Chevron Environmental Management Company

Well Decommissioning and Installation Report - 2023

Former Unocal Bulk Terminal Facility 306456
328 ½ Illinois Street

Fairbanks, Alaska

Hazard ID: 733

ADEC File Number: 102.38.004

ADEC File Name: Petroleum Sales / UNOCAL

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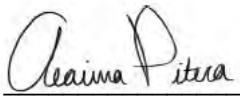

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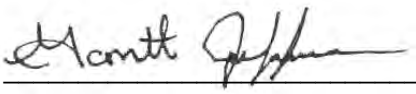

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Acronyms and Abbreviations

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
Arcadis	Arcadis U.S., Inc.
AS	air sparge
bgs	below ground surface
BD	blind duplicate
COPC	constituents of potential concern
DRO	diesel range organics
EB	equipment blank
EDB	1,2-dibromoethane
FSG	Field Sampling Guidance
ft	foot or feet
GCL	groundwater cleanup level
GRO	gasoline range organics
HASP	Health and Safety Plan
ID	identification
IDW	investigation-derived waste
OSHA	Occupational Safety and Health Administration
Pace	Pace Analytical Laboratory
PAH	polycyclic aromatic hydrocarbon
QC	quality control
RDL	reported detection limit
report	Well Decommissioning and Installation Report - 2023
RCRA	Resource Conservation and Recovery Act
RPD	relative percent difference
RRO	residual-range organics
SVE	soil vapor extraction
TB	trip blank
TCLP	toxicity characteristic leaching procedure
TGI	Technical Guidance Instruction

the Site	Block 3, Lot 12 of Fairbanks International Airport at 6223 Old Airport Road, Fairbanks, Alaska
U.S.	United States
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1 Introduction

On behalf of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared this *Well Decommissioning and Installation Report - 2023* (report) for the former Chevron 306456 Facility located at 328 ½ Illinois Street in a commercial area of Fairbanks, Alaska (Site), Alaska Department of Environmental Conservation (ADEC) File Number 102.38.004 (herein referred to as "the site", **Figures 1** and **2**). This report summarizes the well development, decommissioning, and installation activities completed onsite. The work was completed in accordance with the *Groundwater Analyte Adjustment and Well Repair Work Plan – Revision 1* (work plan; Arcadis 2023) approved by the ADEC on July 17, 2023. Additionally, the ADEC Conceptual Site Model Worksheet is attached to this report as **Appendix A**.

2 Site Background

2.1 Site Description and History

The Site is located on a 3.11-acre parcel at 328 ½ Illinois Street in Fairbanks, Alaska (**Figure 1**). The latitude and longitude of the Site are 64.849352 and -147.723577.

Unocal utilized the western 1.84 acres of the Site to store and dispense fuel between 1952 and 1982; the westernmost 1.27 acres were added to the lease in 1961. The Alaska Road Commission leased the westernmost 1.27 acres of the Site from 1941 to 1981, and the entire Site was leased by Interior Leasing from 1982 to 1989 and by CEM Leasing from 1989 to 2001. Petroleum Sales operated the facility from 1982 to 2001. The Site is currently being used by two bakeries.

The Site is associated with the Sourdough Fuels/former Chevron (1001430) and former Texaco (211815) bulk fuel terminal located adjacent to the north and northwest of the Site, respectively. The Alaska Railroad Corporation has owned those properties since the early 1900s.

Land use in the area is primarily industrial and includes railroad facilities, bulk fuel terminals, gasoline stations, miscellaneous light industrial facilities, and warehousing. The Site is bounded to the west by a railroad, to the north by the Sourdough Fuels bulk fuel facility, to the east by Illinois Street, and to the south by Phillips Street. Commercial businesses are located to the north, south, east, and west of the Site (Arcadis 2020). The Chena River is roughly .25 mile to the south of the Site, and the Tanana River is approximately 4 miles to the south of the Site.

Former fuel facilities at the Site included two 55,000-gallon and nine 20,000-gallon aboveground storage tanks, underground pipelines, pumping facilities, a loading rack, and fuel dispensing pumps. Fuel stored onsite consisted of diesel fuel and aviation gas. According to the GeoEngineers Inc. Subsurface Site Investigation – Phase II Report, the aboveground storage tanks were removed in 1993, and the piping and dispensing equipment were removed in 1997 (GeoEngineers Inc. 2003). A metal warehouse is shown on the property but may be vacant.

Twelve onsite (GEI-1 through GEI-12) and 11 offsite (MW-1 through MW-6, MW-13 through MW-15, K-5, and K7) groundwater monitoring wells are monitored and gauged semi-annually. Twenty-one of those wells (GEI-1 through GEI-4, GEI-6 through GEI-12, MW-1 through MW-6, MW-14, MW-15, K-5, and K-7) are sampled during these events. There is also an onsite combined air sparge/soil vapor extraction (AS/SVE) system that consists of 15 air sparge wells (AS-1 through AS-15) and five soil vapor extraction wells (GEI-1, GEI-2 GEI-7, GEI-11, and GEI-12). A site location map is provided as **Figure 1**, and a site plan is provided as **Figure 2**.

2.2 Site Geology and Hydrogeology

The Fairbanks region is typically underlain by approximately 330 to 600 feet of Quaternary Period fluvial and glaciofluvial sediment (sand and gravel covered by fine sediments and organic matter) originating from the Alaska Range. Previous assessments of the Site (Arcadis 2008) have observed well- to poorly graded sands to silt from the ground surface to approximately 5 to 8 feet below ground surface (bgs), followed by gravels, sands, and silts to approximately 15 feet bgs. Permafrost has not been observed onsite during any of the past assessments (Arcadis 2008). Fairbanks water supply wells are located south (cross gradient) of the Site on the south side of the Chena River. The subsurface stratigraphy at the Site is indicative of glaciofluvial deposits with channeling.

Groundwater elevation data obtained from the most recent groundwater sampling event (September 2012) were used to construct a potentiometric surface map. These data indicate that groundwater flows are to the west/southwest, toward the Chena River. Dissolved-phase groundwater impacts generally flow in the direction of the groundwater. The groundwater elevations and flow directions are consistent with historical groundwater monitoring events. Groundwater elevations generally range from 428.06 feet above mean sea level in monitoring well MW-9 (Texaco) and 428.91 feet above mean sea level in monitoring well TH-10.

3 Objective

The objective of the work plan was to attempt to redevelop GEI-1, GEI-5, GEI-6, GEI-7, and GEI-10 at the Site based on the inability to gather samples and readings due to physical damage. Because these monitoring wells are still deemed necessary, Arcadis recommended they be repaired, but if these efforts were unsuccessful, they were to be decommissioned and replaced by a new well; discussion of the decommissioning, installation, and development activities, including soil and groundwater analytical results, is presented in Sections 4 and 5.

4 Monitoring Well Redevelopment, Decommissioning, and Installation

The scope of work was to redevelop monitoring wells GEI-1, GEI-5, GEI-6, GEI-7, and GEI-10. Monitoring wells GEI-1, GEI-5, GEI-6, and GEI-10 were able to be redeveloped. . Groundwater samples post-development were captured and are presented in **Tables 2a** and **2b**. Monitoring well GEI-7 was unable to be redeveloped and was decommissioned and replaced on July 25, 2023; soil and groundwater samples were taken. The approximate well locations are shown in **Figure 2**.

4.1 Pre-Field Activities

As required by the Occupational Safety and Health Administration (OSHA) 29, Code of Federal Regulations 1910.120 (Hazardous Waste Operations and Emergency Response), Arcadis prepared a Health and Safety Plan (HASP) to address the proposed well repair and assessment activities at the Site. Field staff reviewed the HASP prior to initiating field operations and work was conducted under the direction of a "Qualified Environmental Professional" and "Qualified Sampler" as defined in 18 Alaska Administrative Code (AAC) 75.333.

Prior to well repair, decommissioning, and installation activities, Arcadis marked out the monitoring well locations and contacted Alaska Digline, Inc. to identify public underground utilities in the work areas. In addition, Geomarkout conducted a private utility locate on July 10 and July 11, 2023, to further identify and confirm subsurface utilities or obstructions near the well locations.

4.2 Well Redevelopment, Decommissioning, and Replacement

4.2.1 Monitoring Well Redevelopment

Groundwater monitoring wells GEI-1, GEI-5, GEI-6, GEI-7, and GEI-10 all appeared to be damaged and unsampleable in recent sampling events. They were last sampled June 2021, October 2021, October 2019, October 2018, and June 2018 respectively. During initial repair and redevelopment activities, monitoring wells GEI-1, GEI-5, GEI-6, and GEI-10 were able to be redeveloped as described in Section 4. Redevelopment and repair activities are presented in the field notes in **Appendix B**.

4.2.2 Monitoring Well Decommissioning

Monitoring well GEI-7 was unable to be redeveloped and therefore was decommissioned and replaced on July 25, 2023. Decommissioning activities were to be conducted in accordance with Section 4.3 of the approved work plan (Arcadis 2023). Monitoring well decommissioning activities were planned to be performed in accordance with the Monitoring Well Decommissioning Section of ADEC Monitoring Well Guidance (ADEC 2013). Appendix B provides the Technical Guidance Instruction (TGI) for Monitoring Well Decommissioning. The planned monitoring well decommissioning procedure is presented below:

- The well lid, bolts, and well cap (J-plug) were removed. Water-level measurements, including depth to water and depth to bottom, were recorded.
- The bottom cap of the well screen was knocked out using a steel drill rod/pipe.
- A minimum of three attempts were made to remove the well casing and screen to above the groundwater interface, allowing the aquifer material to collapse into the borehole.
- The drilling subcontractor added bentonite chips to within 1 foot of the surface and hydrate them.
- The remaining void was filled with sand or gravel and completed at the surface with topsoil or concrete to match the surrounding surface.

However, field observations during the initial decommissioning activities at GEI-7 prompted a deviation, which is discussed further in **Sections 4.2.3.1** and **8,** from the planned decommissioning procedure described above.

4.2.3 Monitoring Well Installation

On July 25, 2023, Discovery Drilling installed the replacement monitoring well GEI-7R under Arcadis supervision. Details are discussed in the following sections.

4.2.3.1 Drilling of the Replacement Well – GEI-7R

During initial casing removal activities, a soil vapor line was present and later a bend in the casing of monitoring well GEI-7 was found. This initiated the action to re-drill (which can also be referred to as “over drilling”) the well rather than install GEI-7R at a new location. Re-drilling, as defined by the Monitoring Well Decommissioning Section of ADEC Monitoring Well Guidance (ADEC 2013), can be utilized in circumstances where a well has been damaged preventing successful decommissioning by casing removal or casing-in-place methods. Re-drilling activities were completed in accordance with the work plan (Arcadis 2023) and subsequently followed the Arcadis Technical Guidance Instruction for Monitoring Well and Borehole Decommissioning (Arcadis 2022). Because there was no new borehole construction, soil samples and IDW was not generated during the installation of GEI-7R. The soil boring log showing no recovery, due to re-drilling methods, and well construction can be found in **Appendix C.**

Drilling activities were completed in accordance with the ADEC Field Sampling Guidance (ADEC 2022) and in accordance with Section 4.2.1 of the approved work plan (Arcadis 2023) by Discovery Drilling of Anchorage, Alaska under the supervision of Arcadis on July 25, 2023. After re-drilling of GEI-7 was completed and the casing was removed, a Geoprobe hollow stem auger drilling rig was used to advance the boring to an approximate depth of 21.5 ft bgs. The well was installed to a total depth of 20 ft bgs with a 10 foot screened interval from 10 to 20 feet bgs. All equipment placed into the borehole was properly decontaminated before and after use at the site. Water removed from the borehole was managed in accordance with 18 AAC 75 or 18 AAC 78 (ADEC 2013).

4.2.3.2 Monitoring Well Construction

After a total depth of approximately 21.5 feet bgs was reached, the monitoring well was installed. The monitoring well was constructed of 2-inch-diameter Schedule 40 polyvinyl chloride with a 10-foot, 0.010-inch slotted screen. The well was set from 10 to 20 feet bgs, with a screened interval set at 10 feet bgs. The depth to water in the newly installed well was recorded at 14.98 feet bgs. The sand pack (#20-40 silica sand) was placed from the bottom of the borehole to approximately 2 feet above the screened interval, followed by hydrated bentonite chips from 3 to 8 feet bgs. Backfill was placed from 0.5 to 3 feet bgs and then sealed with concrete from the surface to

0.5 feet bgs. The well was fitted with sealing and locking well caps, and traffic-rated well boxes installed at the surface to provide secure wellheads.

A well survey was completed following this event; with coordinates presented in **Table 1** and the survey report included as **Appendix D**.

4.2.3.3 Monitoring Well Development

The procedures for well development as outlined in the approved work plan (Arcadis 2023) were used to redevelop monitoring wellsGEI-1, GEI-5, GEI-6, and GEI-10, as well as the newly installed GEI-7R. Well development occurred on August 9, 2023 after monitoring well GEI-7R was installed on July 25, 2022. Per the ADEC monitoring well guidance (ADEC 2013), monitoring wells can be developed 24 hours after the well installation occurs to allow for the annular seal to set. Well development was performed by surging the wells over the length of the screen interval using a surge block, bailing out sediment that accumulated in the bottom of the wells, and then purging the well until the water was relatively free of suspended sediments and/or until approximately 10 well volumes were removed. Purging was completed using down-hole pumps and purge water was containerized in United States (U.S.) Department of Transportation-approved 55-gallon steel drums and sampled for disposal.

4.2.3.4 Groundwater Sampling

Groundwater samples were collected from the redeveloped wells on July 13 & 14, 2023, and from the newly installed well on August 9, 2023, and preserved in accordance with Section 6 of the ADEC's Field Sampling Guidance (FSG, ADEC 2022) and the approved work plan (Arcadis 2023). Low-flow sampling was conducted shortly after development using a submersible pump, polyethylene tubing, and flow-through cell. The depth to groundwater, flow rates, and groundwater parameter (i.e., temperature, pH, conductivity, redox potential, dissolved oxygen, and turbidity) were monitored during purging. Measurements were recorded every 5 minutes during the purging process, and groundwater sampling was not initiated until the ADEC FSG (ADEC 2022) recommended stabilization parameters were observed.

Groundwater data and samples for analysis (in the appropriate laboratory-provided containers) were collected in the following sequence:

- In-field water quality measurements
- Gasoline range organics (GRO) by AK101
- Diesel range organics (DRO) by AK102
- DRO with SGC by AK102
- Residual-range organics (RRO) by AK103
- Full-scan volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260D
- 1,2-dibromoethane (EDB)/DBCP by USEPA Method 8011
- Polycyclic aromatic hydrocarbons (PAHs) by USEPA Method 8270E-SIM
- Total lead by USEPA Method 6010D

Low-flow sample notes were integrated into the well development logs and completed during the sampling of each well since sampling occurred immediately after well development. Well development and groundwater sampling logs are attached in **Appendix B**

Groundwater samples from GEI-1, GEI-5, GEI-6, GEI-10, and GEI-7R were placed in laboratory-supplied bottles and labeled with the sample identification (ID); sealed in a resealable bag; and placed in a laboratory-provided, ice-chilled cooler. The samples were then transported under chain-of-custody protocol to Pace Analytical Laboratory (Pace) via FedEx. Samples were analyzed with a standard turnaround time of 10 business days.

After each use of the well development tools, sampling pump, and depth to water gauging tools, equipment decontamination was conducted in accordance with the quality control (QC) measures presented in Section 12.8 of the ADEC FSG (ADEC 2022).

Initial well sampling of GEI-1, GEI-5, GEI-6, GEI-10, and GEI-7R was completed with the above list of analyses to obtain a more comprehensive data set for potential constituents of potential concern (COPCs) than is completed during routine groundwater monitoring events, in accordance with the ADEC FSG (ADEC 2022) and approved work plan (Arcadis 2023). After initial sampling, the wells will be sampled regularly as a part of the groundwater sampling program following the approved groundwater monitoring scope from the work plan (Arcadis 2023).

5 Analytical Results

Analytical results for soil samples and groundwater samples collected during the investigation are summarized below, as well as in **Tables 2a** and **2b.**

5.1 Groundwater Sampling Results

Petroleum hydrocarbon constituents and select petroleum-related VOCs were detected in all the wells. The analytical results for the groundwater samples collected from GEI-1, GEI-5, GEI-6, GEI-7R, and GEI-10 were compared to ADEC Method Groundwater Cleanup Levels, Tables C from 18 AAC 75.341 (ADEC 2021). Detected concentrations of COCs were above the groundwater cleanup levels for the locations listed in **Tables 2a** and **2b**.

