)
Bromoform	0.0106U	0.633	0.685	108	0.633	0.691	109	67-132	0.84	(< 20)
Bromomethane	0.00845U	0.633	0.658	104	0.633	0.678	107	53-143	3.00	(< 20)
Carbon disulfide	0.0422U	0.950	1.10	115	0.950	1.10	116	63-132	0.89	(< 20)
Carbon tetrachloride	0.00530U	0.633	0.716	113	0.633	0.712	112	70-135	0.58	(< 20)
Chlorobenzene	0.0106U	0.633	0.637	100	0.633	0.635	100	79-120	0.25	(< 20)

Print Date: 07/31/2023 7:50:00PM

Matrix Spike Summary

Original Sample ID: 1720755
MS Sample ID: 1720756 MS
MSD Sample ID: 1720757 MSD

Analysis Date: 07/03/2023 15:09
Analysis Date: 07/03/2023 13:29
Analysis Date: 07/03/2023 13:46
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1232990005, 1232990006, 1232990007, 1232990008, 1232990009

Results by **SW8260D**

		Matrix Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.0845U	0.633	0.639	101	0.633	0.645	102	59-139	0.90	(< 20)
Chloroform	0.00253U	0.633	0.664	105	0.633	0.658	104	78-123	0.97	(< 20)
Chloromethane	0.0106U	0.633	0.598	95	0.633	0.585	92	50-136	2.30	(< 20)
cis-1,2-Dichloroethene	0.0106U	0.633	0.647	102	0.633	0.639	101	77-123	1.20	(< 20)
cis-1,3-Dichloropropene	0.00530U	0.633	0.674	106	0.633	0.665	105	74-126	1.30	(< 20)
Dibromochloromethane	0.00211U	0.633	0.683	108	0.633	0.689	109	74-126	0.79	(< 20)
Dibromomethane	0.0106U	0.633	0.665	105	0.633	0.661	104	78-125	0.65	(< 20)
Dichlorodifluoromethane	0.0422U	0.633	0.624	99	0.633	0.616	97	29-149	1.30	(< 20)
Ethylbenzene	0.0106U	0.633	0.626	99	0.633	0.622	98	76-122	0.60	(< 20)
Freon-113	0.0422U	0.950	1.00	105	0.950	0.990	104	66-136	1.20	(< 20)
Hexachlorobutadiene	0.00845U	0.633	0.708	112	0.633	0.768	121	61-135	8.20	(< 20)
Isopropylbenzene (Cumene)	0.0106U	0.633	0.636	100	0.633	0.634	100	68-134	0.32	(< 20)
Methylene chloride	0.0422U	0.633	0.624	99	0.633	0.614	97	70-128	1.60	(< 20)
Methyl-t-butyl ether	0.0422U	0.950	1.00	105	0.950	0.898	95	73-125	10.80	(< 20)
Naphthalene	0.0106U	0.633	0.565	89	0.633	0.567	90	62-129	0.33	(< 20)
n-Butylbenzene	0.0106U	0.633	0.668	105	0.633	0.654	103	70-128	2.20	(< 20)
n-Propylbenzene	0.0106U	0.633	0.650	103	0.633	0.633	100	73-125	2.50	(< 20)
o-Xylene	0.0106U	0.633	0.631	100	0.633	0.626	99	77-123	0.80	(< 20)
P & M -Xylene	0.0211U	1.27	1.25	99	1.27	1.24	98	77-124	0.92	(< 20)
sec-Butylbenzene	0.0106U	0.633	0.644	102	0.633	0.631	100	73-126	2.00	(< 20)
Styrene	0.0106U	0.633	0.644	102	0.633	0.646	102	76-124	0.27	(< 20)
tert-Butylbenzene	0.0106U	0.633	0.649	102	0.633	0.636	100	73-125	2.00	(< 20)
Tetrachloroethene	0.00530U	0.633	0.662	105	0.633	0.656	103	73-128	1.10	(< 20)
Toluene	0.0106U	0.633	0.602	95	0.633	0.611	96	77-121	1.40	(< 20)
trans-1,2-Dichloroethene	0.0106U	0.633	0.653	103	0.633	0.642	101	74-125	1.70	(< 20)
trans-1,3-Dichloropropene	0.00530U	0.633	0.663	105	0.633	0.670	106	71-130	1.10	(< 20)
Trichloroethene	0.00422U	0.633	0.683	108	0.633	0.674	106	77-123	1.40	(< 20)
Trichlorofluoromethane	0.0211U	0.633	0.765	121	0.633	0.903	143 *	62-140	16.60	(< 20)
Vinyl acetate	0.0422U	0.633	0.717	113	0.633	0.704	111	50-151	1.90	(< 20)
Vinyl chloride	0.000338U	0.633	0.626	99	0.633	0.618	98	56-135	1.40	(< 20)
Xylenes (total)	0.0316U	1.90	1.89	99	1.90	1.87	98	78-124	0.88	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		0.633	0.646	102	0.633	0.642	101	71-136	0.63	
4-Bromofluorobenzene (surr)		0.726	0.716	99	0.726	0.720	99	55-151	0.45	
Toluene-d8 (surr)		0.633	0.616	97	0.633	0.631	100	85-116	2.40	

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1720755
MS Sample ID: 1720756 MS
MSD Sample ID: 1720757 MSD

Analysis Date:
Analysis Date: 07/03/2023 13:29
Analysis Date: 07/03/2023 13:46
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1232990005, 1232990006, 1232990007, 1232990008, 1232990009

Results by **SW8260D**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS22533
Analytical Method: SW8260D
Instrument: VQA 7890/5975 GC/MS
Analyst: S.S
Analytical Date/Time: 7/3/2023 1:29:00PM

Prep Batch: VXX40079
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 7/3/2023 6:00:00AM
Prep Initial Wt./Vol.: 86.03g
Prep Extract Vol: 36.31mL

Print Date: 07/31/2023 7:50:00PM

Method Blank

Blank ID: MB for HBN 185873[VX/ / 40]] 81L
Blank ba2 ID: 137] 803

Mairxd: Sox4SolX(y(rwg exh) iR

QC for Samples:
1797, ,]] 1] t 1797, ,]] 11t 1797, ,]] 17t 1797, ,]] 19t 1797, ,]] 10t 1797, ,]] 1[

uesUlis 2w **SW8260D**

- arameier	uesUlis	bPQ4Cb	Db	bPD	Onxis
1t1t1t7Tceira.) loroei) ane	] ɖ 1]] O	] ɖ 7]]	] ɖ] [7]	] ɖ 1]]	mh4kh
1t1t1Tcrx) loroei) ane	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t1t7t7Tceira.) loroei) ane	] ɖ] 1]] O	] ɖ] 7]]	] ɖ]] [7]	] ɖ] 1]]	mh4kh
1t1t7Tcrx) loroei) ane	] ɖ]] 5]] O	] ɖ] 1]]	] ɖ]] 5]]	] ɖ]] 5]]	mh4kh
1t1TDx) loroei) ane	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t1TDx) loroei) ene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t1TDx) loropropene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t7t9Tcrx) loro2enzene	] ɖ 5]] O	] 61]]	] ɖ 9]]	] ɖ 5]]	mh4kh
1t7t9Tcrx) loropropane	] ɖ] 1]] O	] ɖ] 7]]	] ɖ]] [7]	] ɖ] 1]]	mh4kh
1t7t0Tcrx) loro2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t7t0Tcrxmei) wl2enzene	] ɖ 5]] O	] 61]]	] ɖ 9]]	] ɖ 5]]	mh4kh
1t7TDx2romoT9T.) loropropane	] ɖ 5]] O	] 61]]	] ɖ 91]	] ɖ 5]]	mh4kh
1t7TDx2romoei) ane	] ɖ]] 35] O	] ɖ] 15]	] ɖ]] 35]	] ɖ]] 35]	mh4kh
1t7TDx) loro2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t7TDx) loroei) ane	] ɖ] 1]] O	] ɖ] 7]]	] ɖ]] 3]]	] ɖ] 1]]	mh4kh
1t7TDx) loropropane	] ɖ] 5]] O	] ɖ 1]]	] ɖ] 5]]	] ɖ] 5]]	mh4kh
1t9t5Tcrxmei) wl2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t9TDx) loro2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
1t9TDx) loropropane	] ɖ] 5]] O	] ɖ 1]]	] ɖ] 91]	] ɖ] 5]]	mh4kh
1t0TDx) loro2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
7t7TDx) loropropane	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
7TBUianone yMEKR	] 6l75O	] 675]	] ɖ 38]	] 6l75	mh4kh
7TC) loroiolUene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
7THedanone	] ɖ [ ]] O	] 617]	] ɖ [ ]]	] ɖ [ ]]	mh4kh
0TC) loroiolUene	] ɖ 1]] O	] ɖ 7]]	] ɖ 1]]	] ɖ 1]]	mh4kh
0TIsopropwliolUene	] ɖ 0]] O	] ɖ 8]]	] ɖ 0]]	] ɖ 0]]	mh4kh
0TMei) wlT7Tpenianone yMIBKR	] 6l75O	] 675]	] ɖ 38]	] 6l75	mh4kh
A. eione	] 6l75O	] 675]	] 6l1]	] 6l75	mh4kh
Benzene	] ɖ] [75O	] ɖ 175	] ɖ] 9,]	] ɖ] [75	mh4kh
Bromo2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
Bromo.) loromei) ane	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
Bromo(x) loromei) ane	] ɖ] 1]] O	] ɖ] 7]]	] ɖ]] [7]	] ɖ] 1]]	mh4kh
Bromoform	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
Bromomei) ane	] ɖ 1]] O	] ɖ 7]]	] ɖ] 8]]	] ɖ 1]]	mh4kh
Car2on (xsUlfx(e	] ɖ 5]] O	] 61]]	] ɖ 91]	] ɖ 5]]	mh4kh
Car2on ieira.) lorx(e	] ɖ] [75O	] ɖ 175	] ɖ] 9,]	] ɖ] [75	mh4kh
C) loro2enzene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
C) loroei) ane	] 61]] O	] 67]]	] ɖ [7]	] 61]]	mh4kh
C) loroform	] ɖ] 9]] O	] ɖ] [ ]]	] ɖ] 9]]	] ɖ] 9]]	mh4kh
C) loromei) ane	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
. xsT1t7TDx) loroei) ene	] ɖ 175O	] ɖ 75]	] ɖ] 38]	] ɖ 175	mh4kh
. xsT1t9TDx) loropropene	] ɖ] [75O	] ɖ 175	] ɖ] 9,]	] ɖ] [75	mh4kh

Method Blank

Blank ID: MB for HBN 185873[VX/ / 40]] 81L
Blank ba2 ID: 137] 803

Mairxd: Soxl4SolX(y(rwg exh) iR

QC for Samples:
1797, ,]] 1] t 1797, ,]] 11t 1797, ,]] 17t 1797, ,]] 19t 1797, ,]] 10t 1797, ,]] 1[

u esUlis 2w**SW8260D**

- arameier	u esUlis	bPQ4Cb	Db	bPD	Onxis
Dx2romo.) loromei) ane	] 6[ ] 75] O	] 6[ ] 5]]	] 6[ ] 15]	] 6[ ] 75]	mh4kh
Dx2romomei) ane	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
Dx) loro(xflUbromei) ane	] 6[5]] O	] 61]]	] 6[9]]	] 6[5]]	mh4kh
Ei) wl2enzene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
FreonT119	] 6[5]] O	] 61]]	] 6[91]	] 6[5]]	mh4kh
Heda.) loro2Uia(xene	] 6[1]] O	] 6[7]]	] 6[ ] [7]	] 6[1]]	mh4kh
Isopropwl2enzene yCUmeneR	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
Mei) wlene .) lorx(e	] 6[5]] O	] 61]]	] 6[91]	] 6[5]]	mh4kh
Mei) wTT2Uiwl ei) er	] 6[5]] O	] 61]]	] 6[91]	] 6[5]]	mh4kh
Nap) i) alene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
nTBUiwl2enzene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
nT- ropwl2enzene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
oT wlene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
- & M T wlene	] 6[75] O	] 6[5]]	] 6[15]	] 6[75]	mh4kh
se. TBUiwl2enzene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
Siwrene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
ieriTBUiwl2enzene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
ceira.) loroei) ene	] 6[ ] [75O	] 6[175	] 6[ ] 9,]	] 6[ ] [75	mh4kh
colUene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
iransT1t7TDx) loroei) ene	] 6[175O	] 6[75]	] 6[ ] 38]	] 6[175	mh4kh
iransT1t9TDx) loropropene	] 6[ ] [75O	] 6[175	] 6[ ] 9,]	] 6[ ] [75	mh4kh
crx) loroei) ene	] 6[ ] 5]] O	] 6[1]]	] 6[ ] 97]	] 6[ ] 5]]	mh4kh
crx) loroflUbromei) ane	] 6[75] O	] 6[5]]	] 6[15]	] 6[75]	mh4kh
Xxnwl a. eiaie	] 6[5]] O	] 61]]	] 6[91]	] 6[5]]	mh4kh
Xxnwl .) lorx(e	] 6[ ]] 0]] O	] 6[ ]] 8]]	] 6[ ]] 75]	] 6[ ]] 0]]	mh4kh
/ wlenes yioialR	] 6[935O	] 6[35]	] 6[778	] 6[935	mh4kh
Surrogates					
1t7TDx) loroei) aneTD0 ysUrrR	1] 9	31T19[		]	%
0TBromoflUbro2enzene ysUrrR	1] [	55T151		]	%
colUeneT(8 ysUrrR	1]]	85T11[		]	%