DRO (with and without silica gel cleanup) was detected above the ADEC Groundwater Cleanup Level (GCL) in groundwater samples GEI-1, GEI-5, GEI-7R, and GEI-10, as well as the associated duplicates for GEI-7R and GEI-10. RRO was detected above the ADEC GCL in the sample taken from GEI-1 and was also the only analyte detected above the ADEC GCLs in the sample taken from GEI-6. Benzene, total xylenes, and naphthalene were detected above ADEC GCLs at GEI-10. Naphthalene was also detected above ADEC GCLs at GEI-5 and GEI-7R. 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene were detected above the ADEC GCLs at GEI-7R and GEI-10. Dibenzo(a,h)anthracene was detected above the ADEC GCL at GEI-7R. There were additional petroleum hydrocarbon and VOC constituents which were detected in the samples, but the concentrations did not exceed applicable ADEC GCLs. The duplicate sample results were similar to those of the primary sample.

Groundwater analytical results are provided in **Tables 2a** and **2b,** as well as on **Figure 3**. The full laboratory analytical report and chain-of-custody documentation for the groundwater samples are provided in **Appendix E** and the ADEC Laboratory Checklist is provided in **Appendix F**.

6 Investigation-Derived Waste Disposal

Investigation-derived waste (IDW) generated during investigation activities included decontamination water and development and groundwater sampling purge water. Soil IDW was not generated during the installation of GEI-7R via re-drilling methods. All IDW derived from drilling and monitoring well installation was placed in new DOT-approved 55-gallon steel drums, appropriately labeled, and temporarily stored at the Site while characterization samples were collected and analyzed.

Decontamination and purge water samples were submitted to Pace for the following analysis:

- GRO (AK101)
- DRO (AK102)
- RRO (AK103)
- Toxicity characteristic leaching procedure (TCLP) Resource Conservation and Recovery Act (RCRA) eight metals ((i.e., arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver; USEPA Method 1311/6010D, 7000 series)
- TCLP Mercury (USEPA Method 7470A)
- TCLP VOCs (USEPA Method 8260D)
- TCLP semi-volatile organic compounds (USEPA Method 8270E)
- pH (USEPA Method 9040C)
- Ignitability (USEPA Method D93/1010A)

Following receipt of the laboratory analytical results, the ADEC Transport, Treatment, and Disposal Approval Form for Contaminated Media was submitted and approved by ADEC. All IDW will be transported offsite by U.S. Ecology for treatment and/or disposal. The IDW laboratory reports are provided in **Appendix G**. Upon completion of waste removal from the Site by U.S. Ecology, the approved ADEC Transport, Treatment, and Disposal Approval Forms for Contaminated Media and copies of the Non-Hazardous Waste Manifests will be provided in a memo and submitted to ADEC.

7 Quality Control

Field instruments were calibrated onsite on a daily basis per manufacturer's specifications, which are noted in **Appendix B**. Field duplicate samples were collected for soil and groundwater per Section 12.6 of ADEC's 2022 FSG. Decontamination and equipment blank (EB) samples were collected for groundwater sampling where equipment was decontaminated between sample collection. EB samples were collected in accordance with ADEC's 2022 FSG. Trip blanks (TBs) were supplied by Pace and were submitted with groundwater samples for analysis of their respective target compounds. The QC activities were documented in daily field notes included in **Appendix B**.

7.1 Laboratory Data Quality Assurance Summary

As required by ADEC's Technical Memorandum: Minimum Quality Assurance Requirements for Sample Handling, Reports and Laboratory Data (ADEC 2019), Arcadis completed a laboratory data review checklist for each of the laboratory reports generated for the soil and groundwater investigation. The full laboratory analytical reports and chain-of-custody documentation are provided in **Appendix E** and the ADEC data review checklists are included as **Appendix F**. The following quality assurance summary describes six parameters, related to the quality and usability of the data presented in this report.

7.1.1 Precision

Overall, the relative percent difference (RPD) between the field duplicates and parent samples collected for soil and groundwater samples were within control limits, as documented in **Appendix F**. The precision of the data, as measured by laboratory QC indicators, suggest that the Data Quality Objectives were met with the following exceptions:

The laboratory control sample/duplicate RPD were greater than the control limit for 1,1,2-trichlorotrifluroethane. As a result, the analytical results for this compound in the groundwater samples collected from GEI-1, GEI-5, GEI-6, GWI-10, the blind duplicate (BD) BD-1 (documented as BD-1-W-071323 in the analytical report and data validation checklist) , EB-1, and TB-071423 (documented as TRIP BLANK-071423 in the analytical report and data validation checklist) were qualified as estimated.

Field Duplicate RPD were greater than the control limit for GRO, benzene, ethylbenzene, naphthalene (by methods 8260D and 8270E-SIM), n-propylbenzene, toluene, 1,2,4-trimethylbenzene, 1,2,3-trimethylbenzene, 1,3,5-trimethylbenzene, total xylenes, acenaphthene, fluorene, 1-methylnapthalene, and 2-methylnaphthalene. As a result, the analytical results for these compounds in the groundwater samples collected from GEI-10 and BD-1 were qualified as estimated.

Field Duplicate RPD was greater than the control limit for DRO, naphthalene (by method 8270E-SIM), and 1-methylnaphthalene. As a result, the analytical results for these compounds in the groundwater samples collected from GEI-7R and BD-2 (documented as BD-1-W-20230809 in the analytical report and data validation checklist) were qualified as estimated.

7.1.2 Accuracy

The accuracy of the data, as measured by laboratory QC indicators, suggest that the Data Quality Objectives were met with the following exceptions:

Continuing calibration recovery for the compound 1,2,3-trichlorobenzene were less than the control limit. As a result, the analytical results for this compound in groundwater samples collected from GEI-1, GEI-5, and GEI-6 were qualified as estimated.

Continuing calibration recovery for the compound naphthalene (by method 8260D) were less than the control limit. As a result, the analytical results for this compound in groundwater samples collected from GEI-10, BD-1, EB-1, and TB-071423 were qualified as estimated.

The laboratory control sample/duplicate recoveries were lower than the control limit for RRO. As a result, the analytical results for this compound in the groundwater samples collected from GEI-7R and BD-2 were qualified as estimated.

Surrogate recovery for method AK102/103 was greater than the control limit. As a result, the analytical results for detected compounds in the groundwater samples collected from EB-1 were qualified as estimated.

Surrogate recovery for method AK102/103 and AK102SGT was greater than the control limit. As a result, the analytical results for detected compounds in the groundwater samples collected from GEI-6 were qualified as estimated.

Surrogate recovery for method AK102/103 was lower than the control limit. As a result, the analytical results for detected compounds in the groundwater samples collected from GEI-7R and BD-2 were qualified as estimated.

7.1.3 Representativeness

The data appear to be representative of site conditions and are generally consistent with historical groundwater monitoring results and expected impacts to groundwater with the following exception:

The holding time was exceeded for method 8270E-SIM with the analysis completed within less than two time the holding time. As a result, the analytical results for detected compounds in the groundwater samples collected from GEI-6 were qualified as estimated.

7.1.4 Comparability

The laboratory results are presented in the same units as previous reports to allow comparison. The target compounds were not detected in the EB, TB, or laboratory method blank with the following exceptions.

Carbon disulfide was detected at an estimated concentration below the reporting limit in the EB. As a result, samples that had detections of this compound were qualified as non-detect at or above the reporting limit. Accordingly, the analytical results in the groundwater samples collected from GEI-10 was qualified as non-detect (UB in the data validation report) at or above the reporting limit. These results are identified with a “B” in **Table 2b**.

DRO with SGC, was detected at an estimated concentration below the reporting limit in the EB. As a result, samples that had detections of this compound were qualified as non-detect at or above the reporting limit. Accordingly, the analytical results in the groundwater samples collected from GEI-6 was qualified as non-detect (UB in the data validation report) at or above the reporting limit. These results are identified with a “B” in **Table 2a**.

RRO was detected at an estimated concentration below the reporting limit in the EB. As a result, samples that had detections of this compound were qualified as non-detect at or above the reporting limit. Accordingly, the analytical results in the groundwater samples collected from GEI-1, GEI-5, GEI-6, GEI-10, and BD-1 were qualified as non-detect (UB in the data validation report) at or above the reporting limit. These results are identified with a “B” in **Table 2a**.

DRO with and without SGC and fluoranthene was detected at a concentration below the reporting limit in the method blank. As a result, samples that had detections of these compounds were qualified as non-detect at or above the reporting limit. Accordingly, the analytical results in the groundwater sample collected from GEI-6 was qualified as non-detect (UB in the data validation report) at or above the reporting limit. These results are identified with a “B” in **Table 2a** and **2b**.

GRO was detected at a concentration below the reporting limit in the TB. As a result, samples that had detections of these compounds were qualified as non-detect at or above the reporting limit. Accordingly, the analytical results in the groundwater sample collected from GEI-6 was qualified as non-detect (UB in the data validation report) at or above the reporting limit. These results are identified with a “B” in **Table 2a**.

7.1.5 Completeness

The results appear to be valid and usable, and thus, the laboratory results have 100 percent completeness.

7.1.6 Sensitivity

The laboratory reported detection limits (RDLs) for select compounds benzene, ethylbenzene, naphthalene by USEPA Method 8260D, 1,2,3-trichloropropane, bromodichloromethane, bromoform, bromomethane, carbon tetrachloride, chloroform, 1,2-dibromomethane, 1,4,-dichlorobenzene, dichlorodifluoromethane, 1,1,-dichloroethane, 1,2-dichloropropane, 1,3-dichloropropane, hexachlorobutadiene, 1,1,2,2-tetrachloroethane, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene, 1,1,2-trichloroethane, vinyl chloride, dibromochloromethane, dibromomethane, and sec-dichloropropane,) were greater than the ADEC GCLs. All samples were non-detect for the respective constituents, which the exception of naphthalene, as shown in Tables 2a and 2b.

The sensitivity of the analyses was adequate for the samples as detection limits were less than the ADEC GCLs with the exceptions noted above.

8 Work Plan Deviations

During the initial decommissioning activities of GEI-7, rather than decommission in place and advance a borehole for GEI-7R within the same vicinity, it was decided to use the method of re-drilling of GEI-7 and then install GEI-7R in the same place. Because a new borehole was not advanced, soil samples and IDW was not generated, therefore, no soil samples were collected.

Additionally, GEI-7R was installed with 2-inch-diameter well, at a total depth of 20 feet bgs, with the screen interval set from 10 to 20 feet bgs. The sand pack was placed from the bottom of the borehole to approximately 2 feet above the screened interval, followed by hydrated bentonite chips from 3 to 8 feet bgs, then backfill from 0.5 to 3 feet bgs and sealed with concrete from the surface to 0.5 feet bgs. The work plan scope was to install the well as a 4-inch diameter well at approximately 30 feet bgs for a total depth, with the screened interval from 10 feet bgs, then sand pack from bottom of the borehole to approximately 1 foot above the screened interval.

Lastly, all groundwater samples collected were analyzed for total lead instead of total metals, as specified in the approved work plan (Arcadis 2023). Although total metals were not analyzed for groundwater and soil samples were not collected, results from the adjacent parcels indicate that it is likely of the RCRA 8 metals, only arsenic and chromium would be found at the site above ADEC clean up levels for soil but not groundwater. However, naturally occurring arsenic and chromium are prevalent throughout Alaska, and in accordance with notes 11 and 12 of Table B2 18 AAC 75.341 (ADEC 2021), if detected concentrations were observed they would be considered to be background and not Site-related COCs.

9 Conclusions and Recommendations

In July and August 2023, monitoring well redevelopment, decommissioning, and installation activities were conducted to rehabilitate and continue accurate sampling of the site. Monitoring wells GEI-1, GEI-5, GEI-6, and GEI-10 were redeveloped and sampled; GEI-7 was unable to be redeveloped and therefore required decommissioning and replacement prior to sampling. Based on the analytical results, exceedances of ADEC cleanup levels for certain COCs were observed in select groundwater samples.

The initial groundwater sample analytical results from redeveloped wells GEI-1, GEI-5, GEI-6, and GEI-10, as well as GEI-7R, indicated petroleum impacts exceeding ADEC cleanup levels for DRO at GEI-1, GEI-5, GEI-7R, and GEI-10, and RRO at GEI-1 and GEI-6. Other various petroleum-related VOCs were detected above the ADEC GCLs, which include benzene, total xylenes, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and dibenz(a,h)anthracene. Continued monitoring of these wells will provide further data on groundwater quality and concentration trends.

Based on the results of the investigation, Arcadis recommends the following:

- Continued groundwater monitoring at the site to include the redeveloped wells GEI-1, GEI-5, GEI-6, GEI-10, and newly installed well GEI-7R as a part of the regular sampling program, in accordance with the approved sampling plan (Arcadis 2023).

10 References

ADEC. 2013. Division of Spill Prevention and Response Contaminated Sites Program. Monitoring Well Guidance. September.

ADEC. 2019. Technical Memorandum: Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data. ADEC Division of Spill Prevention and Response Contaminated Sites Program. October.

ADEC. 2021. 18 AAC 75 Oil and Other Hazardous Substances Pollution Control. ADEC Division of Spill Prevention and Response Contaminated Sites Program. November 18.

ADEC. 2022. Field Sampling Guidance for Contaminated Sites and Leaking Underground Storage Tank Sites. ADEC Division of Spill Prevention and Response Contaminated Sites Program. January 22.

ADEC. 2023. 18 AAC 75 Oil and Other Hazardous Substances Pollution Control. ADEC Division of Spill Prevention and Response Contaminated Sites Program. February.

Arcadis. 2022. TGI – Monitoring Well and Borehole decommissioning – Revision 1. April 13.

Arcadis. 2023. Groundwater Analyte Adjustment Request and Well Repair Work Plan – Revision 1, Former Chevron Facility 306456. July 10.

Tables

Table 1
Well Construction Details
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Date Installed	Survey Date	Coordinates		TOC (ft amsl)	Total Depth (ft bgs)	Casing Diameter (inches)	Slot Size (inches)	Screen Interval (ft bgs)	Filter Pack (ft bgs)
			Latitude/Northing	Longitude/Easting						
GEI-7R	7/25/2023	9/29/2023	N 64° 50' 56.622" / 3968452.27	W 147° 43' 23.711" / 1372248.68	444.06	21.5	2.00	0.01	10-20	8-21.5

Notes:
amsl = above mean sea level bgs = below ground surface
Northing/Easting = Alaska State Plane Zone 3 NAD83(2011)(EPOCH 2010) US Feet ft - foot/feet
Vertical Datum: NAVD88 Geoid 12b
TOC = top of casing elevation (feet above mean sea level)

Table 2a
Groundwater Analytical Results
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date		DRO by AK102	DRO W/SGT by AK102SGT	GRO by AK101	RRO by AK103	VOCs by USEPA Method 8260D							EDB by Method 8011	Metals by Method 6010D
		DTW	DRO	DRO W/SGT	GRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Naphthalene	EDC	EDB	Lead
		(feet bTOC)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels			**1,500**	**1,500**	**2,200**	**1,100**	**4.6**	**1,100**	**15**	**190**	**140**	**1.7**	**1.7**	**0.075**	**15**
GEI-1	7/14/2023	14.55	**17,100**	**9,200**	**593**	**1,610 UB**	**2.49 J**	<20.0	**4.13 J**	**26.7 J**	<20.0	***<100 J***	***<20.0***	<0.0214	**8.55**
GEI-5	7/13/2023	12.22	**3,060**	**1,440**	**347**	**1,030 UB**	<1.00	<1.00	**0.257 J**	**1.54 J**	<1.00	**5.35 J**	<1.00	<0.0218	**4.49 J**
GEI-6	7/12/2023	12.3	<816 B	<816 B	<100 B	**1,240 UB**	<1.00	<1.00	<1.00	<3.00	<1.00	***<5.00 J***	<1.00	<0.0220	<6.00
GEI-7R	8/9/2023	14.49	**14,000 J**	**2,900**	**676**	**1,010 J**	***<50.0***	<50.0	***<50.0***	**74.8 J**	<50.0	***<250***	***<50.0***	<0.0204	**6.55**
BD-2 [GEI-7R]	8/9/2023		**9,670 J**	**3,830**	**6,730**	**668 J**	***<50.0***	<50.0	***<50.0***	**66.1 J**	<50.0	***<250***	***<50.0***	<0.0206	**7.09**
GEI-10	7/13/2023	13.78	**3,350**	**975**	**1,860 J**	**981 UB**	**94.3 J**	**5.15 J**	**13.9 J**	**213 J**	<1.00	**73.2 J**	<1.00	<0.0212	<6.00
BD-1 [GEI-10]	7/13/2023		**3,040**	**1,500**	**335 J**	**967 UB**	<1.00 J	<1.00 J	**0.260 J**	**1.81 J**	<1.00	**6.42 J**	<1.00	<0.0204	<6.00
EB-1	7/14/2023		<800	**181 J**	<100	**764 J**	<1.00	<1.00	<1.00	<3.00	<1.00	***<5.00 J***	<1.00	<0.0208	<6.00
TB-071423	7/14/2023		--	--	**30.9 J**	--	<1.00	<1.00	<1.00	<3.00	<1.00	***<5.00 J***	<1.00	<0.0204	--
TB-1	8/9/2023		--		**43.6 J**	--	<1.00	<1.00	<1.00	<3.00	<1.00	***<5.00***	<1.00	<0.0204	--

Notes:

Bold = Detected above laboratory method detection limit (RDL)

Bold and *Italicized* = Constituent considered non-detect, however Laboratory RDL is greater than the ADEC Groundwater Cleanup Level

Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level

Acronyms and Abbreviations:

-- = Not Available or Not Analyzed
<0.00100 = Not detected at or above the reported detection limit (RDL)
µg/L = Micrograms per liter
ADEC = Alaska Department of Environmental Conservation
DTW = Depth to groundwater
EB = Equipment Blank
feet = Relative to NAVD88
bTOC = Below top of casing
GW Elev = Groundwater elevation
ID = Identification
MW = Groundwater monitoring well
TB = Trip Blank
TOC = Top of casing
GRO = Total petroleum hydrocarbons, gasoline range organics
DRO = Total petroleum hydrocarbons, diesel range organics
RRO= Total petroleum hydrocarbons, residual range organics
MTBE= Methyl tert-butyl ether
EDB = 1,2-Dibromoethane
EDC = 1,2-Dichloroethane
J = The identification of the analyte is acceptable; the reported value is an estimate.
B = The same analyte is found in the associated blank
UB = The Compounds considered non-detect at the listed value due to associated blank contamination.