Batch Information

Analwix al Bai.) : XMS7759[
Analwix al Mei) o(: SW87[ ] D
InsirUmeni: Xu A Ahxeni GC4MS 38,] B45, 33A
Analwsi: S65
Analwix al Daie4cxme: 3494 7] 79 11:55:]] AM

- rep Bai.) : X/ / 0]] 81
- rep Mei) o(: SW5] 95A
- rep Daie4cxme: 3494 7] 79 [:]] :]] AM
- rep Inxixal Wi6Xol6 5] h
- rep Edira. i Xol: 75 mb

- rxni Daie:] 3491 47] 79 3:5] :] 7- M

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40081]
Blank Spike Lab ID: 1720848
Date Analyzed: 07/03/2023 12:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990010, 1232990011, 1232990012, 1232990013, 1232990014, 1232990016

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.810	108	(78-125)
1,1,1-Trichloroethane	0.750	0.804	107	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.776	103	(70-124)
1,1,2-Trichloroethane	0.750	0.760	101	(78-121)
1,1-Dichloroethane	0.750	0.747	100	(76-125)
1,1-Dichloroethene	0.750	0.788	105	(70-131)
1,1-Dichloropropene	0.750	0.774	103	(76-125)
1,2,3-Trichlorobenzene	0.750	0.625	83	(66-130)
1,2,3-Trichloropropane	0.750	0.728	97	(73-125)
1,2,4-Trichlorobenzene	0.750	0.677	90	(67-129)
1,2,4-Trimethylbenzene	0.750	0.770	103	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.721	96	(61-132)
1,2-Dibromoethane	0.750	0.795	106	(78-122)
1,2-Dichlorobenzene	0.750	0.716	96	(78-121)
1,2-Dichloroethane	0.750	0.722	96	(73-128)
1,2-Dichloropropane	0.750	0.765	102	(76-123)
1,3,5-Trimethylbenzene	0.750	0.759	101	(73-124)
1,3-Dichlorobenzene	0.750	0.745	99	(77-121)
1,3-Dichloropropane	0.750	0.748	100	(77-121)
1,4-Dichlorobenzene	0.750	0.745	99	(75-120)
2,2-Dichloropropane	0.750	0.868	116	(67-133)
2-Butanone (MEK)	2.25	2.29	102	(51-148)
2-Chlorotoluene	0.750	0.770	103	(75-122)
2-Hexanone	2.25	2.34	104	(53-145)
4-Chlorotoluene	0.750	0.743	99	(72-124)
4-Isopropyltoluene	0.750	0.794	106	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.32	103	(65-135)
Acetone	2.25	1.88	84	(36-164)
Benzene	0.750	0.748	100	(77-121)
Bromobenzene	0.750	0.770	103	(78-121)
Bromochloromethane	0.750	0.752	100	(78-125)
Bromodichloromethane	0.750	0.854	114	(75-127)
Bromoform	0.750	0.771	103	(67-132)
Bromomethane	0.750	0.727	97	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40081]
Blank Spike Lab ID: 1720848
Date Analyzed: 07/03/2023 12:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990010, 1232990011, 1232990012, 1232990013, 1232990014, 1232990016

Results by **SW8260D**

Blank Spike (mg/kg)

Parameter	Spike	Result	Rec (%)		CL
Carbon disulfide	1.13	1.21	108		(63-132)
Carbon tetrachloride	0.750	0.759	101		(70-135)
Chlorobenzene	0.750	0.751	100		(79-120)
Chloroethane	0.750	0.793	106		(59-139)
Chloroform	0.750	0.737	98		(78-123)
Chloromethane	0.750	0.695	93		(50-136)
cis-1,2-Dichloroethene	0.750	0.738	98		(77-123)
cis-1,3-Dichloropropene	0.750	0.774	103		(74-126)
Dibromochloromethane	0.750	0.771	103		(74-126)
Dibromomethane	0.750	0.771	103		(78-125)
Dichlorodifluoromethane	0.750	0.733	98		(29-149)
Ethylbenzene	0.750	0.748	100		(76-122)
Freon-113	1.13	1.12	100		(66-136)
Hexachlorobutadiene	0.750	0.738	98		(61-135)
Isopropylbenzene (Cumene)	0.750	0.763	102		(68-134)
Methylene chloride	0.750	0.724	97		(70-128)
Methyl-t-butyl ether	1.13	1.10	98		(73-125)
Naphthalene	0.750	0.679	91		(62-129)
n-Butylbenzene	0.750	0.787	105		(70-128)
n-Propylbenzene	0.750	0.788	105		(73-125)
o-Xylene	0.750	0.750	100		(77-123)
P & M -Xylene	1.50	1.50	100		(77-124)
sec-Butylbenzene	0.750	0.777	104		(73-126)
Styrene	0.750	0.771	103		(76-124)
tert-Butylbenzene	0.750	0.774	103		(73-125)
Tetrachloroethene	0.750	0.768	102		(73-128)
Toluene	0.750	0.720	96		(77-121)
trans-1,2-Dichloroethene	0.750	0.737	98		(74-125)
trans-1,3-Dichloropropene	0.750	0.774	103		(71-130)
Trichloroethene	0.750	0.767	102		(77-123)
Trichlorofluoromethane	0.750	2.19	291	*	(62-140)
Vinyl acetate	0.750	0.801	107		(50-151)
Vinyl chloride	0.750	0.718	96		(56-135)
Xylenes (total)	2.25	2.25	100		(78-124)

Print Date: 07/31/2023 7:50:04PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX40081]
Blank Spike Lab ID: 1720848
Date Analyzed: 07/03/2023 12:11

Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990010, 1232990011, 1232990012, 1232990013, 1232990014, 1232990016

Results by **SW8260D**

	Blank Spike (mg/kg)			
Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750		99	(71-136)
4-Bromofluorobenzene (surr)	0.750		105	(55-151)
Toluene-d8 (surr)	0.750		101	(85-116)

Batch Information

Analytical Batch: **VMS22536**
Analytical Method: **SW8260D**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **S.S**

Prep Batch: **VXX40081**
Prep Method: **SW5035A**
Prep Date/Time: **07/03/2023 06:00**
Spike Init Wt./Vol.: 0.750 mg/kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 17205M6
A S Sample ID: 17205y0 A S
A SD Sample ID: 17205y1 A SD

s nalt / i/ Da3e: 079049 2024 1y:0M
s nalt / i/ Da3e: 079049 2024 14:26
s nalt / i/ Da3e: 079049 2024 14:My
A a3ix: Solid9Soil (We3Weigh3)

QC for Sample/ : 1242660010, 1242660011, 1242660012, 1242660014, 124266001M, 1242660018

Re/ ul3 bt **SW8260D**

		A a3ix Spike (mg9kg)			Spike Duplica3e (mg9kg)					
Parame3er	Sample	Spike	Re/ ul3	Rec (%)	Spike	Re/ ul3	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Te3achloroe3hane	0.0218U	1.82	1.50	111	1.82	1.50	111	75-12y	0.07	(< 20)
1,1,1-Trichloroe3hane	0.0271U	1.82	1.51	111	1.82	1.75	106	74-140	1.50	(< 20)
1,1,2,2-Te3achloroe3hane	0.00218U	1.82	1.7M	107	1.82	1.78	105	70-12M	0.67	(< 20)
1,1,2-Trichloroe3hane	0.00105U	1.82	1.87	104	1.82	1.85	104	75-121	0.M4	(< 20)
1,1-Dichloroe3hane	0.0271U	1.82	1.85	10M	1.82	1.8y	102	78-12y	1.60	(< 20)
1,1-Dichloroe3hene	0.0271U	1.82	1.7y	105	1.82	1.7M	107	70-141	0.71	(< 20)
1,1-Dichloropropene	0.0271U	1.82	1.7M	107	1.82	1.71	10y	78-12y	1.70	(< 20)
1,2,4-Trichlorobenzene	0.105U	1.82	1.MM	56	1.82	1.yy	6y	88-140	7.10	(< 20)
1,2,4-Trichloropropane	0.00218U	1.82	1.84	100	1.82	1.84	101	74-12y	0.41	(< 20)
1,2,M-Trichlorobenzene	0.0271U	1.82	1.y4	6y	1.82	1.y5	67	87-126	2.60	(< 20)
1,2,M-Trime3ht lbenzene	0.105U	1.82	1.74	107	1.82	1.70	10y	7y-124	2.10	(< 20)
1,2-Dibromo-4-chloropropane	0.105U	1.82	1.8y	101	1.82	1.85	104	81-142	1.50	(< 20)
1,2-Dibromoe3hane	0.00182U	1.82	1.74	108	1.82	1.77	106	75-122	2.20	(< 20)
1,2-Dichlorobenzene	0.0271U	1.82	1.87	104	1.82	1.8M	101	75-121	2.10	(< 20)
1,2-Dichloroe3hane	0.00218U	1.82	1.81	66	1.82	1.y5	67	74-125	1.50	(< 20)
1,2-Dichloropropane	0.0105U	1.82	1.71	10y	1.82	1.85	104	78-124	1.70	(< 20)
1,4,y-Trime3ht lbenzene	0.0271U	1.82	1.7y	105	1.82	1.72	108	74-12M	1.M0	(< 20)
1,4-Dichlorobenzene	0.0271U	1.82	1.87	104	1.82	1.8y	101	77-121	1.40	(< 20)
1,4-Dichloropropane	0.0105U	1.82	1.84	100	1.82	1.8y	102	77-121	1.20	(< 20)
1,M-Dichlorobenzene	0.0271U	1.82	1.8y	102	1.82	1.8M	101	7y-120	0.8M	(< 20)
2,2-Dichloropropane	0.0271U	1.82	1.67	121	1.82	1.6M	116	87-144	1.50	(< 20)
2-Bu3anone (A EK)	0.271U	M57	y.00	104	M57	M56	100	y1-1M5	2.20	(< 20)
2-Chloro3bluene	0.0271U	1.82	1.70	10y	1.82	1.86	10M	7y-122	0.86	(< 20)
2-Hexanone	0.140U	M57	y.17	108	M57	y.1y	108	y4-1My	0.22	(< 20)
M-Chloro3bluene	0.0218U	1.82	1.72	108	1.82	1.71	108	72-12M	0.y0	(< 20)
M-I/ opropt l3bluene	0.058yU	1.82	1.7M	107	1.82	1.72	108	74-127	1.10	(< 20)
M-A e3ht l-2-pen3anone (A IBK)	0.271U	M57	y.07	10M	M57	y.0y	10M	8y-14y	0.48	(< 20)
s ce3one	0.271U	M57	M1y	5y	M57	M01	52	48-18M	4.80	(< 20)
Benzene	0.014yU	1.82	1.87	104	1.82	1.8M	101	77-121	1.80	(< 20)
Bromobenzene	0.0271U	1.82	1.77	106	1.82	1.74	108	75-121	2.80	(< 20)
Bromochlorome3hane	0.0271U	1.82	1.87	104	1.82	1.87	104	75-12y	0.2M	(< 20)
Bromodichlorome3hane	0.00218U	1.82	1.60	117	1.82	1.55	118	7y-127	1.M0	(< 20)
Bromoform	0.0271U	1.82	1.71	108	1.82	1.71	108	87-142	0.04	(< 20)
Bromome3hane	0.0218U	1.82	1.82	100	1.82	1.8M	101	y4-1M4	1.10	(< 20)
Carbon di/ ulfide	0.105U	2.M4	2.88	106	2.M4	2.87	110	84-142	0.4M	(< 20)
Carbon 3e3achloride	0.014yU	1.82	1.7M	107	1.82	1.71	10y	70-14y	1.y0	(< 20)
Chlorobenzene	0.0271U	1.82	1.87	104	1.82	1.88	102	76-120	0.52	(< 20)