Analytical Methods:

1. GRO analyzed by Alaska Method AK101, DRO analyzed by Alaska Method AK102, RRO analyzed by Alaska Method AK103
2. Lead analyzed by United States Environmental Protection Agency (USEPA) Method 6010D.
3. Naphthalene analyzed by United States Environmental Protection Agency (USEPA) Methods 8260D and 8270E-SIM.
4. EDB (Ethylene Dibromide) analyzed by United States Environmental Protection Agency (USEPA) Method 8011.

Table 2b
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date	VOCs by USEPA Method 8260D																
		Acetone	1,2,3-Trichloropropane	Acrylonitrile	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane (Methyl bromide)	n-Butylbenzene	sec-Butylbenzene	t-Butylbenzene	Carbon disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane (Methyl chloride)
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels		**14,000**	**0.0075**	**--**	**62**	**--**	**1.3**	**33**	**8**	**1,000**	**2,000**	**690**	**810**	**5**	**78**	**--**	**2**	**190**
GEI-1	7/14/2023	<1,000	***<0.500***	<200	<20.0	<20.0	***<20.0***	<20.0	***<100***	<20.0	<20.0	<20.0	<20.0	***<20.0***	<20.0	<100	***<100***	<50.0
GEI-5	7/13/2023	**38.0 J**	***<0.500***	<10.0	<1.00	<1.00	<1.00	<1.00	<5.0	**2.58**	**4.25**	**0.546 J**	<1.00	<1.00	<1.00	<5.00	***<5.00***	<2.50
GEI-6	7/12/2023	<50.0	<0.00500	<10.0	<1.00	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	***<5.00***	<2.50
GEI-7R	8/9/2023	<2,500	***<5.00***	<500	<50.0	<50.0	***<50.0***	***<50.0***	***<250***	<50.0	<50.0	<50.0	<50.0	***<50.0***	<50.0	<250	***<250***	<125
BD-2 [GEI-7R]	8/9/2023	<2,500	***<5.00***	<500	<50.0	<50.0	***<50.0***	***<50.0***	***<250***	<50.0	<50.0	<50.0	<50.0	***<50.0***	<50.0	<250	***<250***	<125
GEI-10	7/13/2023	<50.0	***<0.500***	<10.0	<1.00	<1.00	<1.00	<1.00	<5.00	<1.00	**1.65**	**0.936 J**	<1.00 B	<1.00	<1.00	<5.00	***<5.00***	<2.50
BD-1 [GEI-10]	7/13/2023	**29.5 J**	***<0.500***	<10.0	<1.00	<1.00	<1.00	<1.00	<5.00	**2.81**	**4.23**	**0.507 J**	<1.00	<1.00	<1.00	<5.00	***<5.00***	<2.50
EB-1	7/14/2023	<50.0	<0.00500	<10.0	<1.00	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	**0.118 J**	<1.00	<1.00	<5.00	***<5.00***	<2.50
TB-071423	7/14/2023	<50.0	**--**	<10.0	<1.00	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	***<5.00***	<2.50
TB-1	8/9/2023	<50.0	<0.00500	<10.0	<1.00	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.00	***<5.00***	<2.50

Table 2b
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date	VOCs by USEPA Method 8260D														
		o-Chlorotoluene	p-Chlorotoluene	1,2-Dibromo-3-chloropropane (DBCP)	1,2-Dibromoethane	1,2-Dichlorobenzene (o-Dichlorobenzene)	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane (Freon 12)	1,1-Dichloroethane	1,1 Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	1,1-Dichloropropene
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels		--	--	--	0.075	300	300	5	200	28	280	--	360	8	5	--
GEI-1	7/14/2023	<20.0	<20.0	<100	***<20.0***	<20.0	<20.0	***<20.0***	<100	<20.0	<20.0	<20.0	<20.0	***<20.0***	***<20.0***	<20.0
GEI-5	7/13/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
GEI-6	7/12/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
GEI-7R	8/9/2023	<50.0	<50.0	<250	***<50.0***	<50.0	<50.0	***<50.0***	***<250***	***<50.0***	<50.0	<50.0	<50.0	***<50.0***	***<50.0***	<50.0
BD-2 [GEI-7R]	8/9/2023	<50.0	<50.0	<250	***<50.0***	<50.0	<50.0	***<50.0***	***<250***	***<50.0***	<50.0	<50.0	<50.0	***<50.0***	***<50.0***	<50.0
GEI-10	7/13/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
BD-1 [GEI-10]	7/13/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
EB-1	7/14/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
TB-071423	7/14/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00
TB-1	8/9/2023	<1.00	<1.00	<5.00	***<1.00***	<1.00	<1.00	<1.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00

Table 2b
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date	VOCs by USEPA Method 8260D														
		cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Diisopropyl ether	Hexachlorobutadiene	Isopropylbenzene	4-Isopropyltoluene	2-Butanone (Methyl ethyl ketone)	Methylene chloride (Dichloromethane)	4-Methyl-2-pentanone	n-Propylbenzene	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichlorotrifluoroethane (Freon 113)	Tetrachloroethene
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels		--	--	--	1.4	--	--	5,600	110	6,300	660	1,200	5.7	0.76	--	--
GEI-1	7/14/2023	<20.0	<20.0	<20.0	***<20.0***	<20.0	<20.0	<200	<100	<200	<20.0	<20.0	***<20.0***	***<20.0***	<20.0 J	<20.0
GEI-5	7/13/2023	<1.00	<1.00	<1.00	<1.00	**2.37**	**3.95**	**3.85 J**	<5.00	<10.0	**6.24**	<1.00	<1.00	***<1.00***	<1.00 J	<1.00
GEI-6	7/12/2023	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	**12.2**	<5.00	<10.0	<1.00	<1.00	<1.00	***<1.00***	<1.00 J	**0.752 J**
GEI-7R	8/9/2023	<50.0	<50.0	<50.0	***<50.0***	<50.0	**12.5 J**	<500	***<250***	<500	<50.0	<50.0	***<50.0***	***<50.0***	<50.0	<50.0
BD-2 [GEI-7R]	8/9/2023	<50.0	<50.0	<50.0	***<50.0***	<50.0	<50.0	<500	***<250***	<500	<50.0	<50.0	***<50.0***	***<50.0***	<50.0	<50.0
GEI-10	7/13/2023	<1.00	<1.00	<1.00	<1.00	**2.08**	**3.92**	**6.19 J**	<5.00	**3.06 J**	**3.26 J**	<1.00	<1.00	***<1.00***	<1.00 J	<1.00
BD-1 [GEI-10]	7/13/2023	<1.00	<1.00	<1.00	<1.00	**2.50**	**4.03**	**3.11 J**	<5.00	<10.0	**6.54 J**	<1.00	<1.00	***<1.00***	<1.00 J	<1.00
EB-1	7/14/2023	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<10.0	<5.00	<10.0	<1.00	<1.00	<1.00	***<1.00***	<1.00 J	<1.00
TB-071423	7/14/2023	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<10.0	<5.00	<10.0	<1.00	<1.00	<1.00	***<1.00***	<1.00 J	<1.00
TB-1	8/9/2023	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<10.0	<5.00	<10.0	<1.00	<1.00	<1.00	***<1.00***	<1.00 J	<1.00

Table 2b
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date	VOCs by USEPA Method 8260D															
		1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene (Trichloroethylene)	Trichlorofluoromethane (Freon 11)	1,2,4-Trimethylbenzene	1,2,3-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl chloride (Chloroethene)	o-Xylene	m,p-Xylenes	2-Propenal	Dibromochloromethane	Dibromomethane (Methylene bromide)	sec-Dichloropropane
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels		**7**	**4**	**8,000**	**0.41**	**--**	**5,200**	**56**	**--**	**60**	**0.19**	**--**	**--**	**--**	**9**	**8**	**8.2**
GEI-1	7/14/2023	***<20.0 J***	***<20.0***	<20.0	***<20.0***	<20.0	<100	**14.5 J**	**77.5**	**31.6**	***<20.0***	**6.63 J**	**20.1 J**	<1,000	***<20.0***	***<20.0***	***<20.0***
GEI-5	7/13/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	**45.9**	**23.4**	**19.3**	***<1.00***	**0.685 J**	**0.851 J**	<50.0	<1.00	<1.00	<1.00
GEI-6	7/12/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	<1.00	<1.00	<1.00	***<1.00***	<1.00	<2.00	<50.0	<1.00	<1.00	<1.00
GEI-7R	8/9/2023	***<50.0***	***<50.0***	<50.0	***<50.0***	<50.0	<250	**81.9**	**98.7**	**64.6**	***<50.0***	<50.0	**74.8 J**	<2,500	***<50.0***	***<50.0***	***<50.0***
BD-2 [GEI-7R]	8/9/2023	***<50.0***	***<50.0***	<50.0	***<50.0***	<50.0	<250	**82.1**	**105**	**62.7**	***<50.0***	<50.0	**66.1 J**	<2,500	***<50.0***	***<50.0***	***<50.0***
GEI-10	7/13/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	**178 J**	**92.2 J**	**72.3 J**	***<1.00***	**7.02 J**	**206 J**	<50.0	<1.00	<1.00	<1.00
BD-1 [GEI-10]	7/13/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	**49.4 J**	**26.5 J**	**20.9 J**	***<1.00***	**0.596 J**	**1.21 J**	<50.0	<1.00	<1.00	<1.00
EB-1	7/14/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	<1.00	<1.00	<1.00	***<1.00***	<1.00	<2.00	<50.0	<1.00	<1.00	<1.00
TB-071423	7/14/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	<1.00	<1.00	<1.00	***<1.00***	<1.00	<2.00	<50.0	<1.00	<1.00	<1.00
TB-1	8/9/2023	<1.00 J	<1.00	<1.00	***<1.00***	<1.00	<5.00	<1.00	<1.00	<1.00	***<1.00***	<1.00	<2.00	<50.0	<1.00	<1.00	<1.00

Table 2b
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date	Semi VOC by Method 8270E-SIM															
		1-Methylnaphthalene	2-Chloronaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)Pyrene
		(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels		11	750	36	530	260	43	0.30	0.25	2.5	0.26	0.80	2	0.25	260	290	0.19
GEI-1	7/14/2023	**0.812**	<0.500	<0.500	<0.0500	**0.606**	**0.525**	<0.0500	<0.0500	<0.0500	<0.0500	<0.250	**0.0280 J**	<0.0500	**0.0638**	**0.378**	<0.0500
GEI-5	7/13/2023	**6.24**	<0.500	**0.774**	**0.171**	**0.0394 J**	<0.0500	<0.05	<0.0500	<0.0500	<0.0500	<0.250	<0.0500	<0.0500	<0.0500	**0.283**	<0.0500
GEI-6	7/12/2023	<0.500 UJ	<0.500 UJ	<0.500 UJ	<0.0500 UJ	<0.0500 UJ	<0.0500 UJ	<0.0500 UJ	<0.0500 UJ	<0.0500 UJ	<0.0500 UJ	<0.250 UJ	<0.0500 UJ	<0.0500 UJ	<0.0500 B UJ	<0.0500 UJ	<0.0500 UJ
GEI-7R	8/9/2023	**3.28 J**	<0.500	**0.318 J**	**0.346**	<0.0500	**0.0657**	**0.137**	**0.121**	**0.101**	**0.174**	**0.193 J**	**0.247**	**0.255**	<0.0500	**0.464**	**0.171**
BD-2 [GEI-7R]	8/9/2023	**1.86 J**	<0.500	**0.112 J**	**0.386**	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.250	<0.0500	<0.0500	<0.0500	**0.489**	<0.0500
GEI-10	7/13/2023	**7.80 J**	<0.500	**3.49 J**	**0.432 J**	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.250	<0.0500	<0.0500	**0.0387 J**	**0.707 J**	<0.0500
BD-1 [GEI-10]	7/13/2023	**5.39 J**	<0.500	**0.297 J**	**0.200 J**	**0.0414 J**	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.250	<0.0500	<0.0500	<0.0500	**0.345 J**	<0.0500
EB-1	7/14/2023	<0.500	<0.500	<0.500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.250	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500
TB-071423	7/14/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB-1	8/9/2023	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2b
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

Well ID	Sample Date	Semi VOC by Method 8270E-SIM		
		Naphthalene	Phenanthrene	Pyrene
		(µg/L)	(µg/L)	(µg/L)
ADEC Groundwater Cleanup Levels		1.7	170	120
GEI-1	7/14/2023	**1.00**	**0.288**	**0.0783**
GEI-5	7/13/2023	**3.10**	<0.0500	<0.0500
GEI-6	7/12/2023	<0.0500 UJ	<0.0500 UJ	<0.0500 UJ
GEI-7R	8/9/2023	**4.41 J**	**0.0255 J**	<0.0500
BD-2 [GEI-7R]	8/9/2023	**2.60 J**	<0.0500	<0.0500
GEI-10	7/13/2023	**20.7 J**	**0.0572**	**0.0429 J**
BD-1 [GEI-10]	7/13/2023	**3.1 J**	<0.0500	<0.0500
EB-1	7/14/2023	<0.0500	<0.0500	<0.0500
TB-071423	7/14/2023	--	--	--
TB-1	8/9/2023	--	--	--

Table 2b - Notes
Groundwater Analytical Results – Additional VOCs
Former Unocal Bulk Terminal 306456
328 1/2 Illinois Street
Fairbanks, Alaska

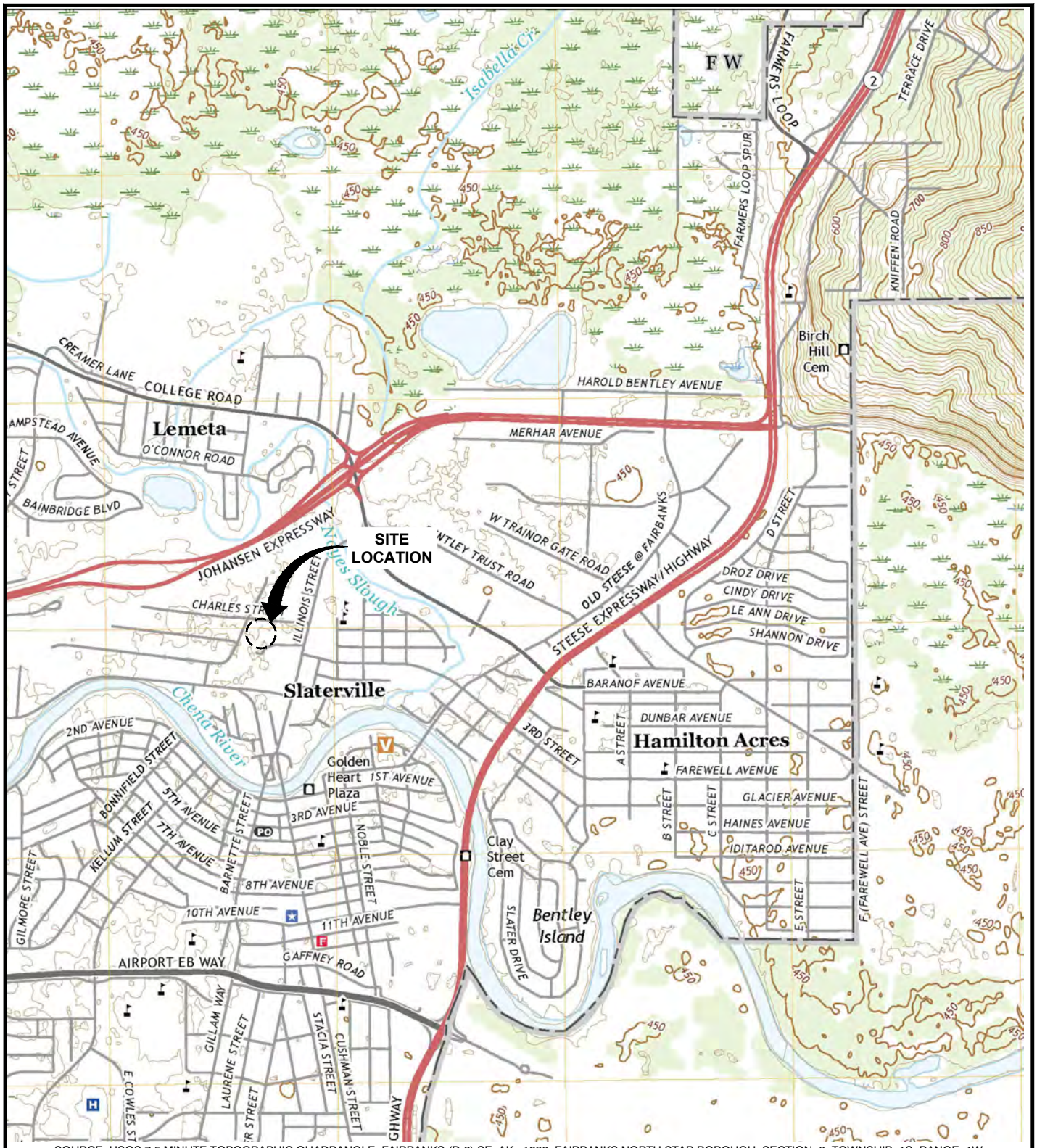
Acronyms and Abbreviations:

-- = Not Available or Not Analyzed
<0.00100 = Not detected at or above the reported detection limit (RDL)
µg/L = Micrograms per liter
ADEC = Alaska Department of Environmental Conservation
Bold = Detected above laboratory method detection limit (RDL)
Bold and *Italicized* = Constituent considered non-detect, however Laboratory RDL is greater than the ADEC Groundwater Cleanup Level
Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level
DTW = Depth to groundwater
EB = Equipment Blank
feet = Relative to NAVD88
bTOC = Below top of casing
GW Elev = Groundwater elevation
ID = Identification
MW = Groundwater monitoring well
TB = Trip Blank
TOC = Top of casing
GRO = Total petroleum hydrocarbons, gasoline range organics
DRO = Total petroleum hydrocarbons, diesel range organics
RRO= Total petroleum hydrocarbons, residual range organics
MTBE= Methyl tert-butyl ether
EDB = 1,2-Dibromoethane
EDC = 1,2-Dichloroethane
J = The identification of the analyte is acceptable; the reported value is an estimate.
B = The same analyte is found in the associated blank
UB = The Compounds considered non-detect at the listed value due to associated blank contamination.
UJ= Non-detect analytes analysis completed in less than two times holding time

Analytical Methods:

1. GRO analyzed by Alaska Method AK101, DRO analyzed by Alaska Method AK102, RRO analyzed by Alaska Method AK103
2. Lead analyzed by United States Environmental Protection Agency (USEPA) Method 6010D.
3. Naphthalene analyzed by United States Environmental Protection Agency (USEPA) Methods 8260D and 8270E-SIM.
4. EDB (Ethylene Dibromide) analyzed by United States Environmental Protection Agency (USEPA) Method 8011.

Figures



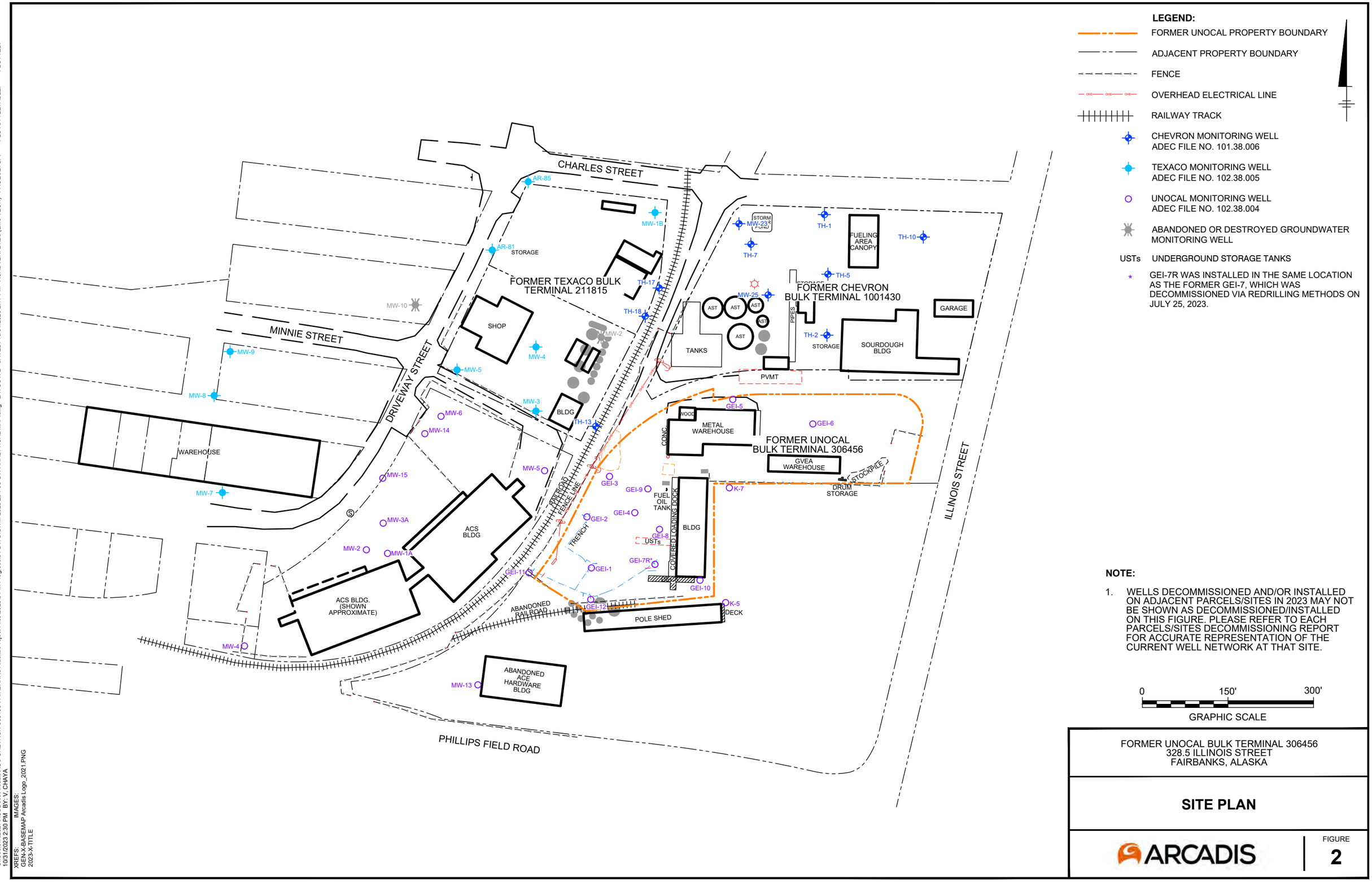
SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE: FAIRBANKS (D-2) SE, AK., 1992, FAIRBANKS NORTH STAR BOROUGH, SECTION: 3, TOWNSHIP: 1S, RANGE: 1W

FORMER UNOCAL BULK TERMINAL 306456
328.5 ILLINOIS ST., FAIRBANKS, AK 99707
2023 OFFSITE DELINEATION WORK PLAN

SITE LOCATION MAP

ARCADIS

FIGURE 1



LEGEND:

- FORMER UNOCAL PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- FENCE
- OVERHEAD ELECTRICAL LINE
- RAILWAY TRACK
- CHEVRON MONITORING WELL ADEC FILE NO. 101.38.006
- TEXACO MONITORING WELL ADEC FILE NO. 102.38.005
- UNOCAL MONITORING WELL ADEC FILE NO. 102.38.004
- ABANDONED OR DESTROYED GROUNDWATER MONITORING WELL
- USTs UNDERGROUND STORAGE TANKS
- * GEI-7R WAS INSTALLED IN THE SAME LOCATION AS THE FORMER GEI-7, WHICH WAS DECOMMISSIONED VIA REDRILLING METHODS ON JULY 25, 2023.

NOTE:

1. WELLS DECOMMISSIONED AND/OR INSTALLED ON ADJACENT PARCELS/SITES IN 2023 MAY NOT BE SHOWN AS DECOMMISSIONED/INSTALLED ON THIS FIGURE. PLEASE REFER TO EACH PARCELS/SITES DECOMMISSIONING REPORT FOR ACCURATE REPRESENTATION OF THE CURRENT WELL NETWORK AT THAT SITE.

0 150' 300'

GRAPHIC SCALE

FORMER UNOCAL BULK TERMINAL 306456
328.5 ILLINOIS STREET
FAIRBANKS, ALASKA

SITE PLAN

ARCADIS

FIGURE 2

C:\Users\vc2827\ACCDocs\Arcadis\AUS-CHEVRON-306456-FAIRBANKS Alaska\Project Files\2023\01-In Progress\01-DWG\GWM-2023Q3-F03-GW ANALYTICAL MAP.dwg LAYOUT: 2 SAVED: 10/31/2023 2:17 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 10/31/2023 2:30 PM BY: V. CHAYA

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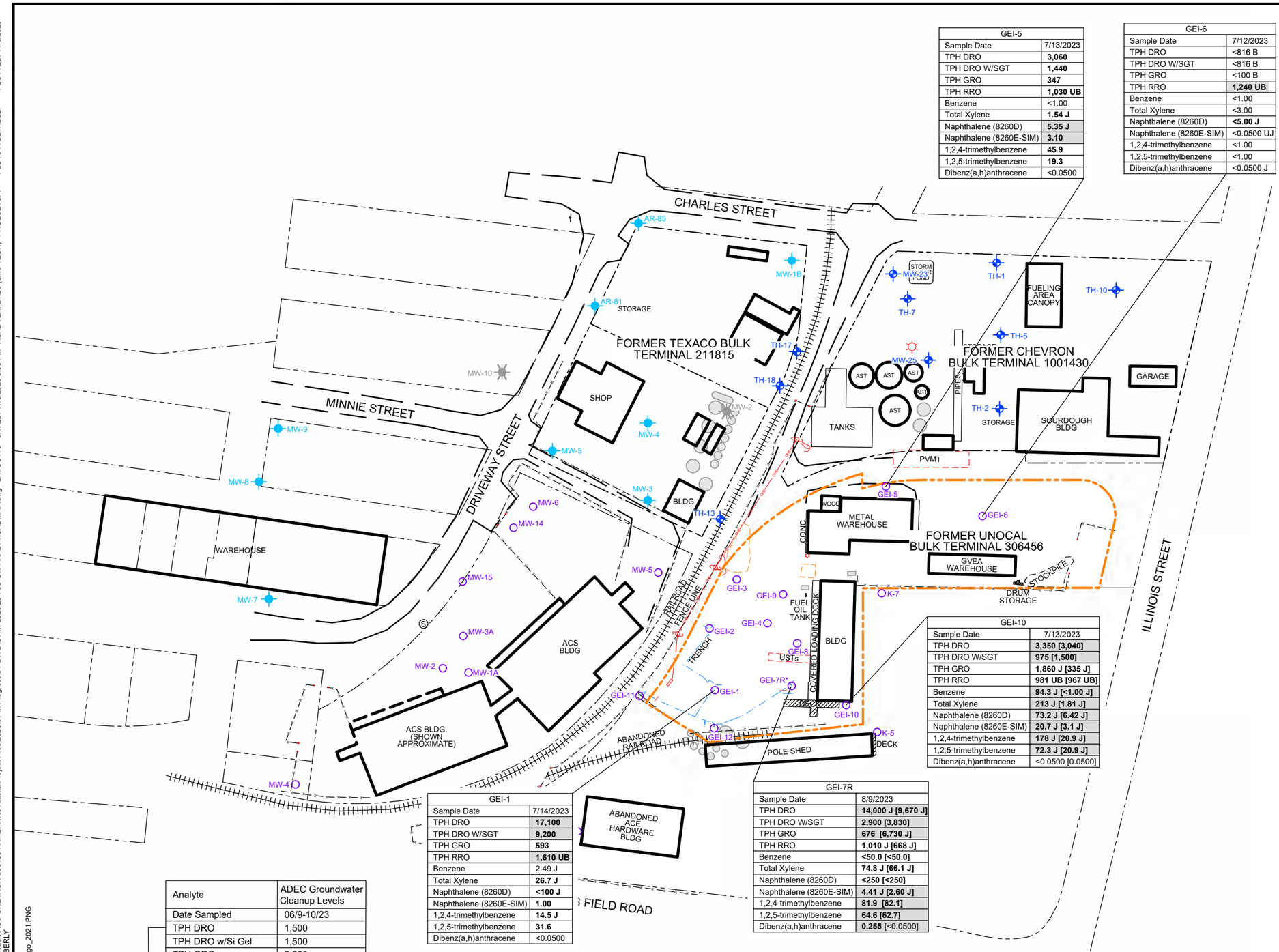

GEI-5	
Sample Date	7/13/2023
TPH DRO	**3,060**
TPH DRO W/SGT	**1,440**
TPH GRO	**347**
TPH RRO	**1,030 UB**
Benzene	<1.00
Total Xylene	**1.54 J**
Naphthalene (8260D)	**5.35 J**
Naphthalene (8260E-SIM)	**3.10**
1,2,4-trimethylbenzene	**45.9**
1,2,5-trimethylbenzene	**19.3**
Dibenz(a,h)anthracene	<0.0500

GEI-6	
Sample Date	7/12/2023
TPH DRO	<816 B
TPH DRO W/SGT	<816 B
TPH GRO	<100 B
TPH RRO	**1,240 UB**
Benzene	<1.00
Total Xylene	<3.00
Naphthalene (8260D)	**<5.00 J**
Naphthalene (8260E-SIM)	<0.0500 UJ
1,2,4-trimethylbenzene	<1.00
1,2,5-trimethylbenzene	<1.00
Dibenz(a,h)anthracene	<0.0500 J

GEI-10	
Sample Date	7/13/2023
TPH DRO	**3,350 [3,040]**
TPH DRO W/SGT	**975 [1,500]**
TPH GRO	**1,860 J [335 J]**
TPH RRO	**981 UB [967 UB]**
Benzene	**94.3 J [<1.00 J]**
Total Xylene	**213 J [1.81 J]**
Naphthalene (8260D)	**73.2 J [6.42 J]**
Naphthalene (8260E-SIM)	**20.7 J [3.1 J]**
1,2,4-trimethylbenzene	**178 J [20.9 J]**
1,2,5-trimethylbenzene	**72.3 J [20.9 J]**
Dibenz(a,h)anthracene	<0.0500 [0.0500]

GEI-1	
Sample Date	7/14/2023
TPH DRO	**17,100**
TPH DRO W/SGT	**9,200**
TPH GRO	**593**
TPH RRO	**1,610 UB**
Benzene	2.49 J
Total Xylene	**26.7 J**
Naphthalene (8260D)	**<100 J**
Naphthalene (8260E-SIM)	**1.00**
1,2,4-trimethylbenzene	**14.5 J**
1,2,5-trimethylbenzene	**31.6**
Dibenz(a,h)anthracene	<0.0500

GEI-7R	
Sample Date	8/9/2023
TPH DRO	**14,000 J [9,670 J]**
TPH DRO W/SGT	**2,900 [3,830]**
TPH GRO	**676 [6,730 J]**
TPH RRO	**1,010 J [668 J]**
Benzene	**<50.0 [<50.0]**
Total Xylene	**74.8 J [66.1 J]**
Naphthalene (8260D)	**<250 [<250]**
Naphthalene (8260E-SIM)	**4.41 J [2.60 J]**
1,2,4-trimethylbenzene	**81.9 [82.1]**
1,2,5-trimethylbenzene	**64.6 [62.7]**
Dibenz(a,h)anthracene	**0.255** [<0.0500]

Analyte	ADEC Groundwater Cleanup Levels
Date Sampled	06/9-10/23
TPH DRO	1,500
TPH DRO w/Si Gel	1,500
TPH GRO	2,200
TPH RRO	1,100
Benzene	4.6
Total Xylenes	190
Naphthalene	1.7
1,2,4-trimethylbenzene	56
1,3,5-trimethylbenzene	60
dibenz(a,h)anthracene	0.25

Concentrations in µg/L

NOTE:

1. WELLS DECOMMISSIONED AND/OR INSTALLED ON ADJACENT PARCELS/SITES IN 2023 MAY NOT BE SHOWN AS DECOMMISSIONED/INSTALLED ON THIS FIGURE. PLEASE REFER TO EACH PARCELS/SITES DECOMMISSIONING REPORT FOR ACCURATE REPRESENTATION OF THE CURRENT WELL NETWORK AT THAT SITE.