Matrix Spike Summary

Original Sample ID: 17205M6
A S Sample ID: 17205y0 A S
A SD Sample ID: 17205y1 A SD

s nalt / i/ Da3e: 079049 2024 1y:0M
s nalt / i/ Da3e: 079049 2024 14:26
s nalt / i/ Da3e: 079049 2024 14:My
A a3ix: Solid9Soil (We3Weigh3)

QC for Sample/ : 1242660010, 1242660011, 1242660012, 1242660014, 124266001M, 1242660018

Re/ ul3 bt **SW8260D**

		A a3ix Spike (mg9kg)			Spike Duplica3e (mg9kg)					
Parame3er	Sample	Spike	Re/ ul3	Rec (%)	Spike	Re/ ul3	Rec (%)	CL	RPD (%)	RPD CL
Chloroe3hane	0.217U	1.82	1.51	111	1.82	1.57	11y	y6-146	4.M0	(< 20)
Chloroform	0.008y0U	1.82	1.8y	102	1.82	1.82	100	75-124	1.60	(< 20)
Chlorome3hane	0.0271U	1.82	1.y1	64	1.82	1.yy	68	y0-148	2.50	(< 20)
ci/ -1,2-Dichloroe3hene	0.0271U	1.82	1.86	10M	1.82	1.88	104	77-124	1.M0	(< 20)
ci/ -1,4-Dichloropropene	0.014yU	1.82	1.74	107	1.82	1.71	10y	7M-128	1.40	(< 20)
Dibromochlorome3hane	0.00yM0U	1.82	1.70	10y	1.82	1.71	10y	7M-128	0.87	(< 20)
Dibromome3hane	0.0271U	1.82	1.86	10M	1.82	1.86	10M	75-12y	0.20	(< 20)
Dichlorodifluorome3hane	0.105U	1.82	1.y6	65	1.82	1.y7	67	26-1M6	1.y0	(< 20)
E3ht lbenzene	0.0271U	1.82	1.87	104	1.82	1.88	102	78-122	0.42	(< 20)
Freon-114	0.105U	2.M4	2.M6	102	2.M4	2.M8	101	88-148	1.00	(< 20)
Hexachlorobu3adiene	0.0218U	1.82	1.8y	102	1.82	1.85	104	81-14y	1.70	(< 20)
I/ opropt lbenzene (Cumene)	0.0271U	1.82	1.86	10M	1.82	1.88	102	85-14M	1.50	(< 20)
A e3ht lene chloride	0.105U	1.82	1.y6	65	1.82	1.80	65	70-125	0.1M	(< 20)
A e3ht l-3bu3 l e3her	0.105U	2.M4	2.M2	66	2.M4	2.47	67	74-12y	2.40	(< 20)
Naph3halene	0.0271U	1.82	1.y7	67	1.82	1.80	66	82-126	2.M0	(< 20)
n-Bu3 lbenzene	0.0271U	1.82	1.7y	105	1.82	1.7M	107	70-125	0.15	(< 20)
n-Propt lbenzene	0.0271U	1.82	1.50	111	1.82	1.78	106	74-12y	1.70	(< 20)
o-Xt lene	0.0271U	1.82	1.8y	102	1.82	1.87	104	77-124	1.20	(< 20)
P & A -Xt lene	0.0yM0U	4.2y	4.27	101	4.2y	4.25	101	77-12M	0.16	(< 20)
/ ec-Bu3 lbenzene	0.0271U	1.82	1.7y	105	1.82	1.72	108	74-128	2.00	(< 20)
S3 rene	0.0271U	1.82	1.70	10y	1.82	1.70	10y	78-12M	0.25	(< 20)
3er3-Bu3 lbenzene	0.0271U	1.82	1.78	105	1.82	1.70	10M	74-12y	4.y0	(< 20)
Te3achloroe3hene	0.014yU	1.82	1.74	107	1.82	1.74	107	74-125	0.11	(< 20)
Toluene	0.0271U	1.82	1.80	66	1.82	1.y6	65	77-121	0.y4	(< 20)
3an/ -1,2-Dichloroe3hene	0.0271U	1.82	1.70	10y	1.82	1.84	100	7M-12y	M40	(< 20)
3an/ -1,4-Dichloropropene	0.014yU	1.82	1.72	108	1.82	1.74	107	71-140	0.8y	(< 20)
Trichloroe3hene	0.0105U	1.82	1.72	108	1.82	1.86	10M	77-124	1.60	(< 20)
Trichlorofluorome3hane	0.0yM0U	1.82	M5y	266 *	1.82	y.08	412 *	82-1M0	MM0	(< 20)
Vint l ace3a3e	0.105U	1.82	1.77	106	1.82	1.76	110	y0-1y1	0.60	(< 20)
Vint l chloride	0.00058yU	1.82	1.72	108	1.82	1.81	66	y8-14y	8.50	(< 20)
Xt lene/ (3o3al)	0.0510U	M57	M62	101	M57	M6y	102	75-12M	0.y1	(< 20)
Surrogates										
1,2-Dichloroe3hane-DM(/ urr)		1.82	1.81	66	1.82	1.y6	65	71-148	1.20	
M-Bromofluorobenzene (/ urr)		1.86	1.M7	57	1.86	1.My	58	yy-1y1	1.80	
Toluene-d5 (/ urr)		1.82	1.84	100	1.82	1.8M	101	5y-118	0.71	

SGS Nor3h s merica Inc.
200 We/ 3Po3er Drive s nchorage, s K 6yy15
t 607.y82.24M4 f 607.y81.y401 www.u/ ./ g/ .com

Matrix Spike Summary

Original Sample ID: 17205M6
A S Sample ID: 17205y0 A S
A SD Sample ID: 17205y1 A SD

s nalt / i/ Da3e:
s nalt / i/ Da3e: 079049 2024 14:26
s nalt / i/ Da3e: 079049 2024 14:My
A a3ix: Solid9Soil (We3Weigh3)

QC for Sample/ : 1242660010, 1242660011, 1242660012, 1242660014, 124266001M, 1242660018

Re/ ul3 bt **SW8260D**

Parame3er	Sample	A a3ix Spike (%) Spike	Re/ ul3	Rec (%)	Spike Duplica3e (%) Spike	Re/ ul3	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

s nalt 3cal Ba3ch: VA S22y48
s nalt 3cal A e3hod: SW5280D
In/ 3umen3 VRs s gilen3GC9A S 7560B9y677s
s nalt / 3 S.S
s nalt 3cal Da3e9Time: 7949 2024 1:26:00PA

Prep Ba3ch: VXXM0051
Prep A e3hod: Vol. Ex3rac3on SW5280 Field Ex3rac3ed L
Prep Da3e9Time: 7949 2024 8:00:00s A
Prep Ini3al W39Vol.: 48.67g
Prep Ex3rac3Vol: 46.66mL

Prin3Da3e: 079419 2024 7:y0:08PA

SGS

Method Blank

Blank ID: MB for HBN 1858773 [VXX/400] 1L
Blank ba2 ID: 13Q10] 5

Ma,rti : motl/moltx dkr(y stwg,h

CS for map els9:
1Q7Q]] 0015

) s9R1,9 2(**SW8260D**

Oarap s,sr	) s9R1,9	bUC/Sb	Db	bUD	u nt,9
1P1P1RQ-Ts,racgloros,gans	0.0100u	0.0Q00	0.006Q0	0.0100	p w/kw
1P1P1-Trtcgloros,gans	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1P1RQRQ-Ts,racgloros,gans	0.00100u	0.00Q00	0.0006Q0	0.00100	p w/kw
1P1RQ-Trtcgloros,gans	0.000500u	0.00100	0.000500	0.000500	p w/kw
1P1-Dtcgloros,gans	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1P1-Dtcgloros,gsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1P1-Dtcgloroeroesns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1RQR7-Trtcgloro2snzsns	0.0500u	0.100	0.0700	0.0500	p w/kw
1RQR7-Trtcgloroeroeans	0.00100u	0.00Q00	0.0006Q0	0.00100	p w/kw
1RQR4-Trtcgloro2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1RQR4-Trtp s,g(l2snzsns	0.0500u	0.100	0.0700	0.0500	p w/kw
1RQ-Dt2rop o-7-cgloroeroeans	0.0500u	0.100	0.0710	0.0500	p w/kw
1RQ-Dt2rop os,gans	0.000350u	0.00150	0.000350	0.000350	p w/kw
1RQ-Dtcgloro2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1RQ-Dtcgloros,gans	0.00100u	0.00Q00	0.000300	0.00100	p w/kw
1RQ-Dtcgloroeroeans	0.00500u	0.0100	0.00500	0.00500	p w/kw
1R7R5-Trtp s,g(l2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1R7-Dtcgloro2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
1R7-Dtcgloroeroeans	0.00500u	0.0100	0.00710	0.00500	p w/kw
1R4-Dtcgloro2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
QRQ-Dtcgloroeroeans	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Q-BR,anons dMEKh	0.1Q5u	0.Q50	0.0380	0.1Q5	p w/kw
Q-Sgloro,olRsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Q-Hsi anons	0.0600u	0.1Q0	0.0600	0.0600	p w/kw
4-Sgloro,olRsns	0.0100u	0.0Q00	0.0100	0.0100	p w/kw
4-l9oeroe(l,olRsns	0.0400u	0.0800	0.0400	0.0400	p w/kw
4-Ms,g(l-Q-esn,anons dMIBKh	0.1Q5u	0.Q50	0.0380	0.1Q5	p w/kw
Acs,ons	0.1Q5u	0.Q50	0.110	0.1Q5	p w/kw
Bsnzsns	0.006Q5u	0.01Q5	0.007] 0	0.006Q5	p w/kw
Brop o2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Brop ocglorop s,gans	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Brop oxtcglorop s,gans	0.00100u	0.00Q00	0.0006Q0	0.00100	p w/kw
Brop oforp	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Brop op s,gans	0.0100u	0.0Q00	0.00800	0.0100	p w/kw
Sar2on xt9Rftxs	0.0500u	0.100	0.0710	0.0500	p w/kw
Sar2on ,s,racglortxs	0.006Q5u	0.01Q5	0.007] 0	0.006Q5	p w/kw
Sgloro2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Sgloros,gans	0.100u	0.Q00	0.06Q0	0.100	p w/kw
Sgloroforp	0.00700u	0.00600	0.00700	0.00700	p w/kw
Sglorop s,gans	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
ct9-1RQ-Dtcgloros,gsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
ct9-1R7-Dtcgloroeroesns	0.006Q5u	0.01Q5	0.007] 0	0.006Q5	p w/kw

SGS

Method Blank

Blank ID: MB for HBN 1858773 [VXX/400] 1L
Blank ba2 ID: 13Q10] 5

Ma,rti : motl/moltx dkr(y stwg,h

CS for map els9:
1Q7Q]] 0015

) s9R\,9 2(**SW8260D**

Oarap s,sr	) s9R\,9	bUC/Sb	Db	bUD	u nt,9
Dt2rop ocglorop s,gans	0.00Q50u	0.00500	0.00150	0.00Q50	p w/kw
Dt2rop op s,gans	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
DtcgloroxtflRorop s,gans	0.0500u	0.100	0.0700	0.0500	p w/kw
E,g(l2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Frson-117	0.0500u	0.100	0.0710	0.0500	p w/kw
Hsi acgloro2R,axtsns	0.0100u	0.0Q00	0.006Q0	0.0100	p w/kw
I9oeroe(l2snzsns dSRp snsh	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Ms,g(lsns cglortxs	0.0500u	0.100	0.0710	0.0500	p w/kw
Ms,g(l-,-2R,(l s,gsr	0.0500u	0.100	0.0710	0.0500	p w/kw
Naeg,galsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
n-BR,(l2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
n-Oroe(l2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
o-X(lsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
O & M -X(lsns	0.0Q50u	0.0500	0.0150	0.0Q50	p w/kw
9sc-BR,(l2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
m,(rsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
,sr,-BR,(l2snzsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
Ts,racgloros,gsns	0.006Q5u	0.01Q5	0.007] 0	0.006Q5	p w/kw
TolRsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
,ran9-1RQ-Dtcgloros,gsns	0.01Q5u	0.0Q50	0.00380	0.01Q5	p w/kw
,ran9-1R7-Dtcgloroeroesns	0.006Q5u	0.01Q5	0.007] 0	0.006Q5	p w/kw
Trtcgloros,gsns	0.00500u	0.0100	0.007Q0	0.00500	p w/kw
TrtcglorofIRorop s,gans	0.0Q50u	0.0500	0.0150	0.0Q50	p w/kw
Vtn(l acs,a,s	0.0500u	0.100	0.0710	0.0500	p w/kw
Vtn(l cglortxs	0.000400u	0.000800	0.000Q50	0.000400	p w/kw
X(lsns9 d,o,alh	0.0735u	0.0350	0.0Q08	0.0735	p w/kw
Surrogates					
1RQ-Dtcgloros,gans-D4 d9Rrrh	110	31-176		0	%
4-Brop ofIRoro2snzsns d9Rrrh	10Q	55-151		0	%
TolRsns-x8 d9Rrrh	] 3.4	85-116		0	%

Batch Information

Anal(,tcal Ba,cg: VMmQQ541
Anal(,tcal Ms,gox: mW8Q60D
In9,rRp sn,: VCA 38] 0/5] 35 GS/Mm
Anal(9,: m.m
Anal(,tcal Da,s/Ttp s: 3/5/Q0Q7 10:Q8:00AM

Orse Ba,cg: VXX400] 1
Orse Ms,gox: mW5075A
Orse Da,s/Ttp s: 3/5/Q0Q7 6:00:00AM
Orse Int,tal W,./Vol.: 50 w
Orse Ei ,rac, Vol: Q5 p b

Ortn, Da,s: 03/71/Q0Q7 3:50:08OM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX400917
Blank Spike La] ID: 1b21095
Da8e t nalAyez: 0bd0/ d2023 10:4/

u a8iM SoildSoliz xzrA(eiwg8n

%C for SaP pleR 123299001/

6 eRsl8R] A **SW8260D**

Blank Spike xP wdkwh

) araP e8er	Spike	6 eRsl8	6 emxc h	CL
1Q1Q2,- e8amgloroe8gane	0Tb/ 0	0T 02	10b	xb. ,12/ h
1Q1,- ringloroe8gane	0Tb/ 0	0T 4/	113	xb3,130 h
1Q2Q2,- e8amgloroe8gane	0Tb/ 0	0Tb90	10/	xb0,124 h
1Q2,- ringloroe8gane	0Tb/ 0	0T 2b	110	xb. ,121 h
1Q,Dingloroe8gane	0Tb/ 0	0Tb4/	99	xb5,12/ h
1Q,Dingloroe8gene	0Tb/ 0	0Tb/ /	101	xb0,131 h
1Q,Dingloropropene	0Tb/ 0	0Tbb5	103	xb5,12/ h
1Q2Q3,- ringloro] enyene	0Tb/ 0	0T5/ 4	. b	x55,130 h
1Q2Q3,- ringloropropane	0Tb/ 0	0Tbb1	103	xb3,12/ h
1Q2Q4,- ringloro] enyene	0Tb/ 0	0T5. b	92	x5b,129 h
1Q2Q4,- riP e8gA] enyene	0Tb/ 0	0Tb/ 3	100	xb/ ,123 h
1Q2,Di] roP o,3,ngloropropane	0Tb/ 0	0T 0b	10.	x51,132 h
1Q2,Di] roP oe8gane	0Tb/ 0	0T / 9	11/	xb. ,122 h
1Q2,Dingloro] enyene	0Tb/ 0	0Tb25	9b	xb. ,121 h
1Q2,Dingloroe8gane	0Tb/ 0	0Tb4/	99	xb3,12. h
1Q2,Dingloropropane	0Tb/ 0	0Tb5b	102	xb5,123 h
1Q3Q2,- riP e8gA] enyene	0Tb/ 0	0Tb/ /	101	xb3,124 h
1Q3,Dingloro] enyene	0Tb/ 0	0Tb41	99	xbb,121 h
1Q3,Dingloropropane	0Tb/ 0	0Tbbb	104	xbb,121 h
1Q4,Dingloro] enyene	0Tb/ 0	0Tb39	99	xb/ ,120 h
2Q2,Dingloropropane	0Tb/ 0	0T 5/	11/	x5b,133 h
2,Bs8anone xu EKh	2T2/	2T20	9.	x/ 1,14. h
2,Cgloro8lsene	0Tb/ 0	0Tb4.	100	xb/ ,122 h
2,HeManone	2T2/	2T30	102	x/ 3,14/ h
4,Cgloro8lsene	0Tb/ 0	0Tb39	99	xb2,124 h
4,IRopropA8lsene	0Tb/ 0	0Tbb/	103	xb3,12b h
4,u e8gA,2,pen8anone xu IBKh	2T2/	2T29	102	x5/ ,13/ h
t me8ne	2T2/	1T94	. 5	x35,154 h
Benyene	0Tb/ 0	0Tb44	99	xbb,121 h
BroP o] enyene	0Tb/ 0	0Tb5/	102	xb. ,121 h
BroP omgloroP e8gane	0Tb/ 0	0Tb/ 4	101	xb. ,12/ h
BroP ozingloroP e8gane	0Tb/ 0	0T90.	121	xb/ ,12b h
BroP oforP	0Tb/ 0	0T / /	114	x5b,132 h
BroP oP e8gane	0Tb/ 0	0Tb/ 9	101	x/ 3,143 h

) rin8Da8e: 0bd81d2023 b:/ 0:11) u

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX400917
Blank Spike La] ID: 1b21095
Da8e t nalAyez: 0bd0/ d2023 10:4/

u a8iM SoildSoliz xzrA(eiwg8n

%C for SaP pleR 123299001/

6 eRsl8R] A **SW8260D**

Blank Spike xP wdkwh

) araP e8er	Spike	6 eRsl8	6 emxc h	CL
Car] on ziRslfize	1T13	1T2/	111	x53,132 h
Car] on 8e8anglorize	0Tb/ 0	0T 41	112	xb0,13/ h
Cgloro] enyene	0Tb/ 0	0Tb45	99	xb9,120 h
Cgloroe8gane	0Tb/ 0	0Tb/ 5	101	x/ 9,139 h
CgloroforP	0Tb/ 0	0Tbb9	104	xb. ,123 h
CgloroP e8gane	0Tb/ 0	0T59b	93	x/ 0,135 h
miR,1Q2,Dingloroe8gene	0Tb/ 0	0Tb33	9.	xbb,123 h
miR,1Q3,Dingloropropene	0Tb/ 0	0T 05	10b	xb4,125 h
Di] roP ongloroP e8gane	0Tb/ 0	0T 31	111	xb4,125 h
Di] roP oP e8gane	0Tb/ 0	0Tb. b	10/	xb. ,12/ h
DinglorozifIsoroP e8gane	0Tb/ 0	0Tb3/	9.	x29,149 h
E8gAl] enyene	0Tb/ 0	0Tb2/	9b	xb5,122 h
Freon,113	1T13	1T12	100	x55,135 h
HeMangloro] s8aziene	0Tb/ 0	0Tb52	102	x51,13/ h
IRopropAl] enyene xCsP eneh	0Tb/ 0	0Tb31	9.	x5. ,134 h
u e8gAlene nglorize	0Tb/ 0	0Tb2.	9b	xb0,12. h
u e8gAl,8] s8Al e8ger	1T13	1T10	9.	xb3,12/ h
Napg8galene	0Tb/ 0	0T5b1	90	x52,129 h
n,Bs8Al] enyene	0Tb/ 0	0Tb. 0	104	xb0,12. h
n,) ropAl] enyene	0Tb/ 0	0Tb/ 2	100	xb3,12/ h
o,XAlene	0Tb/ 0	0Tb2.	9b	xbb,123 h
) & u ,XAlene	1T 0	1T44	95	xbb,124 h
Rem,Bs8Al] enyene	0Tb/ 0	0Tb/ 1	100	xb3,125 h
S8Arene	0Tb/ 0	0Tb/ 5	101	xb5,124 h
8er8,Bs8Al] enyene	0Tb/ 0	0Tb/ 4	101	xb3,12/ h
- e8angloroe8gene	0Tb/ 0	0Tb52	102	xb3,12. h
- olsene	0Tb/ 0	0Tb0b	94	xbb,121 h
8anR,1Q2,Dingloroe8gene	0Tb/ 0	0Tb/ 1	100	xb4,12/ h
8anR,1Q3,Dingloropropene	0Tb/ 0	0T 05	10b	xb1,130 h
- ringloroe8gene	0Tb/ 0	0Tb. b	10/	xbb,123 h
- ringlorofIsoroP e8gane	0Tb/ 0	0T903	120	x52,140 h
VinAl ame8a8e	0Tb/ 0	0T 53	11/	x/ 0,1/ 1 h
VinAl nglorize	0Tb/ 0	0Tb31	9b	x/ 5,13/ h
XAleneRxb8alh	2T2/	2T1b	9b	xb. ,124 h

) rin8Da8e: 0bd81d2023 b:/ 0:11) u

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VXX400917
Blank Spike La] ID: 1b21095
Da8e t nalAyez: 0bd0/ d2023 10:4/

u a8iM SoildSoliz xzrA(eiwg8n

%C for SaP pleR 123299001/

6 eRsl8R] A SW8260D

Blank Spike xP wdkwh

) araP e8er	Spike	6 eRsl8	6 emxc h	CL
Surrogates				
1Q2,Dimgloroe8gane,D4 xRsrrh	0Tb/ 0	9.		xb1,135 h
4,BroP ofIsoro] enyene xRsrrh	0Tb/ 0	104		x/ / ,1/ 1 h
- olsene,z. xRsrrh	0Tb/ 0	9.		x. / ,115 h

Batch Information

t nalA8mal Ba8mg: **VMS22541**
t nalA8mal u e8goz: **SW8260D**
InR8sP en8 **VQA 7890/5975 GC/MS**
t nalAR8 **S.S**

) rep Ba8mg: **VXX40091**
) rep u e8goz: **SW5035A**
) rep Da8ed iP e: **07/05/2023 06:00**
Spike Ini8W8dVolT 0Tb/ 0 P wdkw EM8am8Vol: 2/ P L
Dspe Ini8W8dVolT EM8am8Vol:

) rin8Da8e: 0bd81d2023 b:/ 0:11) u

Matrix Spike Summary

Original Sample ID: 1721057
8 S Sample ID: 1721059 8 S
8 SD Sample ID: 1721055 8 SD

MnalAyiy Dase: 07t0/ t2023 13:4/
MnalAyiy Dase: 07t0/ t2023 12:23
MnalAyiy Dase: 07t0/ t2023 12:35
8 asrix: SolidtSoil (WesWeighs)