LEGEND:

- FORMER UNOCAL PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- FENCE
- OVERHEAD ELECTRICAL LINE
- RAILWAY TRACK
- CHEVRON MONITORING WELL ADEC FILE NO. 101.38.006
- TEXACO MONITORING WELL ADEC FILE NO. 102.38.005
- UNOCAL MONITORING WELL ADEC FILE NO. 102.38.004
- ABANDONED OR DESTROYED GROUNDWATER MONITORING WELL
- USTs — UNDERGROUND STORAGE TANKS
- TPH GRO — TOTAL PETROLEUM HYDROCARBONS, GASOLINE RANGE ORGANICS
- TPH GRO — TOTAL PETROLEUM HYDROCARBONS, DIESEL RANGE ORGANICS
- TPH DRO w/Si Gel — TOTAL PETROLEUM HYDROCARBONS, DIESEL RANGE ORGANICS WITH SILICA GEL
- TPH RRO — TOTAL PETROLEUM HYDROCARBONS,RESIDUAL RANGE ORGANICS
- **BOLD** — VALUE EXCEEDS METHOD DETECTION LIMIT
- **BOLD** — VALUE EXCEEDS ADEC GROUNDWATER CLEANUP LEVEL
- [ ] — DUPLICATE RESULTS
- < — NOT DETECTED AT OR ABOVE THE RDL
- J — THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER,THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATE CONCENTRATION ONLY
- B — THE COMPOUND HAS BEEN FOUND IN THE SAMPLE AS WELL AS ITS ASSOCIATED BLANK, ITS PRESENCE IN THE SAMPLE MAY BE SUSPECT
- UB — THE COMPOUND CONSIDERED NON-DETECT AT THE LISTED VALUE DUE TO ASSOCIATED BLANK CONTAMINATION
- UJ — NON-DETECT ANALYTES ANALYSIS COMPLETED IN LESS THAN TWO TIMES THE HOLDING TIME
- µg/L — MICROGRAMS PER LITER
- * — GEI-7R WAS INSTALLED IN THE SAME LOCATION AS THE FORMER GEI-7, WHICH WAS DECOMMISSIONED VIA REDRILLING METHODS ON JULY 25, 2023.

0 150' 300'

GRAPHIC SCALE

FORMER UNOCAL BULK TERMINAL 306456
328.5 ILLINOIS STREET
FAIRBANKS, ALASKA

GROUNDWATER ANALYTICAL RESULTS JULY 12 THROUGH AUGUST 9, 2023

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FIGURE 3

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IMAGES: 2023-X-TITLE

Appendix A

ADEC Human Health Conceptual Site Model Worksheet

Print Form

Appendix A - Human Health Conceptual Site Model
Scoping Form and Standardized Graphic

Site Name: Unocal 306456

File Number: 102.38.004

Completed by: Arcadis U.S., Inc

Introduction

The form should be used to reach agreement with the Alaska Department of Environmental Conservation (DEC) about which exposure pathways should be further investigated during site characterization. From this information, summary text about the CSM and a graphic depicting exposure pathways should be submitted with the site characterization work plan and updated as needed in later reports.

General Instructions: Follow the italicized instructions in each section below.

1. General Information:

Sources *(check potential sources at the site)*

- ☐ USTs
- ☒ ASTs
- ☒ Dispensers/fuel loading racks
- ☐ Drums
- ☐ Vehicles
- ☐ Landfills
- ☐ Transformers
- ☐ Other:

Release Mechanisms *(check potential release mechanisms at the site)*

- ☐ Spills
- ☒ Leaks
- ☐ Direct discharge
- ☐ Burning
- ☐ Other:

Impacted Media *(check potentially-impacted media at the site)*

- ☒ Surface soil (0-2 feet bgs*)
- ☒ Subsurface soil (>2 feet bgs)
- ☒ Air
- ☐ Sediment
- ☒ Groundwater
- ☐ Surface water
- ☐ Biota
- ☐ Other:

Receptors *(check receptors that could be affected by contamination at the site)*

- ☐ Residents (adult or child)
- ☒ Commercial or industrial worker
- ☒ Construction worker
- ☐ Subsistence harvester (i.e. gathers wild foods)
- ☐ Subsistence consumer (i.e. eats wild foods)
- ☒ Site visitor
- ☒ Trespasser
- ☐ Recreational user
- ☐ Farmer
- ☐ Other:

* bgs - below ground surface

2. Exposure Pathways: *(The answers to the following questions will identify complete exposure pathways at the site. Check each box where the answer to the question is "yes".)*

a) Direct Contact -

1. Incidental Soil Ingestion

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site-specific basis.) ☒

If the box is checked, label this pathway complete: Complete

Comments:

2. Dermal Absorption of Contaminants from Soil

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Can the soil contaminants permeate the skin (see Appendix B in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

b) Ingestion -

1. Ingestion of Groundwater

Have contaminants been detected or are they expected to be detected in the groundwater, or are contaminants expected to migrate to groundwater in the future? ☒

Could the potentially affected groundwater be used as a current or future drinking water source? Please note, only leave the box unchecked if DEC has determined the ground-water is not a currently or reasonably expected future source of drinking water according to 18 AAC 75.350. ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

2. Ingestion of Surface Water

Have contaminants been detected or are they expected to be detected in surface water, or are contaminants expected to migrate to surface water in the future? ☐

Could potentially affected surface water bodies be used, currently or in the future, as a drinking water source? Consider both public water systems and private use (i.e., during residential, recreational or subsistence activities). ☐

If both boxes are checked, label this pathway complete: Incomplete

Comments:

3. Ingestion of Wild and Farmed Foods

Is the site in an area that is used or reasonably could be used for hunting, fishing, or harvesting of wild or farmed foods? ☐

Do the site contaminants have the potential to bioaccumulate (see Appendix C in the guidance document)? ☐

Are site contaminants located where they would have the potential to be taken up into biota? (i.e. soil within the root zone for plants or burrowing depth for animals, in groundwater that could be connected to surface water, etc.) ☐

If all of the boxes are checked, label this pathway complete: Incomplete

Comments:

c) Inhalation-

1. Inhalation of Outdoor Air

Are contaminants present or potentially present in surface soil between 0 and 15 feet below the ground surface? (Contamination at deeper depths may require evaluation on a site specific basis.) ☒

Are the contaminants in soil volatile (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

2. Inhalation of Indoor Air

Are occupied buildings on the site or reasonably expected to be occupied or placed on the site in an area that could be affected by contaminant vapors? (within 30 horizontal or vertical feet of petroleum contaminated soil or groundwater; within 100 feet of non-petroleum contaminted soil or groundwater; or subject to "preferential pathways," which promote easy airflow like utility conduits or rock fractures) ☒

Are volatile compounds present in soil or groundwater (see Appendix D in the guidance document)? ☒

If both boxes are checked, label this pathway complete: Complete

Comments:

3. **Additional Exposure Pathways:** *(Although there are no definitive questions provided in this section, these exposure pathways should also be considered at each site. Use the guidelines provided below to determine if further evaluation of each pathway is warranted.)*

Dermal Exposure to Contaminants in Groundwater and Surface Water

Dermal exposure to contaminants in groundwater and surface water may be a complete pathway if:

- Climate permits recreational use of waters for swimming.
- Climate permits exposure to groundwater during activities, such as construction.
- Groundwater or surface water is used for household purposes, such as bathing or cleaning.

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are deemed protective of this pathway because dermal absorption is incorporated into the groundwater exposure equation for residential uses.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Volatile Compounds in Tap Water

Inhalation of volatile compounds in tap water may be a complete pathway if:

- The contaminated water is used for indoor household purposes such as showering, laundering, and dish washing.
- The contaminants of concern are volatile (common volatile contaminants are listed in Appendix D in the guidance document.)

DEC groundwater cleanup levels in 18 AAC 75, Table C are protective of this pathway because the inhalation of vapors during normal household activities is incorporated into the groundwater exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Inhalation of Fugitive Dust

Inhalation of fugitive dust may be a complete pathway if:

- Nonvolatile compounds are found in the top 2 centimeters of soil. The top 2 centimeters of soil are likely to be dispersed in the wind as dust particles.
- Dust particles are less than 10 micrometers (Particulate Matter - PM_{10}). Particles of this size are called respirable particles and can reach the pulmonary parts of the lungs when inhaled.

DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

Direct Contact with Sediment

This pathway involves people's hands being exposed to sediment, such as during some recreational, subsistence, or industrial activity. People then incidentally ingest sediment from normal hand-to-mouth activities. In addition, dermal absorption of contaminants may be of concern if the the contaminants are able to permeate the skin (see Appendix B in the guidance document). This type of exposure should be investigated if:

- Climate permits recreational activities around sediment.
- The community has identified subsistence or recreational activities that would result in exposure to the sediment, such as clam digging.

Generally, DEC direct contact soil cleanup levels in 18 AAC 75, Table B1, are assumed to be protective of direct contact with sediment.

Check the box if further evaluation of this pathway is needed: ☐

Comments:

4. Other Comments *(Provide other comments as necessary to support the information provided in this form.)*

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Unocal 306456

Completed By: Arcadis U.S., Inc

Date Completed: 11/8/2023

***Instructions*: Follow the numbered directions below. Do not consider contaminant concentrations or engineering/land use controls when describing pathways.**

(1) *Check the media that could be directly affected by the release.*

(2) *For each medium identified in (1), follow the top arrow and check possible transport mechanisms. Check additional media under (1) if the media acts as a secondary source.*

(3) *Check all exposure media identified in (2).*

(4) *Check all pathways that could be complete. The pathways identified in this column **must** agree with Sections 2 and 3 of the Human Health CSM Scoping Form.*

(5) *Identify the receptors potentially affected by each exposure pathway: Enter "C" for current receptors, "F" for future receptors, "C/F" for both current and future receptors, or "I" for insignificant exposure.*

Media	Transport Mechanisms	Exposure Media	Exposure Pathway/Route	Current & Future Receptors						
				Residents (adults or children)	Commercial or industrial workers	Site visitors, trespassers, or recreational users	Construction workers	Farmers or subsistence harvesters	Subsistence consumers	Other
☑ Surface Soil (0-2 ft bgs)	☑ Direct release to surface soil → check soil	☑ soil	☑ Incidental Soil Ingestion		C/F	C/F	F			
	☑ Migration to subsurface → check soil		☑ Dermal Absorption of Contaminants from Soil		C/F	C/F	F			
	☑ Migration to groundwater → check groundwater		☐ Inhalation of Fugitive Dust							
	☑ Volatilization → check air									
	☐ Runoff or erosion → check surface water									
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☑ Subsurface Soil (2-15 ft bgs)	☑ Direct release to subsurface soil → check soil	☑ groundwater	☑ Ingestion of Groundwater		C/F	C/F	F			
	☐ Migration to groundwater → check groundwater		☑ Dermal Absorption of Contaminants in Groundwater		C/F	C/F	F			
	☐ Volatilization → check air		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☑ Ground-water	☑ Direct release to groundwater → check groundwater	☑ air	☑ Inhalation of Outdoor Air		C/F	C/F	F			
	☑ Volatilization → check air		☑ Inhalation of Indoor Air		C/F	C/F	F			
	☐ Flow to surface water body → check surface water		☐ Inhalation of Fugitive Dust							
	☐ Flow to sediment → check sediment									
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☐ Surface Water	☐ Direct release to surface water → check surface water	☐ surface water	☐ Ingestion of Surface Water							
	☐ Volatilization → check air		☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Sedimentation → check sediment		☐ Inhalation of Volatile Compounds in Tap Water							
	☐ Uptake by plants or animals → check biota									
	☐ Other (list):									
☐ Sediment	☐ Direct release to sediment → check sediment	☐ sediment	☐ Direct Contact with Sediment							
	☐ Resuspension, runoff, or erosion → check surface water									
	☐ Uptake by plants or animals → check biota	☐ biota	☐ Ingestion of Wild or Farmed Foods							
	☐ Other (list):									

Revised, 10/01/2010

Appendix B

Field Data

Control Number: TSM-

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name:			Project Location:
Chevron Site 306456			323½ Illinois St. Fairbanks AK
Date: 7/10/23	**Time:** 1300	**Conducted by:** GJ	**Signature/Title:** Geo

Issues or concerns from previous day's activities: None

Task anticipated to be performed today: Utility locate & site walk

The following was used to to communicate H&S information in this briefing (check all that apply):

- [X] HASP (*including THA*)
- [X] JSAs (*specify JSA #s*): Utility location
- [ ] TCP or STAR Plan
- [X] H&S Standard (*specify number*): Heat/Cold Stress, IIPP
- [X] H&S checklist (*specify type*): Utility Clearence
- [X] Rally Point: In front of Oishi Kitchen
- [ ]

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	L	Chemical	L	Driving	H	Electrical	L
Environmental	M	Gravity	H	Mechanical	L	Motion	H
Personal Safety	L	Pressure	L	Radiation	L	Sound	L

Controls required to be used:

PPE, Engineering Contols, Admin Controls, Communication, 360 Walk Around, Spotters, Wash Hands, Whip Checks, Smith System, Pinch Points Marked, Sunscreen, Emergency Action Plan, Stop Work Authority, TRACK

PPE Required (If not using JSA or Permit with PPE requirements):

- [X] Hard hat
- [X] Safety glasses
- [ ] Face shield
- [ ] Safety goggles
- [X] Steel/composite toe boots
- [X] Traffic vest (*specify II or III*): II
- [ ] Life Vest (*specify type*):
- [ ] Protective Suit (*specify type*):
- [X] Protective gloves (*specify type*): Nitrile, Cut resistant, Cevlar
- [X] Other (*specify*): Hearing protection as needed

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time
Grantt Jeffers / / ANA	1300	1633
Mike Bench / / UES	1300	1633

7/10/23

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.888.449.7787** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party protperty damage - field supervisor will immediately notify the Project or Task Manager

244-2485 -> Dan

Control Number: TSM-

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name: Chevron Site 306452			**Project Location:** 328 1/2 Illinois St. Fairbanks, AK
Date: 7/11/23	**Time:** 1249	**Conducted by:** GJ	**Signature/Title:** Geo

Issues or concerns from previous day's activities: None

Task anticipated to be performed today: Utility locate of MW-14 & MW-15.

The following was used to to communicate H&S information in this briefing (check all that apply):

- [X] HASP (*including THA*)
- [X] JSAs (*specify JSA #s*): Utility location
- [ ] TCP or STAR Plan
- [X] H&S Standard (*specify number*): Heat/Cold Stress, IIPP
- [X] H&S checklist (*specify type*): Utility Clearence
- [X] Rally Point: Beside ABC building
- [ ]

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	L	Chemical	L	Driving	H	Electrical	L
Environmental	L	Gravity	H	Mechanical	L	Motion	H
Personal Safety	L	Pressure	L	Radiation	L	Sound	L

Controls required to be used:

PPE, Engineering Contols, Admin Controls, Communication, 360 Walk Around, Spotters, Wash Hands, Whip Checks, Smith System, Pinch Points Marked, Sunscreen, Emergency Action Plan, Stop Work Authority, TRACK

PPE Required (If not using JSA or Permit with PPE requirements):

- [X] Hard hat
- [X] Safety glasses
- [ ] Face shield
- [ ] Safety goggles
- [X] Steel/composite toe boots
- [X] Traffic vest (*specify II or III*): II
- [ ] Life Vest (*specify type*):
- [ ] Protective Suit (*specify type*):
- [X] Protective gloves (*specify type*): Nitrile, Cut resistant, Cevlar
- [X] Other (*specify*): Hearing protection as needed

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time
Gareth Jeffers / [signature] / ANA	1249	1330
Mike Benedict / [signature] / UES	1249	1330

[signature] 7/11/23

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.888.449.7787** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party protperty damage - field supervisor will immediately notify the Project or Task Manager

ARCADIS Design & Consultancy for natural and built assets

Daily Log

Project Name Chevron site 306456 Project Number 30064726 Page 1 of 1

Site Location 328 1/2 Illinois St. Fairbanks AK Date 7/10/23

Field Personnel Grantt Jeffers (GJ), GeoMarkout (GM)

Time	Description of Activities
1300	Arrive onsite. GJ + GM Tailgate + go over SOW.
1320	Complete tailgate. Mob to GEI-6 to find location + observe utilities.
1337	GEI-6 located. (Pink lid). Scan for utilities. No utilities.
1400	Scan for utilities around GEI-5. GEI-5 has no well box and PVC broken @ top. 10' sewer line ~ 7' from GEC-5. locate ground well + Alternative location North of location in case of full replacement.
1420	Scan for utilites @ GEI-1 + GEI-7. Both areas have remediation lines between 3-10' from locations. GEI-7 has electril line ~ 12' from location. Cleared for utilites.
1512	Locate missing well GEI-10. GEI-10 located + has an aluminum cover. Scan for utilities. No utilities. Cleared.
1541	Mob to K-5 + scan for utilities. Electric line ~ 8' from location.
1610	GM all done @ site for the day. bottom up + off site.
1633	ANA off site.
note	Dani Gilbert onsite to discuss SOW. No work performed

7/10/23

ARCADIS Design & Consultancy for natural and built assets

Daily Log

Project Name Chevron Site 306456 Project Number 30064226 Page 1 of 1

Site Location 328 1/2 Illinois St. Fairbanks AK Date 7/11/2023

Field Personnel Grant Jeffers (GJ), Geo Marhaut (GM)

Time	Description of Activities
1245	Arrive @ 306456 (Alaska Comms).
1248	Tailgate w/ GM + walk site.
1255	Complete tailgate. Call Alaska Comms to get into Gated area where MW-14 is located. Talked w/ Don (907-244-2485). Will meet Chris onsite tomorrow @ 8 am to get in gated area.
1305	Start Utility locate of MW-15. maybe 6...
1312	Facility manager onsite. Jacub (251-250-6616). Unlocked gate to get into facility.
1315	MW-15 scanned + No utilities @ or within boxed area. Locate MW-14.
1321	MW-14 scanned + No Utilities @ or within boxed area. Pack up site. Site is located + good to go. No Conflicts.
1330	Mob to site 211815 to perform locate.
note	PM called to discuss Utility Checklist (1332).