QC for Sampley: 123255001/

Reyulsy bA **SW8260D**

		8 asrix Spike (mgtkg)			Spike Duplicase (mgtkg)					
Parameser	Sample	Spike	Reyuls	Rec (%)	Spike	Reyuls	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tesrachloroeshane	0.0109<	0.91U	0.9/ 9	10/	0.91U	0.9/ 4	10/	79-12/	0.49	(6 20)
1,1,1-Trichloroeshane	0.013U<	0.91U	0.537	11/	0.91U	0.539	11/	73-130	0.11	(6 20)
1,1,2,2-Tesrachloroeshane	0.00109<	0.91U	0.9/ /	10/	0.91U	0.947	104	70-124	0.54	(6 20)
1,1,2-Trichloroeshane	0.000/ 40<	0.91U	0.953	105	0.91U	0.99U	105	79-121	0.7/	(6 20)
1,1-Dichloroeshane	0.013U<	0.91U	0.925	102	0.91U	0.92U	101	7U-12/	0.33	(6 20)
1,1-Dichloroeshene	0.013U<	0.91U	0.9/ /	10/	0.91U	0.9U3	10U	70-131	0.51	(6 20)
1,1-Dichloropropene	0.013U<	0.91U	0.9U3	10U	0.91U	0.9UU	10U	7U-12/	0.3U	(6 20)
1,2,3-Trichlorobenzene	0.0/ 40<	0.91U	0.732	50	0.91U	0.740	51	UU-130	1.00	(6 20)
1,2,3-Trichloropropane	0.00109<	0.91U	0.92/	101	0.91U	0.91U	100	73-12/	1.00	(6 20)
1,2,4-Trichlorobenzene	0.013U<	0.91U	0.7UU	54	0.91U	0.771	5/	U7-125	0.U1	(6 20)
1,2,4-TrimeshAlbenzene	0.274	0.91U	1.11	103	0.91U	1.11	102	7/ -123	0.4U	(6 20)
1,2-Dibromo-3-chloropropane	0.0/ 40<	0.91U	0.971	107	0.91U	0.9U0	10/	U1-132	1.30	(6 20)
1,2-Dibromoeshane	0.000910<	0.91U	0.531	114	0.91U	0.522	113	79-122	0.57	(6 20)
1,2-Dichlorobenzene	0.013U<	0.91U	0.79/	5U	0.91U	0.793	5U	79-121	0.2U	(6 20)
1,2-Dichloroeshane	0.00109<	0.91U	0.91/	100	0.91U	0.905	55	73-129	0.74	(6 20)
1,2-Dichloropropane	0.00/ 40<	0.91U	0.940	103	0.91U	0.93U	102	7U-123	0.44	(6 20)
1,3,/ -TrimeshAlbenzene	0.100	0.91U	0.520	100	0.91U	0.52U	101	73-124	0.U2	(6 20)
1,3-Dichlorobenzene	0.013U<	0.91U	0.902	59	0.91U	0.759	59	77-121	0./ 4	(6 20)
1,3-Dichloropropane	0.00/ 40<	0.91U	0.944	103	0.91U	0.930	102	77-121	1.U0	(6 20)
1,4-Dichlorobenzene	0.013U<	0.91U	0.90/	55	0.91U	0.900	59	7/ -120	0./ 9	(6 20)
2,2-Dichloropropane	0.013U<	0.91U	0.5U4	119	0.91U	0.5UU	119	U7-133	0.29	(6 20)
2-Busanone (8 EK)	0.13U<	2.4/	2.39	57	2.4/	2.3/	5U	/ 1-149	1.40	(6 20)
2-Chlorosoluene	0.013U<	0.91U	0.937	103	0.91U	0.925	102	7/ -122	0.54	(6 20)
2-Hexanone	0.0U/ 0<	2.4/	2.45	102	2.4/	2.43	55	/ 3-14/	2.U0	(6 20)
4-Chlorosoluene	0.0109<	0.91U	0.903	59	0.91U	0.759	59	72-124	0.U1	(6 20)
4-IyopropAlsoluene	0.0433<	0.91U	0.9U0	10/	0.91U	0.9U3	10U	73-127	0.39	(6 20)
4-8 eshAl-2-pensanone (8 IBK)	0.13U<	2.4/	2.4/	100	2.4/	2.40	59	U/ -13/	2.20	(6 20)
Mcesone	0.13U<	2.4/	2.10	9U	2.4/	2.09	9/	3U-1U4	0.54	(6 20)
Benzene	0.00U7/ <	0.91U	0.924	101	0.91U	0.922	101	77-121	0.29	(6 20)
Bromobenzene	0.013U<	0.91U	0.927	101	0.91U	0.922	101	79-121	0.U7	(6 20)
Bromochloromeshane	0.013U<	0.91U	0.92/	101	0.91U	0.934	102	79-12/	1.00	(6 20)
Bromodichloromeshane	0.00109<	0.91U	0.553	122	0.91U	0.594	121	7/ -127	0.5U	(6 20)
Bromoform	0.013U<	0.91U	0.521	113	0.91U	0.995	105	U7-132	3./ 0	(6 20)
Bromomeshane	0.0109<	0.91U	0.932	102	0.91U	0.9/ 4	10/	/ 3-143	2.U0	(6 20)
Carbon diyulfide	0.0/ 40<	1.22	1.42	11U	1.22	1.43	117	U3-132	1.20	(6 20)
Carbon sesrachloride	0.00U7/ <	0.91U	0.533	114	0.91U	0.523	113	70-13/	1.00	(6 20)
Chlorobenzene	0.013U<	0.91U	0.911	55	0.91U	0.90/	55	75-120	0.75	(6 20)

PrinsDase: 07t31t2023 7:/ 0:13P8

Matrix Spike Summary

Original Sample ID: 1721057
8 S Sample ID: 1721059 8 S
8 SD Sample ID: 1721055 8 SD

MhalAyiy Dase: 07t0/ t2023 13:4/
MhalAyiy Dase: 07t0/ t2023 12:23
MhalAyiy Dase: 07t0/ t2023 12:35
8 asrix: SolidtSoil (WesWeighs)

QC for Sampley: 123255001/

Reyulsy bA **SW8260D**

		8 asrix Spike (mgtkg)			Spike Duplicase (mgtkg)					
Parameser	Sample	Spike	Reyuls	Rec (%)	Spike	Reyuls	Rec (%)	CL	RPD (%)	RPD CL
Chloroeshane	0.109<	0.91U	0.755	59	0.91U	0.90/	55	/ 5-135	0.U5	(6 20)
Chloroform	0.0032/ <	0.91U	0.9/ 9	10/	0.91U	0.9/ 9	10/	79-123	0.01	(6 20)
Chloromeshane	0.013U<	0.91U	0.73/	50	0.91U	0.732	50	/ 0-13U	0.43	(6 20)
ciy-1,2-Dichloroeshene	0.013U<	0.91U	0.927	101	0.91U	0.92U	101	77-123	0.10	(6 20)
ciy-1,3-Dichloropropene	0.00U7/ <	0.91U	0.999	105	0.91U	0.990	109	74-12U	0.57	(6 20)
Dibromochloromeshane	0.00270<	0.91U	0.504	111	0.91U	0.999	105	74-12U	1.90	(6 20)
Dibromomeshane	0.013U<	0.91U	0.9/ 9	10/	0.91U	0.9/ /	10/	79-12/	0.44	(6 20)
Dichlorodifluoromeshane	0.0/ 40<	0.91U	0.742	51	0.91U	0.743	51	25-145	0.19	(6 20)
EshAlbenzene	0.0117F	0.91U	0.909	59	0.91U	0.909	59	7U-122	0.02	(6 20)
Jreon-113	0.0/ 40<	1.22	1.27	104	1.22	1.29	10/	UU-13U	1.20	(6 20)
Hexachlorobusadiene	0.0109<	0.91U	0.555	122	0.91U	1.05	134	U1-13/	9.70	(6 20)
IyopropAlbenzene (Cumene)	0.013U<	0.91U	0.911	55	0.91U	0.915	100	U9-134	0.55	(6 20)
8 eshAlene chloride	0.04/ 2F	0.91U	0.901	53	0.91U	0.901	53	70-129	0.0/	(6 20)
8 eshAl-s-busAl esher	0.0/ 40<	1.22	1.22	100	1.22	1.15	59	73-12/	2.40	(6 20)
Naphshalene	0.02U3F	0.91U	0.7UU	51	0.91U	0.777	52	U2-125	1./ 0	(6 20)
n-BusAlbenzene	0.013U<	0.91U	0.952	105	0.91U	0.99U	105	70-129	0.74	(6 20)
n-PropAlbenzene	0.013U<	0.91U	0.931	102	0.91U	0.922	101	73-12/	1.20	(6 20)
o-XAlene	0.139	0.91U	0.544	55	0.91U	0.53/	59	77-123	0.55	(6 20)
P & 8 -XAlene	0.17/	1.U3	1.79	59	1.U3	1.77	59	77-124	0.U/	(6 20)
yec-BusAlbenzene	0.013U<	0.91U	0.93U	102	0.91U	0.927	101	73-12U	0.55	(6 20)
SsArene	0.013U<	0.91U	0.930	102	0.91U	0.922	101	7U-124	0.5U	(6 20)
sers-BusAlbenzene	0.013U<	0.91U	0.934	102	0.91U	0.931	102	73-12/	0.30	(6 20)
Tesrachloroeshene	0.00U7/ <	0.91U	0.93/	102	0.91U	0.934	102	73-129	0.19	(6 20)
Toluene	0.0144F	0.91U	0.792	54	0.91U	0.779	54	77-121	0.4/	(6 20)
srany-1,2-Dichloroeshene	0.013U<	0.91U	0.943	103	0.91U	0.9/ U	10/	74-12/	1.U0	(6 20)
srany-1,3-Dichloropropene	0.00U7/ <	0.91U	0.977	109	0.91U	0.9U4	10U	71-130	1.U0	(6 20)
Trichloroeshene	0.00/ 40<	0.91U	0.9U9	10U	0.91U	0.9U5	10U	77-123	0.12	(6 20)
Trichlorofluoromeshane	0.0271<	0.91U	0.572	115	0.91U	0.5U0	119	U2-140	1.20	(6 20)
VinAl acesase	0.0/ 40<	0.91U	0.53U	11/	0.91U	0.515	113	/ 0-1/ 1	1.50	(6 20)
VinAl chloride	0.000433<	0.91U	0.7U3	54	0.91U	0.7U5	54	/ U-13/	0.70	(6 20)
XAleney (sosal)	0.313	2.4/	2.72	55	2.4/	2.70	59	79-124	0.77	(6 20)
Surrogates										
1,2-Dichloroeshane-D4 (yurr)		0.91U	0.909	55	0.91U	0.911	55	71-13U	0.35	
4-Bromofluorobenzene (yurr)		1.17	1.05	53	1.17	1.10	53	/ / -1/ 1	0.0U	
Toluene-d9 (yurr)		0.91U	0.795	57	0.91U	0.753	57	9/ -11U	0.41	

PrinsDase: 07t31t2023 7:/ 0:13P8

Matrix Spike Summary

Original Sample ID: 1721057
8 S Sample ID: 1721059 8 S
8 SD Sample ID: 1721055 8 SD

QC for Sampley: 123255001/

MnalAyiy Dase:
MnalAyiy Dase: 07t0/ t2023 12:23
MnalAyiy Dase: 07t0/ t2023 12:35
8 asrix: SolidtSoil (WesWeighs)

Reyulsy bA **SW8260D**

		8 asrix Spike (%)			Spike Duplicase (%)					
Parameser	Sample	Spike	Reyuls	Rec (%)	Spike	Reyuls	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

MnalAsical Basch: V8 S22/ 41
MnalAsical 8 eshod: SW92U0D
Inysrumens: VQM7950t/ 57/ GCt8 S
MnalAys: S.S
MnalAsical DasetTime: 7t/ t2023 12:23:00P8

Prep Basch: VXX40051
Prep 8 eshod: Vol. Exsracsion SW92U0 Jield Exsracsed L
Prep DasetTime: 7t/ t2023 U:00:00M8
Prep Inisial WstVol.: / 3.30g
Prep ExsracsVol: 29.94mL

PrinsDase: 07t31t2023 7:/ 0:13P8

Method Blank

Blank ID: MB for HBN 1857885 [XXX/48102]
Blank Lab ID: 1719962

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990004, 1232990005, 1232990006

Results by **AK102**

Parameter	Results	LOQ/CL	DL	LOD	Units
Diesel Range Organics	10.0U	20.0	9.00	10.0	mg/kg
Surrogates					
5a Androstane (surr)	98.1	60-120		0	%

Batch Information

Analytical Batch: XFC16552
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: T.L
Analytical Date/Time: 7/5/2023 6:35:00PM

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 6/29/2023 11:17:00AM
Prep Initial Wt./Vol.: 22.5 g
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 1232990 [VVVX41026
Blank Spike La] ID: 1b19973
Da8e t nalAyez: 0bd0/ d2023 14:X/

Spike Duplica8e ID: LCSD for HBN 1232990 [VVVX41026
Spike Duplica8e La] ID: 1b1997X
Ma8ix: Soild Soliz (zrA weigh8)

QC for Samples: 123299000X, 123299000/ , 1232990007

Resul8s] A **AK102**

Parame8er	Blank Spike (mgdkg) Spike	Resul8	Rec (%)	Spike Duplica8e (mgdkg) Spike	Resul8	Rec (%)	CL	RPD (%)	RPD CL
Diesel Range 5 rganics	1110	1140	107	1110	1330	119	(b/ C12/)	11.X0	(O20)
Surrogates									
/ a t nzros8ane (surr)	22.2		102	22.2		11/	(70C120)	12.00	