7/11/2023

Arcadis Utility and Structures Checklist

THIS FORM MUST BE ENTIRELY COMPLETED PRIOR TO BEGINNING ANY INTRUSIVE WORK

Project Name: Chevron Site 306456 Start Date: 7/10/23

Project #: 30064226 End Date: 7/11/23

Utility markings valid for 15 days. Initiate clearance renewal 5 days prior to expiration for ongoing work

PRE-FIELD WORK REQUIREMENTS

DigSafe 811 notified 48-72 hrs. in advance of work? [X] DigSafe Ticket #: 2023270504

Ticket Expiration Date: 7/28/2023 State Utility Laws: www.commongroundalliance.com/map

Ticket(s) Attached(Y/N)? [Y] List utility owners notified via DigSafe 811 & response status:

See Dig ticket. All closed. Meet w/ Golden Valley.

List addt'l. utilities requiring notification not included in DigSafe811 Notice:

Review task details w/ private utility location subcontractor. ID work areas, clearance equipment needed, depth of clearance needed, types of features, utilities, anticipated/known/unknown. Verify DigSafe 811 markings to confirm public utility clearance.

Private Utility Locator Name, if used: Mike Benedict AUS onsite meeting (Y/N)? [Y]

FIELD WORK REQUIREMENTS

This portion of the checklist must be completed on site. AUS staff must have a minimum of one year of field experience in identifying utilities to complete the checklist. Field staff will review the completed checklist with PM or designee prior to beginning intrusive work.

Heavy equipment/mechanized intrusive work w/in the Arcadis Tolerance Zone (utility or structure present within 30-in. of point of work) REQUIRES pre-approval by Corporate H&S prior to working at all such locations. STOP WORK if the Arcadis Tolerance Zone work has not been approved.

List work type & locations for utility location and clearance as applicable to this checklist:

GEI-1, GEI-5, GEI-6, GEI-7, GEI-10, K-K, MW-14, & MW-15

3 Reliable Lines of Evidence are REQUIRED for EACH INTRUSIVE LOCATION prior to starting any subsurface intrusive work. Check corresponding boxes below to document utility clearance efforts.

[X] OneCall/DigSafe 811 Public Utility Locate (required by State law for subsurface work)

811 is only reliable as a Line of Evidence when working in/adjacent to a public ROW or easement.

Marking type: [X] Paint [ ] Pin Flags/Stakes [ ] Other: _____ [ ] None

[N] Client provided maps/drawings (Y/N)? [N] Maps/drawings not provided (Y/N)?

[N] Client Clearance (Y/N)? Name(s)/Affiliation(s): _____

[N] Interviews (Y/N)? Name(s)/Affiliation(s): _____

[N] Specific subsurface feature types and depths provided by person interviewed (Y/N)?

Details provided: _____

[Y] Site Inspected (Y/N)? (document on Pg. 2.) Photo Document Marked Utilities & Structures

[N] Public records/Client Dwgs/As-Builts (Y/N)? Type:

List private locator tools used: [X] Radio Freq. Detection [X] Electromagnetic [X] GPR

[X] Metal Detector [ ] Acoustic Pipe Locator [ ] Downhole sonde Other:

[Y] Soft Dig Methods used (Y/N)? [ ] Hand auger [ ] Probing [X] Hand tools (shovel/rake)

[ ] Air knife [ ] Hydro Knife [ ] Potholing/Vacuum extraction

[ ] Other soft dig tools used (Y/N)? If Yes, list here:

Arcadis Utility and Structures Checklist

ALL BOXES BELOW MUST BE COMPLETED BEFORE PROCEEDING

Site inspection also requires investigating vicinity outside of the work area for structures and utilities.
Noting "YES" requires addt'l. investigation. Utilities must be field marked prior to intrusive work.

Is the utility present (Y/N)?		Utility Color Code
Y	Utilities entering/exiting structures?	No Color
Y	Intrusive work area marked out?	White
N	Structural features above or below?	White
N	Public natural gas line or meter?	Yellow
N	Private natural gas laterals/feeders?	Yellow
N	Public electrical service?	Red
Y	Conduit from meter or on wall?	Red
Y	Conduit from poles into ground?	Red
N	Poles/devices w/ no visible lines?	Red
N	Overhead electrical lines?	Red
N	Solar arrays or wind turbines?	Red
N	Public water line(s)?	Blue
N	Private water line(s) or lateral(s)?	Blue
N	Water meter onsite?	Blue
N	Fire hydrants/post indicator valves?	Blue
N	Irrigation system control box/valve?	Blue
N	Sprinkler heads, drip lines, vaults?	Blue
N	Water dispensers, fill stations?	Blue
N	Telecomm. overhead or buried?	Orange
N	Telecomm. ground box or relays?	Orange
N	Telecomm./security CCTV devices?	Orange
N	Public sanitary sewer pipes?	Green
N	Combined sanitary/storm pipes?	Green
Y	Private sanitary laterals/clean outs?	Green
N	Restrooms, kitchens, wash bays?	Green

Is the utility present (Y/N)?		Utility Color Code
N	Evidence of stormwater network?	Green
N	Curb drains/catch basins/manholes?	Green
N	Stormwater culverts, outfalls?	Green

ABOVEGROUND Features Present?

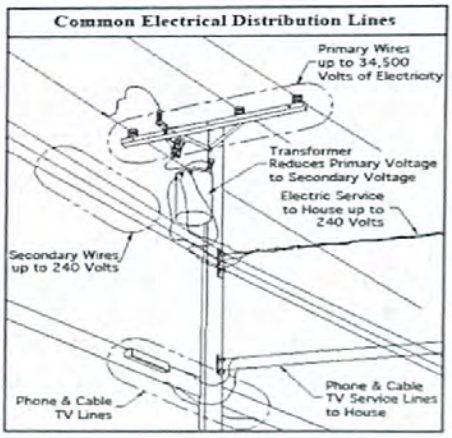
N	Transportation tunnels/structures/markers present?	
N	Overhead electrical lines?	Red
N	< 50 kV w/in 10 ft of work area?	Red
N	>50-200 kV w/in 15 ft of work area?	Red
N	>200-350 kV w/in 20 ft of work area?	Red
N	>350-500 kV w/in 25 ft of work area?	Red
N	>500-750 kV w/in 35 ft of work area?	Red
N	>750-1000 kV w/in 45 ft of work area?	Red
N	Aboveground fire suppression?	Blue
N	Aboveground communications?	Orange
N	Aboveground chases/racks/trays?	Orange
Y	Private/Remediation system lines?	Various
N	Unclassed utilities/anomalies?	Pink
N	Warning signs/stakes/markers present?	
N	Heavy Equipment: Mark travel route for overhead, next to route, and/or under route (e.g. crush risk) utilities.	

Signs of other utilities/ground disturbance

N	Signs of asphalt or concrete disturbance/repair?
N	Any ground subsidence or change in vegetation?
N	Unknown manholes or valve covers in work area?

Tips for Thorough Utility Location (HSS Section 5.6):

1. Don't forget to look up for utilities
2. Be on-site with Private Utility Locators.
3. Ask Private Locators to "confirm" other's markings.
4. Also clear alternate/backup locations
5. Mark all known utilities.
6. No hammering, no pickaxes, no digging bars, no shortcutting.
7. No excessive turning or downward force of hand tools, especially hand augers.
8. Utilities may run in or directly under asphalt/concrete
9. Heavy equipment may damage shallow utilities. Especially during clearing and grubbing.
10. Use spotter for heavy equipment near aboveground utilities?



Y Utilities & Structures Checklist reviewed by the PM or Designee (Y/N)? *If no, STOP WORK call PM*

PM or Designee Name: Nick Wood

Name and Signature of person completing the checklist: Grantt Jeffers

Date of checklist review / update: 7/11/23

ALL SUSPECT UTILITY STRIKES REQUIRE CORPORATE H&S NOTIFICATION WITHIN 24 hrs. OF KNOWLEDGE OF STRIKE WITH A CONFIRMED RESPONSE FROM CORPORATE H&S.

FORMER VAN GAS

GOLDEN HEART UTILITIES

LEASE LOT #2914

PETRO STAR, INC.
(LEASE LOT #7334)

ROAD

SHOP

BLDG

TANK

SOURDOUGH BLDG

BIG STATE LOGISTICS, INC.

WAREHOUSE

1000 Gallon Heating Oil USTs

TRENCH

ACS SITE

ACS BLDG.
(SHOWN APPROXIMATE)

POLE SHED

FORMER OK LUMBER COMPANY, INC.

ABANDONED ACE HARDWARE BLDG

PHILLIPS FIELD ROAD

No utilities

Septic tank?

remediation lines

AR-85 AR-81 MW-1 MW-23 TH-1 TH-7 TH-10 TH-5 MW-25 TH-2 TH-11 TH-12 MW-28 MW-2 MW-4 MW-5 MW-9 MW-8 MW-3 MW-6 MW-14 TH-13 MW-15 MW-7 MW-5 GEI-3 GEI-9 GEI-2 GEI-4 GEI-8 GEI-6 K-7 MW-3 MW-2 MW-1 GEI-11 GEI-1 GEI-7 GEI-10 K-5 GEI-12 MW-4 MW-13

LEGEND:

- PROPERTY BOUNDARY
- TH-1 CHEVRON MONITORING WELL ADEC FILE NO. 101.38.006
- AR-81 TEXACO MONITORING WELL ADEC FILE NO. 102.38.005
- GEI-6 UNOCAL MONITORING WELL ADEC FILE NO. 102.38.004
- MW-2 ABANDONED GROUNDWATER MONITORING WELL
- OHE OVERHEAD ELECTRIC LINE
- RAILWAY TRACK
- USTs UNDERGROUND STORAGE TANKS
- 211815 MW VAULT REPLACEMENT LOCATION
- 211815 MW REPAIR/REPLACEMENT LOCATION
- 306456 MW REPAIR/REPLACEMENT LOCATION
- 306456 MW VAULT REPLACEMENT LOCATION
- 1001430 MW REPAIR/REPLACEMENT LOCATION
- 1001430 MW VAULT REPLACEMENT LOCATION

N

0 120' 240'

APPROXIMATE GRAPHIC SCALE

FORMER TEXACO BULK TERMINAL 211815 - 410 DRIVEWAY ST.
FAIRBANKS, AK 99707

ANNUAL 2022 GROUNDWATER MONITORING REPORT

SITE PLAN

ARCADIS

FIGURE 2

Daily Log

Project Number :

Prepared By: Danielle Gilbert

Site ID: 306456

Site Name: 306456 - Fair Unocal

City: Fairbanks

State: Alaska

Project Manager:

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes ☐ No ☑

Staff on Site

Danielle Gilbert , Max Bero, Malachi , Lo

Subcontractor Information

Company Name: Discovery Drilling

Type of Services: Vault replacement

Did they participate in the H&S tailgate discussion? Yes ☐ No ☐

Subcontractor Mitigation Plans: Tailgate participation, stop work authority, JSAs

Are all training certificates accounted for? Yes ☑ No ☐

Was all equipment inspected? Yes ☐ No ☐

Weather(°F)	PPE	Equipment
72F Cloudy		

Date	Time	Description of Activities
07/11/2023	16:23	Arrive on site. Identify vaults to be replaced. Begin H&S tailgate
07/11/2023	16:45	Health and safety tailgate complete. Begin vault replacements
07/11/2023	16:54	It was identified that MW-15 does not need a vault replacement, just a new gasket. We will skip this one. MW-14 inaccessible until tomorrow morning due to locked fence. Move to K-5
07/11/2023	17:12	K-5 replaced. Begin packing up
07/11/2023	17:29	Out

One or more parameters were not specified for the subreport, 'Subreport2', located at: 'Subreport_overall'.

Signature 

Daily Log

Project Number : 30064227

Prepared By: Danielle Gilbert

Site ID: 309152

Site Name: 309152-Saupe

City: Fairbanks

State: Alaska

Project Manager: Wood, Nicholas

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes ☑ No ☐

Staff on Site

Danielle Gilbert , Gantt Jeffers, Max Bero, Malachi, Lo

Subcontractor Information

Company Name: Discovery Drilling

Type of Services: Vault replacements

Did they participate in the H&S tailgate discussion? Yes ☐ No ☐

Subcontractor Mitigation Plans: Review JSAs

Are all training certificates accounted for? Yes ☑ No ☐

Was all equipment inspected? Yes ☑ No ☐

Weather(°F)	PPE	Equipment
75F partly cloudy		

Date	Time	Description of Activities
07/11/2023	7:24	Danielle Gilbert arrives on site. Prepares tailgate forms
07/11/2023	8:05	Gantt Jeffers, Max Bero, Discovery Drilling arrive on site. Begin health and safety tailgate.
07/11/2023	8:55	Health and safety tailgate complete. Begin site walk
07/11/2023	9:30	Discovery Drilling departs site to pick up air compressor for well jetting. Gantt, Max depart site to printout out JSAs for drillers.
07/11/2023	10:08	Max returns on site with JSAs. Discovery returns and begins setting up traffic control. Compressor won't be ready for pickup until noon
07/11/2023	10:36	Begin repair of MW-11
07/11/2023	11:00	MW-11 complete. Begin MW-13 box replacement
07/11/2023	11:36	MW-13 box replaced. Variance confirmed for MW-8 and 12 provided that the locations are hand augered between the locations and utilities. Discovery heads off site to pick up compressor and hand auger rentals.
07/11/2023	12:52	Discovery returns with compressor and hand auger. Begin hand clearing next to MW-12 and marked electrical utility
07/11/2023	13:02	Hand angering completed. No utilities encountered. Continue box replacement
07/11/2023	13:26	MW-12 replaced

Daily Log

07/11/2023	13:48	Set up at MW-8. Stick up was found to be empty of sand. Drillers believe that sand typically installed in stickups probably went down the well. Well was cut to ground surface where it was punctured. Lowering a bailer down it was found the drillers could touch a sandy bottom at around 3 ft bgs. Pulling it up revealed yellow very coarse spherical sand. It is believed that this indeed the same sand used as filter pack and that the sand emptied into the well. Called Gantt and he confirmed that no redevelopment attempts would be made.
07/11/2023	14:02	Begin discussion with project team whether we will be doing well replacements via auger or DPT, soil sampling intervals, well constructions, etc.
07/11/2023	15:27	Discussion with project team completed. MW-8 abandoned in place by pouring remaining pvc interval (from around 3ft to ground surface) with bentonite chips as instructed. Covered area in native material
07/11/2023	16:10	Discussed more logistics with project team. Departed site to 306456 for more vault replacement activities

One or more parameters were not specified for the subreport, 'Subreport2', located at: 'Subreport_overall'.