Batch Information

t nalA8cal Ba8ch: **XFC16552**
t nalA8cal Me8hoz: **AK102**
Ins8rumen8 **Agilent 7890B R**
t nalAs8 **T.L**

Prep Ba8ch: **XXX48102**
Prep Me8hoz: **SW3550C**
Prep Da8ed ime: **06/29/2023 11:17**
Spike Ini8< 8d Tol.: 22.2 mgdkg Wk8rac8Tol: / mL
Dupe Ini8< 8d Tol.: 22.2 mgdkg Wk8rac8Tol: / mL

Method Blank

Blank ID: MB for HBN 1857885 [XXX/48102]
Blank Lab ID: 1719962

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990004, 1232990005, 1232990006

Results by **AK103**

Parameter	Results	LOQ/CL	DL	LOD	Units
Residual Range Organics	50.0U	100	43.0	50.0	mg/kg
Surrogates					
n-Triacontane-d62 (surr)	96.6	60-120		0	-

Batch Information

Analytical Batch: XKC16552
Analytical Method: FT103
Instrument: Agilent 7890B R
Analyst: %L
Analytical Date/Time: 7/5/2023 6:35:00PM

Prep Batch: XXX48102
Prep Method: SW3550C
Prep Date/Time: 6/29/2023 11:17:00FM
Prep Initial Wt./Vol.: 22.5 g
Prep Extract Vol: 5 mL

SGS North America Inc.
200 West Potter Drive Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VVVX41026
Blank Spike La] ID: 1b19973
Da8e t nalAyez: 0bd0/ d2023 14:X/

Spike Duplica8e ID: LCSD for HBN 1232990 [VVVX41026
Spike Duplica8e La] ID: 1b1997X
Ma8ix: Soild Soliz (zrA weigh8)

QC for Samples: 123299000X, 123299000/ , 1232990007

Resul8s] A **AK102**

Parame8er	Blank Spike (mgdkg) Spike	Resul8	Rec (%)	Spike Duplica8e (mgdkg) Spike	Resul8	Rec (%)	CL	RPD (%)	RPD CL
Resizual Range 5 rganics	1110	1110	100	1110	12X0	112	(70G120)	11.30	(O20)
Surrogates									
nG riacon8aneG272 (surr)	22.2		103	22.2		109	(70G120)	7.10	

Batch Information

t nalA8cal Ba8ch: **XFC16557**
t nalA8cal Me8hoz: **AK102**
Ins8rumen8 **Agilent 89R0B T**
t nalAs8 **. l4**

Prep Ba8ch: **XXXW0107**
Prep Me8hoz: **S3 2550C**
Prep Da8ed ime: **06/7R/7072 11:18**
Spike Ini8< 8dTol.: 22.2 mgdkg Wk8ac8Tol: / mL
Dupe Ini8< 8dTol.: 22.2 mgdkg Wk8ac8Tol: / mL

Method Blank

Blank ID: MB for HBN 1857934 [XXX/48103]
Blank Lab ID: 1720009

Matrix: Soil/Solid (dry weight)

QC for Samples:
1232990001, 1232990003, 1232990007, 1232990008, 1232990009

Results by **AK102**

Parameter	Results	LOQ/CL	DL	LOD	Units
Diesel Range Organics	10.5J	20.0	9.00	10.0	mg/kg
Surrogates					
5a Androstane (surr)	116	60-120		0	%

Batch Information

Analytical Batch: XFC16560
Analytical Method: AK102
Instrument: Agilent 7890B R
Analyst: T.L
Analytical Date/Time: 7/19/2023 6:05:00PM

Prep Batch: XXX48103
Prep Method: SW3550C
Prep Date/Time: 6/29/2023 12:42:00PM
Prep Initial Wt./Vol.: 22.5 g
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 1232990 [VVVX41036
Blank Spike La] ID: 1b20010
Da7e 8nalt Aey: 0bz19z2023 14:1d

Spike D/ pliua7e ID: LCSD for HBN 1232990 [VVVX41036
Spike D/ pliua7e La] ID: 1b20011
s a7iM SoilzSoliy xyrt (eiwg7h

%C for SaP pleR 1232990001Q1232990003Q123299000bQ1232990004Q1232990009

c eR/ l7R] t **AK102**

	Blank Spike xP wzkwh			Spike D/ pliua7e xP wzkwh					
) araP e7er	Spike	c eR/ l7	c eu xmh	Spike	c eR/ l7	c eu xmh	CL	c) D xmh	c) D CL
DieRel c anwe , rwaniuR	1110	1330	120	1110	1100	99	xbd512d h	14Q90	xG20 h
Surrogates									
da 8nyroR7ane xR/ rrh	22Q2		114	22Q2		101	x. 05120 h	1dQ90	

Batch Information

8nalt 7ual Ba7ug: **XFC16560**
8nalt 7ual s e7goy: **AK102**
InR7r/ P en7: **Agilent 7890B R**
8nalt R7: **T.L**

) rep Ba7ug: **XXX4810W**
) rep s e7goy: **S3 W550C**
) rep Da7ez- iP e: **06/29/202W 12:42**
Spike Ini7< 7Q2TolO 22Q2 P wzkw WM7rau7Tol: d P L
D/ pe Ini7< 7Q2TolO 22Q2 P wzkw WM7rau7Tol: d P L

) rin7Da7e: 0bz312023 b:d0:29) s

Method Blank

Blank ID: MB for HBN 1857[X/ 40002 81] XL
Blank ba9 ID: 176]]] [

Ma,rti : Sotl2Soltx dkr(y etwg,h

QC for Samples:
16X6[[ ]]] 1316X6[[ ]]] X316X6[[ ]]] 7316X6[[ ]]] 8316X6[[ ]]] [

) esR1,s 9(**AK103**

Oarame,er	) esR1,s	bUQ2Cb	Db	bUD	u nt,s
) estxRal) anwe UrwantPs	5] d; u	1]]	/ Xd]	5] d;	mw2kw
Surrogates					
n.ArtaPon,ane.x%6 dsRrrh	11X	%] .16]		]	-

Batch Information

Fnal(,tPal Ba,Pg: 0KC1%5%]
Fnal(,tPal Me,gox: FT1] X
Ins,rRmen,: Fwtlen, 78[ ] B)
Fnal(s,: Adb
Fnal(,tPal Da,e2Atme: 721[26] 6X %] 5:]] OM

Orep Ba,Pg: 000/ 81] X
Orep Me,gox: SWX55] C
Orep Da,e2Atme: %26[26] 6X 16:/ 6:]] OM
Orep Int,tal W,c2Volc 66c5 w
Orep Ei ,raP, Vol: 5 mb

Ortn, Da,e:] 72X126] 6X 7:5] :X6OM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [XXX48103]
Blank Spike Lab ID: 1720010
Date Analyzed: 07/19/2023 18:15

Spike Duplicate ID: LCSD for HBN 1232990 [XXX48103]
Spike Duplicate Lab ID: 1720011
Matrix: Soil/Solid (dry weight)

QC for Samples: 1232990001, 1232990003, 1232990007, 1232990008, 1232990009

Results by **AK102**

	Blank Spike (mg/kg)			Spike Duplicate (mg/kg)					
Parameter	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Residual Range Organics	1110	1130	102	1110	919	83	(60-120)	20.80	* (< 20)
Surrogates									
n-Triacontane-d62 (surr)	22.2		110	22.2		91	(60-120)	18.90	

Batch Information

Analytical Batch: **XFC16560**
Analytical Method: **AK102**
Instrument: **Agilent 7890B R**
Analyst: **T.L**

Prep Batch: **XXX48102**
Prep Method: **SW2550C**
Prep Date/Time: **063 93 0/ 2 1/ :4/**
Spike Init Wt./Vol.: 22.2 mg/kg Extract Vol: 5 mL
Dupe Init Wt./Vol.: 22.2 mg/kg Extract Vol: 5 mL

Print Date: 07/31/2023 7:50:35PM

Method Blank

Blank ID: MB for HBN 18587[X/4440X81[2]
Blank Lab ID: 1972916

Matrix: Soil0Solid (dry weight)

QC for Samples:
17[7332212, 17[7332211, 17[7332217, 17[733221[, 17[733221X, 17[7332215, 17[7332216

Results by **AK102**

Parameter	Results	LOQ0CL	DL	LOD	Units
Diesel Range Organics	12.2U	72.2	3.22	12.2	mg0kg
Surrogates					
5a Androstane (surr)	36.5	62-172		2	%

Batch Information

Analytical Batch: 4FC16562
Analytical Method: AK127
Instrument: Agilent 9832B R
Analyst: T.L
Analytical Date0Time: 90130727[11:X3:22PM

Prep Batch: 444X81[2
Prep Method: SW[552C
Prep Date0Time: 9650727[8:58:58AM
Prep Initial Wt.0Vol.: 77.5 g
Prep Extract Vol: 5 mL

Print Date: 290[10727[9:52:[3PM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VVVX41306
Blank Spike La] ID: 1b20b1b
Da7e 8nalt Aey: 0bz19z2023 23:d9

Spike D/ pliua7e ID: LCSD for HBN 1232990 [VVVX41306
Spike D/ pliua7e La] ID: 1b20b14
s a7riM SoilzSoliy xyrt (eiwg7h

%C for SaP pleR 1232990010Q1232990011Q1232990012Q1232990013Q123299001XQ123299001dQ123299001,

c eR/ l7R] t **AK102**

	Blank Spike xP wzkwh			Spike D/ pliua7e xP wzkwh					
) araP e7er	Spike	c eR/ l7	c eu xmh	Spike	c eR/ l7	c eu xmh	CL	c) D xmh	c) D CL
DieRel c anwe 5 rwaniuR	1110	1200	104	1110	12, 0	113	xbdC12d h	X.40	xO20 h
Surrogates									
da 8nyroR7ane xR/ rrh	22.2		104	22.2		11X	x, 0C120 h	d.10	

Batch Information

8nalt 7ual Ba7ug: **XFC16560**
8nalt 7ual s e7goy: **AK102**
InR7r/ P en7: **Agilent 7890B R**
8nalt R7: **T.L**

) rep Ba7ug: **XXX481W0**
) rep s e7goy: **S3 W550C**
) rep Da7ez- iP e: **07/05/202W 08:58**
Spike Ini7< 7.zTol.: 22.2 P wzkw WM7rau7Tol: d P L
D/ pe Ini7< 7.zTol.: 22.2 P wzkw WM7rau7Tol: d P L

) rin7Da7e: 0bz312023 b:d0:X1) s

Method Blank

Blank ID: MB for HBN 18587[X/4440X81[2]
Blank Lab ID: 1972916

Matrix: Soil0Solid (dry weight)

QC for Samples:
17[7332212, 17[7332211, 17[7332217, 17[733221[, 17[733221X, 17[7332215, 17[7332216

Results by **AK103**

Parameter	Results	LOQ0CL	DL	LOD	Units
Residual Range Organics	52.2U	122	X[.2	52.2	mg0kg
Surrogates					
nA%riacontaneAd67 (surr)	31	62A172		2	-

Batch Information

Fnalytical Batch: 4KC16562
Fnalytical Method: FT12[
Instrument: Fgilent 9832B R
Fnalyst: %L
Fnalytical Date0%me: 90130727[11:X3:22PM

Prep Batch: 444X81[2
Prep Method: SW[552C
Prep Date0%me: 9050727[8:58:58FM
Prep Initial Wt.0Vol.: 77.5 g
Prep Extract Vol: 5 mL

Print Date: 290[10727[9:52:XXPM

Blank Spike Summary

Blank Spike ID: LCS for HBN 1232990 [VVVX41306
Blank Spike La] ID: 1b20b1b
Da7e 8nalt Aey: 0bz19z2023 23:d9

Spike D/ pliua7e ID: LCSD for HBN 1232990 [VVVX41306
Spike D/ pliua7e La] ID: 1b20b14
s a7riM SoilzSoliy xyrt (eiwg7h

%C for SaP pleR 1232990010Q1232990011Q1232990012Q1232990013Q123299001XQ123299001dQ123299001,

c eR/ l7R] t **AK102**

	Blank Spike xP wzkwh			Spike D/ pliua7e xP wzkwh					
) araP e7er	Spike	c eR/ l7	c eu xmh	Spike	c eR/ l7	c eu xmh	CL	c) D xmh	c) D CL
c eRy/ al c anwe 5 rwaniuR	1110	1010	91	1110	10, 0	9d	x, 0G120 h	X.X0	xO20 h
Surrogates									
nG riauon7aneGy, 2 xR/ rrh	22.2		9b	22.2		103	x, 0G120 h	d.40	

Batch Information

8nalt 7ual Ba7ug: **XFC16560**
8nalt 7ual s e7goy: **AK102**
InR7r/ P en7: **Agilent 7890B R**
8nalt R7: **T.L**

) rep Ba7ug: **XXX48120**
) rep s e7goy: **SW2550C**
) rep Da7ez- iP e: **073053 0/ 2 08:58**
Spike Ini7< 7.zTol.: 22.2 P wzkw WM7rau7Tol: d P L
D/ pe Ini7< 7.zTol.: 22.2 P wzkw WM7rau7Tol: d P L

) rin7Da7e: 0bz312023 b:d0:X4) s

1232990

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

www.us.sgs.com

Profile #: 376966 Int.: DBR

Instructions: Sections 1 - 5 must be filled out.
Omissions may delay the onset of analysis.

Page 1 of 2

Section 1

CLIENT: ChemTrack Alaska, Inc.
CONTACT: Harmony Hirsch
PHONE #: (907)947-7696
PROJECT NAME: Kawerak/Koyuk
Project/Permit Number:
NPDL Number(DOD):
REPORTS TO: Harmony@chemtrack.net
E-MAIL: info@chemtrack.net
INVOICE TO: cori@chemtrack.net
QUOTE #:
P.O. #: 6451

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Sample Type Comp Grab MI	Analysis* DRO AK102	RRO AK103	GRO AK101	VOCs 8260							REMARKS/LOC ID
							low	none	MeOH	MeOH							
(1) AB	23KKA-TP02-7	06/22/23	17:21	Soil	2	G	X	X	X	X							Elevated FS-Petrol odor
(2) A	23KKA-TB-0622	06/22/23	17:21	Trip Blank	1	TB			X	X							Trip Blank
(3) AB	23KKA-TP02-9?	06/22/23	17:28	Soil	2	G	X	X	X	X							Elevated FS Petrol odor
(4) AB	23KKA-TP02-14	06/22/23	17:55	Soil	2	G	X	X	X	X							
(5) AB	23KKA-TP04-10'	06/23/23	09:20	Soil	2	G	X	X	X	X							
(6) AB	23KKA-TP05-6	6/23/23	10:51	Soil	2	G	X	X	X	X							
(7) AB	23KKA-TP06-9	6/23/23	15:32	Soil	2	G	X	X	X	X							
(8) AB	23KKA-TP07-2	6/23/23	16:17	Soil	2	G	X	X	X	X							HOT Sample
(9) AB	23KKA-TP07-9.5	6/23/23	16:36	Soil	2	G	X	X	X	X							
(10) AB	23KKA-TP08-9.5	6/24/23	08:53	Soil	2	G	X	X	X	X							

NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

Comments: Standard TAT, Level II data package - elevated field screens & strong petrol odor - noted above - adjust accordingly -

Section 4

DOD Project? YES (NO)
Data Deliverables Requested
DataView SEDD EQUIS
Level 4 ERPIMS Other:_____

Turnaround Time Requested
(Standard)
Rush
Requested Rush Report Date:_____

SGS Sample Receipt (Lab Use Only)

Delivery Method: (Client) Commercial
Did each cooler have a corresponding COC? (Yes) No
Chain of Custody Seal Condition: (INTACT) BROKEN ABSENT
COC Seal Location(s):_____

Section 5

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	Cooler ID	Temperature (°C)	Therm. ID
	25Jun23	16:59			4.5	D58
	6/27/23	11:52	Jsmall			

If more than three coolers are received, or for documentation of non-compliant coolers, use form FS-0029.

Note: If temp. is outside 0-6° and samples were not taken <8 hours ago OR are waste samples, Client or PM should initial here or attach an email change order to proceed with analysis. If ice is present, note on form F102B.

Intials:_____

Laboratory Use Only

http://www.sgs.com/terms-and-conditions

1232990

SGS

SGS North America Inc.
CHAIN OF CUSTODY RECORD

Profile #: Int.: www.us.sgs.com

Page 2 of 2

Instructions: Sections 1 - 5 must be filled out. Omissions may delay the onset of analysis.

Section 1

CLIENT: ChemTrack Alaska, Inc.
CONTACT: Harmony Hirsch
PHONE #: (907) 947-7696
PROJECT NAME: Kawerak/Koyuk
Project/Permit Number:
NPDL Number(DOD):
REPORTS TO: Harmony Hirsch
E-MAIL: info@chemtrack.net
INVOICE TO: Lori@chemtrack.net
QUOTE #:
P.O. #: 6451

Section 2

RESERVED for lab use	SAMPLE IDENTIFICATION	DATE mm/dd/yy	TIME HH:MM	MATRIX/ MATRIX CODE	# CONTAINERS	Sample Type: Comp / Grab / MI	Analysis*: DRO AK102 (none)	RRO AK103 (none)	GRO AK101 (MeOH)	VOCs 8260B (MeOH)	REMARKS/LOC ID
(11) AB	23KKA-TP09-10.5	6/24/23	10:03	Soil	2	G	X	X	X	X	
(12) AB	23KKA-TP10-10	6/24/23	11:01	Soil	2	G	X	X	X	X	
(13) AB	23KKA-TP11-10.5	6/24/23	11:47	Soil	2	G	X	X	X	X	
(14) AB	23KKA-TP12-9	6/24/23	12:53	Soil	2	G	X	X	X	X	
(15) AB	23KKA-TP13-4.5	6/24/23	13:49	Soil	2	G	X	X	X	X	
(16) AB	23KKA-TP03-13	6/22/23	19:52	Soil	2	G	X	X	X	X	

NOTE: *The following analyses require specific method and/or compound list: BTEX, Metals, PFAS

Comments: Standard TAT - Level II Data package

Section 4

DOD Project? YES (NO)
Data Deliverables Requested: DataView, Level 4, SEDD, ERPIMS, EQUIS, Other:_____

Turnaround Time Requested: (Standard) Rush
Requested Rush Report Date:_____

SGS Sample Receipt (Lab Use Only)

Delivery Method: (Client) Commercial
Did each cooler have a corresponding COC? (Yes) No
Chain of Custody Seal Condition: (INTACT) BROKEN ABSENT
COC Seal Location(s):_____

Section 5

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
	25Jun23	16:59	
	6/27/23	11:52	Jsmal

Laboratory Use Only

Cooler ID	Temperature (°C)	Therm. ID
	4.5	D53

If more than three coolers are received, or for documentation of non-compliant coolers, use form FS-0029.

Note: If temp. is outside 0-6° and samples were not taken <8 hours ago OR are waste samples, Client or PM should initial here or attach an email change order to proceed with analysis. If ice is present, note on form F102B.

Intials:_____

http://www.sgs.com/terms-and-conditions

1232990

SGS

SAMPLE RECEIPT FORM

Project Manager Completion				
Was all necessary information recorded on the COC upon receipt? (temperature, COC seals, etc.?)	Yes	No	N/A	
Was temperature between 0-6° C?	Yes	No	N/A	If "No", are the samples either exempt* or sampled <8 hours prior to receipt?
Were all analyses received within holding time*?	Yes	No	N/A	
Was a method specified for each analysis, where applicable? If no, please note correct methods.	Yes	No	N/A	
Are compound lists specified, where applicable? For project specific or special compound lists please note correct analysis code.	Yes	No	N/A	
If rush was requested by the client, was the requested TAT approved?	Yes	No	N/A	If "NO", what is the approved TAT?
If SEDD Deliverables are required, were Location ID's and an NPDL Number provided?	Yes	No	N/A	*If "NO", contact client for information.*
Sample Login Completion				
Do ID's on sample containers match COC?	Yes	No	N/A	
If provided on containers, do dates/times collected match COC?	Yes	No	N/A	Note: If times differ <1 hr., record details below and login per COC.
Were all sample containers received in good condition?	Yes	No	N/A	
Were proper containers (type/mass/volume/preservative) received for all samples? **See form F-083 "Sample Guide"*	Yes	No	N/A	*Note: If 200.8/6020 Total Metals are received unpreserved, preserve and note HNO3 lot here: If 200.8/6020 Dissolved Metals are received unpreserved, log in for LABFILTER and do not preserve. For all non-metals methods, inform Project Manager.*
Were Trip Blanks (VOC, GRO, Low-Level Hg, etc.) received with samples, where applicable*?	Yes	No	N/A	
Were all VOA vials free of headspace >6mm?	Yes	No	N/A	
Were all soil VOA samples received field extracted with Methanol?	Yes	No	N/A	
Did all soil VOA samples have an accompanying unpreserved container for % solids?	Yes	No	N/A	
If special handling is required, were containers labelled appropriately? e.g. MI/ISM, foreign soils, lab filter, Ref Lab, limited volume	Yes	No	N/A	
For Rush/Short Holding time, was the lab notified?	Yes	No	N/A	
For any question answered "NO", was the Project Manager notified?	Yes	No	N/A	PM Initials:
Was Peer Review of sample numbering/labelling completed?	Yes	No	N/A	Reviewer Initials: JAC
Additional Notes/Clarification where Applicable, including resolution of "No" answers when a change order is not attached:				

CHEMTRACK KOYUK 20230606

rth America Inc.
r Dr., 3180 Peger Rd. Ste.
AK 99518 (ph) 190, Fairbanks, AK
3, (fax) 907- 99709 (ph) 907-474-
8656

Sample Kit Request

Client pickup Date: 6/13/2023 **Time:** 16:00

Be sure to ask if client will ship by ground (DOT) or air carrier (IATA)

Deliver to client:
Ship by/Air Carrier:
Airbill Number:
Date to ship by:
Notes:

If not, please send a request for new profile build.

Chemtrack

harmony@chemtrack.net; adam@eskerassociates.com

Koyuk

Profile#:

Kit request taken by: JAN **Date:** June 6, 2023
Kit prepared by: MC **Date:** 6/9/23
Kit *(including lid tightness for pres'd bottles)* checked by: [illegible] **Date:** 6/12/23
Kit packed & shipped by: MAC **Date:** 6/12/2023

*Required items

	Container Size & Type		Pres.	Bottle Lot #	Preservative Lot #	Hold Time	# QC Bottles	Total Bottles
RCRA Metals	1 x 4 oz.	Amber	None			14 d	0	16
VOC	1 x 4 oz.	w/Septa	MeOH			14 d	0	16
	3 x 40 mL	VOA	HCL			14 d	0	15
RRO	2 x 250 mL	Amber	HCl			14 d	0	10
als	1 x 125 mL	HDPE	HNO3			28 d	0	6
	3 x 40 mL	VOA	HCl			14 d	0	15

Note: The first 10 Analysis and Preservative columns will auto-fill up to the capacity of the associated COC.

l Information	Notes for Kit Prep
Air Transport (IATA)	
Yes - Small (125 mL)	
Yes - Water (8260, AK101, 8021, 624)	1 x Soil, 2 x Water TB
Yes	
Yes	
Yes	
Yes	
Yes - Standard COC	
No	

Attention Client/Sampler:

1. Do not rinse container, be aware of any acid preservative.
2. Fill container, but do not overfill (except volatiles).
3. Label the container with your sample ID and date/time of collection
4. Fill out the Chain of Custody.
5. Add frozen gel packs to your cooler and pack to prevent breakage.

If you have any questions please contact your Project Manager.