Signature

Daily Log

Project Number :

Prepared By: Danielle Gilbert

Site ID: 306456

Site Name: 306456 - Fair Unocal

City: Fairbanks

State: Alaska

Project Manager:

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes ☐ No ☑

Staff on Site
Danielle Gilbert , Max Bero, Lo, Malachi

Subcontractor Information
Company Name: Discovery drilling
Type of Services: Well vault replacement, well development
Did they participate in the H&S tailgate discussion? Yes ☐ No ☐
Subcontractor Mitigation Plans: JSAs, tailgate, stop work authority
Are all training certificates accounted for? Yes ☑ No ☐
Was all equipment inspected? Yes ☐ No ☐

Weather(°F)	PPE	Equipment
70F, scattered showers		

Date	Time	Description of Activities
07/12/2023	8:00	Discovery, arcadis on site. Begin H&S tailgate
07/12/2023	8:25	Health and safety tailgate complete, move to MW-14. Gate found to be locked
07/12/2023	8:36	ACS lets us in gate. Start setting up at MW-14
07/12/2023	9:35	MW-14 vault replacement complete
07/12/2023	9:45	Start setting up at GEI-6 for redevelopment
07/12/2023	10:30	Discovery recognizes they are missing some items for redevelopment activities. Departs site
07/12/2023	11:10	Discovery back on site. Prepare to jet GEI-6
07/12/2023	14:15	GEI-6 development complete, begin preparing to move to GEI-10
07/12/2023	14:45	GEI-10 was inaccessible for the air compressor due to a trailer in the way. Start moving to GEI-7
07/12/2023	15:50	An obstruction was encountered in GEI-7. Post jetting the obstruction remains. Notified project team and moved to GEI-1
07/12/2023	16:20	Set up and jet GEI-1. Gantt arrives on site and troubleshoots blockage in GEI-7 and heat traces
07/12/2023	17:25	Was able to call tenant about moving trailer. Gantt continues to troubleshoot with project team and Mike Benedict the utility locator

Daily Log

07/12/2023	17:45	Discovery, Max, and Mike off site
07/12/2023	18:00	Gantt and Danielle off site

Signature 

ARCADIS Design & Consultancy for natural and built assets

Well Development Record

Project Name: Chevron site 306456 PG 1 of 1

Date(s): 7-13-22 Project #: Arcadis Oversight: D. Gilbert ARCADIS Job Title: Geologist 2

Well ID: GEI-10 Total Depth (ft bTOC): 19.72 TOC (abgs): — Screen Interval (ft bgs): 10-20

DTW (ft bTOC): 14.04 Water colmun in well(ft): 5.68 Diameter of well (in.): 2 Gallons in well: 0.93

Rig operator: Sailosisavu Rig type: Air compressor Bailer make and size: 2" x 2' SS Water added: none

Surge block make and size: 2" SS Pump make and size: Mega Monsoon Pro Water source: —

Time	Task	GPM	DTW (ft btoc)	TD ft btoc	Temp °C	pH	ORP (mV)	Cond. (mS/cm)	Turb NTU	DO (mg/L)	Notes/Gallons Removed/Water Clarity
1343	setup		14.04	19.72	—	prepare to jet					
1345	Jet			Grey silt removed from casing							
1400	complete jet	—	14.16	19.72							
1405	Bail			Grey silt observed / no odor							
1412	complete Bail	—	14.15	19.72							2 gals removed
1415	Surge			Full wet screen for 15 mins							
1432	complete surge 1	—	14.10	19.52							
1435	Bail			Grey silt observed / no odor							
1441	complete Bail	—	14.13	19.72							2 gals removed
1445	Surge			Full wet screen for 15 mins							
1500	complete surge 2	—	14.07	19.66							
1505	Bail			Grey silt observed / no odor							
1510	complete Bail	—	14.16	19.72							1 gal removed
1525	pump	1 gal/min	14.98	—	6.04	6.50	35	0.105	286	4.46	
1530			1500	—	5.85	6.40	43	0.106	38.9	4.40	
1532	pump	300 mL/min			Decrease for low flow sampling						
1535			14.28	—	6.97	6.39	40	0.109	42.8	3.40	
1540			14.27	—	7.02	6.37	42	0.110	41.5	3.25	
1545			14.26	—	7.08	6.35	49	0.103	39.1	3.39	
1550	—	sample	GEI-10 + Dup-1 (13 D-1-W-071323)								

Development complete

Sample ID and Time: GEI-10-W-071323 @ 1550

Total gallons removed at completion of development: 25

Arcadis Staff: D. Gilbert

Two hydrasleeves found and pulled from well

ARCADIS Design & Consultancy for natural and built assets

Well Development Record Project Name: Chevron site 306456 PG 1 of 1

Date(s): 7-13-23 Project #: Arcadis Oversight: D. Gilbert ARCADIS Job Title: Geologist 2

Well ID: GEI-5 Total Depth (ft bTOC): 15.81 TOC (abgs): — Screen Interval (ft bgs): 7-17

DTW (ft bTOC): 12.81 Water colmun in well(ft): 3 Diameter of well (in.): 2 Gallons in well: 0.49

Rig operator: Sailosisavu Rig type: Air compressor Bailer make and size: 2" x 2' SS Water added: none

Surge block make and size: 2" SS Pump make and size: Mega Monsoon Pro Water source: —

Time	Task	GPM	DTW (ft btoc)	TD ft btoc	Temp °C	pH	ORP (mV)	Cond. (mS/cm)	Turb NTU	DO (mg/L)	Notes/Gallons Removed/Water Clarity
0820	set up	—	—	10.81	prepare to jet						
0830	jet	—	Dark grey silt removed from casing								
0855	—	—	13.15	15.80							
0859	Bail	—	Dark grey silt removed / slight organic odor								
0910	complete Bail	—	12.68	15.81							2 gals removed
0912	surge	—	Full	wet screen for 15 mins							
0928	complete surge 1	—	12.58	15.52							
0931	Bail	—	Dark grey silt removed / slight organic odor								
0941	complete Bail	—	12.51	15.81							3 gals removed
0945	surge	—	Full	wet screen for 15 mins							
1001	complete surge 2	—	12.52	15.61							
1004	Bail	—	Dark grey silt removed / slight organic odor								
1014	complete Bail	—	12.74	15.81							
[illegible]											
1045	pump	1.5 gpm		—	8.36	6.39	-3	0.266	>1000	4.04	
1136	restart pump	1.5 gpm	13.90	—	7.67	6.44	-24	0.303	>1000	1.53	
1146	pump	1000 ml	13.47	—	5.35	6.49	-30	0.311	[illegible]	0.0	
1151	|	1000 ml	13.45	—	5.30	6.47	-28	0.314	48.6	0.0	
1152	pump	300mL/min	—	Decrease for low flow sampling							
1200	pump	[illegible]	12.89	—	6.15	6.49	-33	0.313	42.9	0.08	
1205	|	|	12.94	—	6.22	6.48	-29	0.311	43.1	0.00	
1210	|	|	12.99	—	6.06	6.46	-27	0.310	41.6	0.00	
1215	~ sample GEI-5										

Development complete

7-13-23

Sample ID and Time: GEI-5-W-071323 @ 1215

Total gallons removed at completion of development: 25

Arcadis Staff: D. Gilbert

* well vault and top ~8" of casing found to be destroyed. Vault replaced

ARCADIS Design & Consultancy for natural and built assets

Well Development Record

Project Name: Chevron 306456

PG 1 of 1

Date(s): 7-12-23 | Project #: | Arcadis Oversight: D. Gilbert | ARCADIS Job Title: Geologist 2

Well ID: GEI-6 | Total Depth (ft bTOC): 17.13 | TOC (abgs): — | Screen Interval (ft bgs): 8-18

DTW (ft bTOC): 12.55 | Water colmun in well(ft): 4.58 | Diameter of well (in.): 2 | Gallons in well: 0.75

Rig operator: Salvisa VV | Rig type: Air compressor | Bailer make and size: 3' SS | Water added: none

Surge block make and size: 2" SS | Pump make and size: Mega Monsoon PD | Water source: —

Time	Task	GPM	DTW (ft btoc)	TD ft btoc	Temp °C	pH	ORP (mV)	Cond. (mS/cm)	Turb NTU	DO (mg/L)	Notes/Gallons Removed/Water Clarity
1120	- set up		12.55	17.13	—	prep to jet					
1121	Jet	—	brownish grey silt removed from casing								
1130	—	—	12.73	17.41							
1132	Bail	—	brownish grey silt								
1150	complete Bail	—	12.55	17.41							5 gallons removed
1151	Surge	-	Full wet screen for 15 minutes								
1218	complete surge 1	-	12.57	17.41							
1219	Bail	—	brownish grey silt no odor								1 gallons removed
1220	complete bail	-	12.57	17.41							
1221	Surge 2	—	Full wet screen for 15 minutes								
1236	complete surge 2	—	12.54	17.32							
1238	Bail	-	brownish grey silt no odor								2 gallons removed
1242	complete bail	-	12.60	17.41							
1302	Pump	1.5 gal/min	12.84	—	4.91	6.72	202	0.537	71000	11.75	
1310				—	2.26	6.56	169	0.542	47.3	10.45	
1315				—	2.26	6.56	137	0.539	14.8	8.82	
1317	Pump	400 mL/min	12.72	—	4.52	6.48	148	0.509	20.4	7.78	Decreased rate for low flow
1323			12.69	—	5.54	6.45	150	0.489	20.6	7.57	
1328			12.66	—	6.20	6.41	154	0.484	21.3	7.44	
1333			12.69	—	6.71	6.36	158	0.475	17.9	7.45	
1338			12.72	—	6.78	6.32	160	0.468	15.2	7.26	
1343			12.72	—	6.56	6.28	163	0.470	12.2	7.25	
1348			12.74		6.53	6.27	164	0.468	11.7	7.36	
1353			12.74		6.50	6.26	166	0.473	10.0	7.25	
1400	—	Sample GEI-6									

Development complete

7-12-23

Sample ID and Time: GEI-6-W-071223 @ 1400

Total gallons removed at completion of development: 30

Arcadis Staff: D. Gilbert

Daily Log

Project Number :

Prepared By: Danielle Gilbert

Site ID: 306456

Site Name: 306456 - Fair Unocal

City: Fairbanks

State: Alaska

Project Manager:

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes ☐ No ☑

Staff on Site

Danielle Gilbert , Max Bero , Lo, Malachi

Subcontractor Information

Company Name: Discovery Drilling

Type of Services: Vault replacement, well development

Did they participate in the H&S tailgate discussion? Yes ☐ No ☐

Subcontractor Mitigation Plans: Tailgate, JSAs stop work authority

Are all training certificates accounted for? Yes ☑ No ☐

Was all equipment inspected? Yes ☐ No ☐

Weather(°F)	PPE	Equipment
75F Sunny		Interface Probe (IP), Submersible Pump, Water Quality Meter (i.e. YSI)

Date	Time	Description of Activities
07/13/2023	8:00	Arcadis and Discovery on site. Begin H&S tailgate
07/13/2023	8:22	Health and safety tailgate complete, set up on GEI-5 for redevelopment
07/13/2023	11:05	Well surged. When purging the pump stopped working. Took pump apart and turned it back on. Lowered pump back into well
07/13/2023	11:34	Pump got stuck in well while lowering. Was able to retrieve well after 25 minutes. Resume development activities
07/13/2023	12:15	GEI-5 groundwater sampled
07/13/2023	12:35	Drillers begin repairing GEI-5 at surface. Casing will be cut flat, a riser installed to bring the casing back closer to surface, new well box to be installed in concrete
07/13/2023	13:25	GEI box install complete
07/13/2023	13:45	Set up at GEI-10
07/13/2023	15:50	Well development complete. GEI-10 sampled, plus Dup-1
07/13/2023	16:30	Replacing GEI-10 well vault with new steel vault
07/13/2023	16:42	Vault replacement complete. Begin packing up
07/13/2023	17:00	Max and discovery depart site

Daily Log

07/13/2023	17:30	ANA out

Signature 

Daily Log

Project Number :

Prepared By: Danielle Gilbert

Site ID: 306456

Site Name: 306456 - Fair Unocal

City: Fairbanks

State: Alaska

Project Manager:

Portfolio: COP 5.0

Subportfolio: West

Inside Chevron Operational Control? Yes ☐ No ☑

Staff on Site
Danielle Gilbert , Max Bero , Lo, Malachi

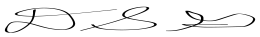
Subcontractor Information
Company Name: Discovery Drilling
Type of Services: Vault replacement, well development
Did they participate in the H&S tailgate discussion? Yes ☐ No ☐
Subcontractor Mitigation Plans: Tailgate, JSAs stop work authority
Are all training certificates accounted for? Yes ☑ No ☐
Was all equipment inspected? Yes ☐ No ☐

Weather(°F)	PPE	Equipment
70 partly cloudy		Interface Probe (IP), Submersible Pump, Water Quality Meter (i.e. YSI)

Date	Time	Description of Activities
07/14/2023	13:27	Arrive on site. Health and safety tailgate. Get set up on GI-1 for redevelopment
07/14/2023	14:00	While thinking ahead, realize that bailers, surge blocks, and submersible pumps will still not fit down GEI-1. Call Gantt and head back to site 211815 to locate missing MW-2
07/14/2023	15:00	Return to site and get set up on GEI-1 with newly rented waterra pump
07/14/2023	17:00	Well purging and sampling completed. EB-1-W-071423 collected. Begin packing up
07/14/2023	17:30	Max and Discovery off site.

Potential Incidents, Close Calls, and Stop Works
Event type: Public/Stakeholder Interaction
What happened? Tenant Sheldon was curious about our waterra pump. Had a brief pleasant conversation

Daily Log

Signature 

ARCADIS

Well Development Record

Date(s): 7-12-23, 7-14-23 Project Name: Chevron site 306456 PG 1 of 1

Project #: Arcadis Oversight: D Gilbert ARCADIS Job Title: Geologist 2

Well ID: GEI-1 Total Depth (ft bTOC): ~~D56~~ 19.05 TOC (abgs): — Screen Interval (ft bgs): 10-20

DTW (ft bTOC): 14.81 Water colmun in well(ft): Diameter of well (in.): 2 Gallons in well:

Rig operator: Sailosisavu Rig type: Air compressor Bailer make and size: 2" SS Water added: none

Surge block make and size: 2" SS Pump make and size: Mega Monsoon Pro Water source: —

Time	Task	GPM	DTW (ft btoc)	TD ft btoc	Temp °C	pH	ORP (mV)	Cond. (mS/cm)	Turb NTU	DO (mg/L)	Notes/Gallons Removed/Water Clarity
1550	-	Setup	14.81	18.41	—	prep	to jet				
1553	jet	-	Grey silt removed from casing / odor observed								
			End 7-12-23, need to remove heat trace before continuing								
			Return	7-14-23				D56	7-14-23		
1330	set up		14.90	18.93	—						
1500	Pump	1000 ML/min	—		12.14	7.42	0.393	-141	>1000	2.82	Rainbow sheen observed. odor
1515			—	—	10.24	7.20	-117	0.419	>1000	1.55	
1530			—	—	9.72	7.08	-98	0.422	610	0.46	
1540			—	—	9.43	6.99	-94	0.428	372	0.93	
1555			—	—	10.24	6.92	-80	0.425	249	1.02	
1610			—	—	10.48	7.08	-125	0.416	175	1.21	
1620			—	—	9.95	6.94	-76	0.421	166	0.27	
1630		GEI-1-W-071423			collected						
		Well Development complete									

7-14-23

Sample ID and Time: GEI-1-W-071423 1630

Total gallons removed at completion of development: 25

Arcadis Staff: D. Gilbert

ARCADIS Design & Consultancy for natural and built assets

Daily Log

Project Name Chevron Site 306456 Project Number _____ Page 1 of 1

Site Location 329 Driveway St, Fairbanks, Alaska Date 7-25-23

Field Personnel Danielle Gilbert, Max Bero, Gailosisavu, Malachi

Time	Description of Activities
0745	Arrive on site, prep H+S forms
0810	All staff on site, begin H+S tailgate, call site tenant to open site gates
0855	Tailgate complete. Enter site to begin well box removal and daylighting SV line process
0905	Tenant removes trailer from over GEI-7 to allow for setup PID 0.0
0940	Found SV line. It moves to the Northwest instead of WSW as expected
0950	Called Gantt and confirmed plan of attack for overdrilling scope discussed marked line that Geomarkout placed at a different angle for the SV line than expected. Photos of line and utility markings shared. Map with SV direction shared
1030	While extending daylighted portion, a 90° bend was found causing the line to continue WSW as originally expected. Shared with project team
1100	Drillers cut casing connection, pull old sock from well, set up overdrilling
1115	Rig shuts off while drilling. Drillers troubleshoot PID 0.1
1135	Rig operating, continue overdrill
1300	Well set, begin housekeeping while one of the drillers depart to buy connectors PID 0.1
1350	Begin reattaching SV Line.
1430	Well PVC attached and installed call PM
1500	Well box installed, begin packing up
1540	Off site

7-25-23

GEI-7R, Chevron Environmental Management Company, COP5_West__306456_AK_Fairbanks

Created	2023-07-25 18:50:02 UTC by Danielle Gilbert
Updated	2023-07-26 05:17:53 UTC by Danielle Gilbert
Location	64.8490801470907, -147.72331981214168
Status	Ready for QC

This app is being archived as of Q1 2023 and will be replaced with an improved version. Please contact your task manager to ensure your team is onboarded.

Have you read the Quality Procedure (QP) and/or Technical Guidance Instruction (TGI) relevant to this use case?	Yes

Selecting "Yes" confirms your digital signature as having read the QP and/or TGI relevant to this use case.