1232990

F083_KitRequest_20190102

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1232990001-A	No Preservative Required	OK			
1232990001-B	Methanol field pres. 4 C	OK			
1232990002-A	No Preservative Required	OK			
1232990002-B	Methanol field pres. 4 C	OK			
1232990003-A	No Preservative Required	OK			
1232990003-B	Methanol field pres. 4 C	OK			
1232990004-A	No Preservative Required	OK			
1232990004-B	Methanol field pres. 4 C	OK			
1232990005-A	No Preservative Required	OK			
1232990005-B	Methanol field pres. 4 C	OK			
1232990006-A	No Preservative Required	OK			
1232990006-B	Methanol field pres. 4 C	OK			
1232990007-A	No Preservative Required	OK			
1232990007-B	Methanol field pres. 4 C	OK			
1232990008-A	No Preservative Required	OK			
1232990008-B	Methanol field pres. 4 C	OK			
1232990009-A	No Preservative Required	OK			
1232990009-B	Methanol field pres. 4 C	OK			
1232990010-A	No Preservative Required	OK			
1232990010-B	Methanol field pres. 4 C	OK			
1232990011-A	No Preservative Required	OK			
1232990011-B	Methanol field pres. 4 C	OK			
1232990012-A	No Preservative Required	OK			
1232990012-B	Methanol field pres. 4 C	OK			
1232990013-A	No Preservative Required	OK			
1232990013-B	Methanol field pres. 4 C	OK			
1232990014-A	No Preservative Required	OK			
1232990014-B	Methanol field pres. 4 C	OK			
1232990015-A	No Preservative Required	OK			
1232990015-B	Methanol field pres. 4 C	OK			
1232990016-A	No Preservative Required	OK			
1232990016-B	Methanol field pres. 4 C	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.

Appendix I

Laboratory Data Review Checklist

ADEC Contaminated Sites Program Laboratory Data Review Checklist

Completed By:	Adam Johnson	**CS Site Name:**	Koyuk Native Corporation Tank Farm	**Lab Name:**	Kawerak/ Koyuk
Title:	Laboratory Report of Analysis	**ADEC File No.:**	610.38.003	**Lab Report No.:**	1232990
Consulting Firm:	Esker Associates	**Hazard ID No.:**	3101	**Lab Report Date:**	7/31/23

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

1. **Laboratory**

   a. Did an ADEC Contaminated Sites Laboratory Approval Program (CS-LAP) approved laboratory receive and perform all of the submitted sample analyses?
   Yes ☒ No ☐ N/A ☐
   Comments: SGS is an ADEC-approved lab.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses CS-LAP approved?
   Yes ☐ No ☐ N/A ☒
   Comments: Laboratory analysis was completed by SGS-Anchorage.

2. **Chain of Custody (CoC)**

   a. Is the CoC information completed, signed, and dated (including released/received by)?
   Yes ☒ No ☐ N/A ☐
   Comments: The CoC is complete.

   b. Were the correct analyses requested?
   Yes ☐ No ☐ N/A ☐
   Analyses requested: GRO, DRO, RRO, and VOCs were requested and analyzed.
   Comments: The SAP also indicated that samples would be analyzed for lead, but this constituent did not appear on the COC and was therefore not analyzed.

3. **Laboratory Sample Receipt Documentation**

   a. Is the sample/cooler temperature documented and within range at receipt (0° to 6° C)?
   Yes ☒ No ☐ N/A ☐

Cooler temperature(s): The SGS sample receipt form indicates that all cooler temperatures were between 0 and 6 degrees C.
Sample temperature(s): N/A
Comments: Sample temperatures were not recorded but cooler temperatures were recorded.

b. Is the sample preservation acceptable – acidified waters, methanol preserved soil (GRO, BTEX, VOCs, etc.)?
Yes ☒ No ☐ N/A ☐
Comments: Appropriate preservatives were used.

c. Is the sample condition documented – broken, leaking, zero headspace (VOA vials); canister vacuum/pressure checked and no open valves, etc.?
Yes ☒ No ☐ N/A ☐
Comments: The SGS sample receipt form indicates that all sample containers were received at the laboratory 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, canister not holding a vacuum, etc.?
Yes ☐ No ☐ N/A ☒
Comments: The SGS lab report did not note any discrepancies related to sample delivery/receipt.

e. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: No issues were identified in relation to receipt of samples at the laboratory.

4. Case Narrative

a. Is the case narrative present and understandable?
Yes ☒ No ☐ N/A ☐
Comments: The case narrative identifies several instances in which QC criteria were not met.

b. Are there discrepancies, errors, or QC failures identified by the lab?
Yes ☒ No ☐ N/A ☐
Comments: The case narrative lists several instances in which QC criteria were not met.

c. Were all the corrective actions documented?
Yes ☒ No ☐ N/A ☐
Comments: Corrective actions are listed in the case narrative.

d. What is the effect on data quality/usability according to the case narrative?
Comments: The case narrative does not indicate any effects on data quality or usability. In many cases, the analytes in question were not detected above the limit of quantitation in the associated samples.

5. Sample Results

a. Are the correct analyses performed/reported as requested on CoC?
Yes ☒ No ☐ N/A ☐
Comments: As noted above, the SAP requested analysis of lead, but this constituent was not included on the CoC.

b. Are all applicable holding times met?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

c. Are all soils reported on a dry weight basis?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

d. Are the reported limits of quantitation (LoQ) or limits of detections (LOD), or reporting limits (RL) less than the Cleanup Level or the action level for the project?
Yes ☒ No ☐ N/A ☐
Comments: In general, Limits of Detection (LODs) presented in the SGS report are below ADEC cleanup levels. LODs were below human health cleanup levels. For a few VOCs, the LODs are slightly above migration-to-groundwater cleanup levels.

e. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: The VOCs whose LODs exceeded migration-to-groundwater screening levels were not targeted as part of the Phase II ESA investigation.

6. QC Samples

a. Method Blank

i. Was one method blank reported per matrix, analysis, and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: Method blank results are included in the SGS report.

ii. Are all method blank results less than LOQ (or RL)?
Yes ☒ No ☐
Comments: Blank results are less than the LODs.

iii. If above LoQ or RL, what samples are affected?
Comments: Not applicable.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☐ No ☐ N/A ☒
Comments: No data were flagged.

v. Data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality was not impacted.

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

i. Organics – Are 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: LCS/LCSD results are included in the SGS report.

ii. Metals/Inorganics – Are one LCS and one sample duplicate reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒
Comments: Samples were not analyzed for inorganic constituents.

iii. Accuracy – Are 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: As noted in the Case Narrative (page 2 of the SGS laboratory report), two LCS/LCSD recoveries were outside of the QC criteria, as follows:
1) LCSD for HBN 1857934 [XXX/4810 (1720011) LCSD; AK103 - LCSD RPD for RRO does not meet QC criteria. Natural sample results were generally an order of magnitude below ADEC cleanup levels.
2) LCS for HBN 1858276 [VXX/40081 (1720848) LCS; 8260D - LCS recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not reported above the LOQ in the associated samples.

iv. Precision – Are all relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? Was the 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: As noted on page 2 of the SGS laboratory report, one LCSD RPD value was outside of the QC criteria, as follows:
1) LCSD for HBN 1857934 [XXX/4810 (1720011) LCSD; AK103 - LCSD RPD for RRO does not meet QC criteria. Concentrations of this analyte were an order of magnitude below cleanup levels in the associated samples.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments:
The RRO RPD issue effects the following samples:
1232990001 (23KKA.TP02-7)
1232990003 (23KKA.TP02-97)
1232990007 (23KKA.TP06.9)
1232990008 (23KKA.TP07-2)
1232990009 (23KKA.TP07-9.5)

The trichlorofluoromethane recovery issue effects the following samples:
1232990001 (23KKA.TP02-7)
1232990002 (22KKA.TB-0622)
1232990003 (23KKA.TP02-97)
1232990004 (23KKA.TP02-14)

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: The data flags (qualifiers) are asterisks; according to the lab report, the flag indicates that the analyte has exceeded allowable regulatory or control limits.

vii. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: RRO detections were an order of magnitude below applicable cleanup levels. Trichlorofluoromethane, a refrigerant, is not a COPC for the site.

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

i. Organics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☒ No ☐ N/A ☐
Comments: MS/MSD data are included in the SGS report.

ii. Metals/Inorganics – Are one MS/MSD reported per matrix, analysis and 20 samples?
Yes ☐ No ☐ N/A ☒

Comments: Samples were not analyzed for inorganic constituents.

iii. Accuracy – Are all percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable?
Yes ☐ No ☒ N/A ☐
Comments: As noted in the Case Narrative (page 2 of the SGS laboratory report), several recoveries were outside of the QC criteria, as follows:
1) 1233038016(1720589MSD) (1720591) MSD; 8260D - MSD recoveries for trichlorofluoromethane and hexachlorobutadiene do not meet QC criteria.
2) 1233014004(1720755MSD) (1720757) MSD; 8260D - MSD recovery for trichlorofluoromethane does not meet QC criteria.
3) 1232996030(1720849MS) (1720850) MS; 8260D - MS recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated parent sample.
4) 1232996030(1720849MSD) (1720851) MSD; 8260D - MSD recovery for trichlorofluoromethane does not meet QC criteria. This analyte was not detected above the LOQ in the associated parent sample.

iv. Precision – Are 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: As noted in the case narrative (page 2 of the SGS laboratory report), one RPD was outside of the QC criteria, as follows:2) 1233038016(1720589MSD) (1720591) MSD; 8260D - MS/MSD RPD for trichlorofluoromethane does not meet QC criteria. The analyte was not detected above the LOQ in the associated parent sample.

v. If %R or RPD is outside of acceptable limits, what samples are affected?
Comments:
The trichlorofluoromethane %R/RPD issue effects the following samples:
1232990001 (23KKA.TP02-7)
1232990002 (22KKA.TB-0622)
1232990003 (23KKA.TP02-97)
1232990004 (23KKA.TP02-14)

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
Yes ☒ No ☐ N/A ☐
Comments: The data flags (qualifiers) are asterisks; according to the lab report, the flag indicates that the analyte has exceeded allowable regulatory or control limits.

vii. Is the data quality or usability affected?

Yes ☐ No ☒ N/A ☐
Comments: The VOCs in question are not COPCs for the site.

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: Surrogate results are included in the SGS report.

ii. Accuracy – Are 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: As noted in the Case Narrative (page 2 of the SGS laboratory report), one %R was outside of the QC criteria, as follows: 23KKA.TP07-2 (1232990008) PS; AK101 - Surrogate recovery for 4-bromofluorobenzene does not meet QC criteria due to matrix interference.

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: The data flag (qualifier) is an asterisk; according to the lab report, the flag indicates that the analyte has exceeded allowable regulatory or control limits.

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: The VOC in question is not a COPC for the site.

e. Trip Blanks

i. Is one trip blank reported per matrix, analysis, and for each cooler containing volatile samples? Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

ii. Are all results less than LoQ or RL?
Yes ☐ No ☒ N/A ☐
Comments:
Benzene was detected in the trip blank at an estimated concentration of 0.005 mg/kg, which is lower than the limit of detection (0.0063 mg/kg). GRO was detected in the trip blank at an estimated concentration of 1.84

mg/kg, which is above the LOD but below the LOQ.

iii. If above LoQ or RL, what samples are affected?
Comments: No samples were affected because all trip blank detections were below the LOQ.

iv. Is the data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: Data quality is not affected.

f. Field Duplicate

i. Are one field duplicate submitted per matrix, analysis, and 10 project samples?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

ii. Was the duplicate submitted blind to lab?
Yes ☒ No ☐ N/A ☐
Comments: Click or tap here to enter text.

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

$$RPD\ (\%) = \left| \frac{R_1 - R_2}{\left(\frac{R_1 + R_2}{2}\right)} \right| X\ 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Is the data quality or usability affected? (Explain)

Yes ☐ No ☒ N/A ☐
Comments: RPDs are as follows: GRO (95%); DRO (1%); RRO (9%); benzene (156%); and toluene (93%). RPDs for GRO, benzene, and toluene did not meet project requirements. These findings highlight the high degree of variability between natural soils. Other VOC constituents were not detected above laboratory limits in the natural and/or duplicate samples.

iv. Is the data quality or usability affected? (Explain)
Yes ☐ No ☐ N/A ☒
Comments: Implications of RPD failures are described in the Phase II ESA report.

g. Decontamination or Equipment Blanks

i. Were decontamination or equipment blanks collected?
Yes ☐ No ☒ N/A ☐
Comments: Soil samples were collected using disposable tools.

ii. Are all results less than LoQ or RL?
Yes ☐ No ☐ N/A ☒
Comments: No equipment rinse blanks were collected.

iii. If above LoQ or RL, specify what samples are affected.
Comments: No equipment rinse blanks were collected.

iv. Are data quality or usability affected?
Yes ☐ No ☒ N/A ☐
Comments: No equipment rinse blanks were collected.

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

a. Are they defined and appropriate?
Yes ☐ No ☐ N/A ☒
Comments: No other qualifiers were presented in the SGS report.