Project Information

Select Project Number	30064226, Chevron Environmental Management Company, COP5_West__306456_AK_Fairbanks
Client	Chevron Environmental Management Company
Project Name	COP5_West__306456_AK_Fairbanks
Project Number	30064226
Project Location	329 Driveway St Fairbanks, AK 99701
Boring ID	GEI-7R
Photo(s) of Boring Location	

Drilling Information

Start Date	2023-07-25
Start Time	10:50
End Date	2023-07-25
End Time	14:53
Logged By	Danielle Gilbert
Additional Field Personnel	Max Bero
Drilling Company	Discovery
Driller(s)	Sailosisavu
Helper(s)	Malachi
Drilling Method	Direct-Push
Drill Rig	Geoprobe
Sample or Coring Device	Macrocore
Sampling Interval	None
Drill Casing Diameter (in)	7
Static Water Level (ft btoc)	14.98
Total Depth (ft bgs)	20
Permanent Well Installed?	Yes
Remarks	Bottom of well tagged 19.95 directly after install

Construction Details

Construction Type	Single Screened

GEI-7R, GEI-7R: (10-20 ft bgs) 2-in Sch. 40 PVC Screen

Boring ID - Pipes	GEI-7R
Record Title	GEI-7R: (10-20 ft bgs) 2-in Sch. 40 PVC Screen
Location ID	GEI-7R
Casing Diameter (in)	2
Casing Type	Sch. 40 PVC
Screen Diameter (in)	2
Slot Size (in)	0.01
Screen Type	Sch. 40 PVC
Depth to Top of Screen (ft bgs)	10
Depth to Bottom of Screen (ft bgs)	20
Includes Sump?	Yes
Sump Type	Sch. 40 PVC
Depth to Bottom of Sump (ft bgs)	20.5
Includes End Cap?	No
Repeatable Number	1

GEI-7R, 8-21.5 ft bgs, Filter Pack

Boring ID - Annular	GEI-7R
Record Title	8-21.5 ft bgs
Casing Diameter	2
Casing Type	Sch. 40 PVC
Top Depth (ft bgs)	8
Bottom Depth (ft bgs)	21.5
Annular Thickness	13.5
Material Type	Filter Pack
Material Description	10-20 sand
Actual Material Installed (ft^3)	N/A for this material and/or unit selected

GEI-7R, 3-8 ft bgs, Bentonite

Boring ID - Annular	GEI-7R
Record Title	3-8 ft bgs
Casing Diameter	2
Casing Type	Sch. 40 PVC
Top Depth (ft bgs)	3
Bottom Depth (ft bgs)	8
Annular Thickness	5
Material Type	Bentonite
Material Description	Bentonite Chips
Calculated Material Volume (ft^3)	0.00

GEI-7R, 0.5-3 ft bgs, Backfill

Boring ID - Annular	GEI-7R
Record Title	0.5-3 ft bgs
Casing Diameter	2
Casing Type	Sch. 40 PVC

Top Depth (ft bgs)	0.5
Bottom Depth (ft bgs)	3
Annular Thickness	2.5
Material Type	Backfill
Material Description	Backfill
Calculated Material Volume (ft^3)	0.00
Actual Material Installed (ft^3)	N/A for this material and/or unit selected

GEI-7R, 0-0.5 ft bgs, Concrete

Boring ID - Annular	GEI-7R
Record Title	0-0.5 ft bgs
Casing Diameter	2
Casing Type	Sch. 40 PVC
Top Depth (ft bgs)	0
Bottom Depth (ft bgs)	0.5
Annular Thickness	0.5
Material Type	Concrete
Material Description	Concrete
Calculated Material Volume (ft^3)	0.00
Actual Material Installed (ft^3)	N/A for this material and/or unit selected

GEI-7R, 10-20 ft bgs, Filter Pack

Boring ID - Annular	GEI-7R
Record Title	10-20 ft bgs
Casing Diameter	2
Casing Type	Sch. 40 PVC
Top Depth (ft bgs)	10
Bottom Depth (ft bgs)	20
Annular Thickness	10
Material Type	Filter Pack
Material Description	Prepack Filter Pack
Calculated Material Volume (ft^3)	0.00
Actual Material Installed (ft^3)	N/A for this material and/or unit selected

GSI Information

Stilling Well

Casing Diameter (in)	4
Need to calculate heat of hydration?	No

Heat of Hydration

This calculation automatically pulls in data based on what is entered in the form when you select "Yes" for needing to calculate the heat of hydration, but the fields can also be updated manually to better match the correct field conditions.

Surface Completion

Completion Type	Flushmount
Is this record complete and ready for QC?	Yes

Have you performed work in accordance with the applicable QP/TGI?	Yes

Control Number: TSM-

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name: Chevron Site 306456			**Project Location:** 328½ Illinois St. Fairbanks AK
Date: 8/9/23	**Time:** 1152	**Conducted by:** GJ	**Signature/Title:** Geo

Issues or concerns from previous day's activities: Smoke

Task anticipated to be performed today: well Development, groundwater sampling, Drum handling, Cooker Handling.

The following was used to to communicate H&S information in this briefing (check all that apply):

- [X] HASP (*including THA*)
- [X] JSAs (*specify JSA #s*): well Development
- [ ] TCP or STAR Plan
- [X] H&S Standard (*specify number*): Heat/Cold Stress, IIPP
- [X] H&S checklist (*specify type*): Utility Clearence
- [X] Rally Point: Sourdough front lot
- [ ]

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	L	Chemical	M	Driving	H	Electrical	L
Environmental	M	Gravity	H	Mechanical	L	Motion	H
Personal Safety	L	Pressure	L	Radiation	L	Sound	L

Controls required to be used:

PPE, Engineering Contols, Admin Controls, Communication, 360 Walk Around, Spotters, Wash Hands, Whip Checks, Smith System, Pinch Points Marked, Sunscreen, Emergency Action Plan, Stop Work Authority, TRACK

PPE Required (If not using JSA or Permit with PPE requirements):

- [X] Hard hat
- [X] Safety glasses
- [ ] Face shield
- [ ] Safety goggles
- [X] Steel/composite toe boots
- [X] Traffic vest (*specify II or III*): II
- [ ] Life Vest (*specify type*):
- [ ] Protective Suit (*specify type*):
- [X] Protective gloves (*specify type*): Nitrile, Cut resistant, Cevlar
- [X] Other (*specify*):

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time
Grant Jeffers / [signature] / ANA	1150	1420
Maxwell Berg / [signature] / ANA	1150	1420

8/9/23

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.888.449.7787** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party protperty damage - field supervisor will immediately notify the Project or Task Manager

ARCADIS Design & Consultancy for natural and built assets

Daily Log

Project Name Chevron Site 306456 Project Number 30064226 Page 1 of 1

Site Location 328 1/2 Illinois St. Fairbanks AK Date 8/9/23

Field Personnel Grant Jeffers (GJ), Max Bero (MB)

Time	Description of Activities
1150	GJ onsite w/ MB. Prep paperwork.
1152	Tailgate w/ MB. Go over SOW.
1200	Complete tailgate. Set up @ GEI-7R.
note	GEI-7R well pad + well box compromised + needs to be replaced.
1205	Start development of GEI-7R. (Tracer (Heat) removed).
note	unable to fit pump past Heat tracer line. Waterra Pump used to purge + sample.
note	water was suddsy when bailing + purging.
1355	Complete development of GEI-7R.
note	Dup collected (MW-1-W-20230809).
note	3 drums (Full) onsite for Groundwater +
1420	GJ + MB offsite + Mob to 211815.

8/9/23

ARCADIS Design & Consultancy for natural and built assets

Well Development Record Project Name: Chevron Site 304456 PG 1 of 1

Date(s): 8/9/23 Project #: 70064226 Arcadis Oversight: G. Jeffers ARCADIS Job Title: GeoO

Well ID: GEI-7R Total Depth (ft bTOC): 20.06 TOC (abgs): 0.39 bgs (?) Screen Interval (ft bgs): 10'-20'

DTW (ft bTOC): 15.36 Water colmun in well(ft): 4.7 Diameter of well (in.): 2 Gallons in well: 0.80 (7.99)

Rig operator: — Rig type: — Bailer make and size: 2" PVC (5' Long) Water added: none

Surge block make and size: bailer Pump make and size: Check ball Valve Water source: —

Time	Task	GPM	DTW (ft btoc)	TD ft btoc	Temp °C	pH	ORP (mV)	Cond. (mS/cm)	Turb NTU	DO (mg/L)	Notes/Gallons Removed/Water Clarity
1205	Setup		15.28	19.69							
1207			removed heat trace								
1214	1st bail		brown VF-silt + odor								
1221	Complete bail										1.5 gallons removed
1222	1st Surge		15' mins per full screen interval								
1237	Complete Surge										
1237	2nd bail		Silt & VF sand (dark grey with brown)								
1239	Complete bail		15.33	20.06							1.25 gallons removed
1241	2nd Surge		15 mins Per full screen Interval								
1256	Complete Surge										
1300	3rd bail		Trace silt & sand (dark grey with brown)								
1304	Complete bail		15.36	20.06							2 gallons removed
1315	Start purge										
1329	Stop purge				11.02	6.91	-95	0.368	72.0	10.52	~8 gallons removed
1335			Sample Collected (GEI-7R-W-20230809) & DUP (BD-1-W-20230809)								
			GEI-7R Developed								

8/9/23

Sample ID and Time: GEI-7R-W-20230809 @ 1335 & DUP (BD-1-W-20230809)

Total gallons removed at completion of development: ~13 gallons

Arcadis Staff: G. Jeffers,

Company Name/Address:
Arcadis - Chevron

Billing Information:
Attn: Accounts Payable
630 Plaza Dr. Ste. 600
Highlands Ranch, CO 80129

Pres Chk

Report to:
Nick Wood/Gantt Jeffers

Email To:
envorpnmentalDM-India@arcadis.com

Project Description: 306456

City/State Collected: **Fairbanks, AK**

Please Circle: PT MT CT ET (AK)

Phone: **907-276-8095**

Client Project # 30064226

Lab Project # **CHEVARCAK-** 306456

Collected by (print): Gantt Jeffers

Site/Facility ID # 328 ½ Illinois Street

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day X 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard**

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	123TCP 524LL 40mlAmb-HCL	AK101 40mlAmb HCL	AK102 w/ SGC 100 ml Amb HCL	AK102/103 no SGC 100 ml Amb HCL	EDB 8011 40mlClr-NaThio	PAHs 8270SIM 100 ml Amb-NoPres	Total Lead 6010 250mlHDPE-HNO3	VOCs 8260 40mlAmb-HCL			Remarks	Sample # (lab only)
GEI-7R-W-20230809	G	GW	—	8/9/23	1335	18	X	X	X	X	X	X	X	X				
BD-1-W-20230809	↓	↓	—	↓	—	18	↓	↓	↓	↓	↓	↓	↓	↓				
TB-1	—	↓	—	—	—	—	↓	↓			↓			↓				

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Sample Receipt Checklist
COC Seal Present/Intact: __NP __Y __N
COC Signed/Accurate: __Y __N
Bottles arrive intact: __Y __N
Correct bottles used: __Y __N
Sufficient volume sent: __Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N
RAD Screen <0.5 mR/hr: __Y __N

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

SDG #

Table #

Acctnum:

Template:

Prelogin:

PM:

PB:

Shipped Via:

Control Number: TSM-

TSM + project number plus date as follows: xxxxxxxx.xxxx.xxxxx - dd/mm/year

ARCADIS

TAILGATE HEALTH & SAFETY MEETING FORM

Project Name: Chevron sites 359152, 211081, 97114, 338311, 306456, 211815, + 10014730			**Project Location:** Fairbanks AK
Date: 8/11/23	**Time:** Varies	**Conducted by:** GJ	**Signature/Title:** Geo

Issues or concerns from previous day's activities: Smoke

Task anticipated to be performed today: Waste Sample collection, Soil + groundwater Sampling, Drum Sampling

The following was used to to communicate H&S information in this briefing (check all that apply):

- [X] HASP (*including THA*)
- [X] JSAs (*specify JSA #s*): Soil Sampling
- [ ] TCP or STAR Plan
- [X] H&S Standard (*specify number*): Heat/Cold Stress, IIPP
- [X] H&S checklist (*specify type*): Utility Clearence
- [X] Rally Point: site specific
- [ ]

Hazard Types (unmitigated ranking H-High, M-Medium, L-Low):

Biological	L	Chemical	H	Driving	H	Electrical	L
Environmental	M	Gravity	H	Mechanical	L	Motion	H
Personal Safety	M	Pressure	L	Radiation	L	Sound	L

Controls required to be used:

PPE, Engineering Contols, Admin Controls, Communication, 360 Walk Around, Spotters, Wash Hands, Whip Checks, Smith System, Pinch Points Marked, Sunscreen, Emergency Action Plan, Stop Work Authority, TRACK

PPE Required (If not using JSA or Permit with PPE requirements):

- [X] Hard hat
- [X] Safety glasses
- [ ] Face shield
- [ ] Safety goggles
- [X] Steel/composite toe boots
- [X] Traffic vest (*specify II or III*): II
- [ ] Life Vest (*specify type*):
- [ ] Protective Suit (*specify type*):
- [X] Protective gloves (*specify type*): Nitrile, Cut resistant, Cevlar
- [X] Other (*specify*):

Signature and Certification: I have read and understand the project specific HASP for this project.

Printed Name/Signature/Company	Sign In Time	Sign Out Time
G. Jeffers / ANA	1300	1820

8/11/23

I will STOP the job any time anyone is concerned or uncertain about health & safety or if anyone identifies a hazard or additional mitigation not recorded in the site, project, job or task hazard assessment.

I will be alert to any changes in personnel, conditions at the work site or hazards not covered by the original hazard assessments.

If it is necessary to **STOP THE JOB,** I will perform **TRACK**; and then amend the hazard assessments or the HASP as needed.

I will not assist a subcontractor or other party with their work unless it is absolutely necessary and then only after I have done TRACK and I have thoroughly controlled the hazard.

All site staff should arrive fit for work. If not, they should report to the supervisor any restrictions or concerns.

In the event of an injury, employees will call **WorkCare at 1.888.449.7787** and then notify the field supervisor.

Utility strike, motor vehicle accident or 3rd party protperty damage - field supervisor will immediately notify the Project or Task Manager

ARCADIS

Daily Log

Project Name Chevron Sites 309152, 92114, 211081, 381811, 306456, 211815, & 1001430 Project Number ____ Page 1 of 2

Site Location Fairbanks AK Date 8/11/23

Field Personnel Gn. Jeffers (GJ)

Site Visit Purpose Collection of waste samples (Soil & GW)

Time	Description of Activities
1300	GJ arrive @ 309152. Prep & call in GPTW w/ PM.
1335	Sample waste water (3 drums (1 full, 1 1/4 full, 1 1/2 full). WS-W-20230811
1345	Sample waste soil (1 1/4 full drum). WS-S-20230811
1355	Close drums & close out permit (call PM).
1358	GJ mob to 211081.
1410	arrive @ 211081. Prep to sample waste water & soil
1418	sample waste water (WS-W-20230811). 3 water drums (2 full & 1 1/2 full).
1430	Sample waste soil (WS-S-20230811). 1 soil drum (1/3 full).
1437	Close all drums & button up site.
1441	GJ mob offsite to site 92114.
1446	Arrive @ 92114. Prep to sample waste water & soil.
note	3 drums consolidated w 2 Empty drums removed from site.
1500	Sample waste water (WS-W-20230811). 2 full drums of water.
1510	Sample waste soil (WS-S-20230811). 1 1/3 full drum.
note -	to self, make COC for soil.
1512	Button up site & drums. Pick up Empty's later
1523	GJ offsite & Mob to 381811.
1537	Arrive @ 381811. Prep to sample waste.
1545	Sample waste water (WS-W-20230811). 2 Drums (1 full & 1 1/2 full)
1555	Sample waste soil (WS-S-20230811). 1 Drum (1/4 full)
note	one drum consolidated & Empty drum onsite.
note	Soil needs labels.
1601	Button up site & close all drums.
1605	GJ left site. Mob to 1001430.
1620	GJ arrive @ 1001430. Prep to sample waste
1630	Sample waste water (WS-W-20230811). 2 drums (1 full & 1 1/4 full).

Project Name Fair Sites Project Number sea front Page 2 of 2

1640	Sample waste soil (WS-S-20230811). 1 Drum 1/3 full
note	to self: COC needed for soil.
1642	Clean up + close drums.
1648	GJ left site. Mob to 211815.
1650	Arrive @ 211815. Prep to collect waste samples.
1655	Sample waste water (WS-W-20230811). 2 Drums (1 full + 1 2/3 full).
1705	Sample waste soil (WS-S-20230811). 1 Drum (1/3 full).
1710	Mob offsite to ~~3818~~ 306456.
1712	Arrive @ 306456. Gate is locked but can walk around.
1722	Sample waste water (WS-W-20230811). 3 full drums.
1725	Button up site + close drums.
1731	GJ left site. Mob back to 211081 to sample PFAS (forgot).
1805	GJ arrive @ 211081. Open drums + to sample for PFAS.
1812	Sample waste water for PFAS (WS-W-20230811).
1815	Sample waste soil for PFAS (WS-S-20230811).
1818	Close up drums.
1820	GJ left site. Mob to office to drop off samples + equipment.

8/11/23

Appendix C

Soil Boring and Construction Logs

ARCADIS

Soil Boring and Construction Log

Boring No.: GEI-7R

Sheet: 1 of 1

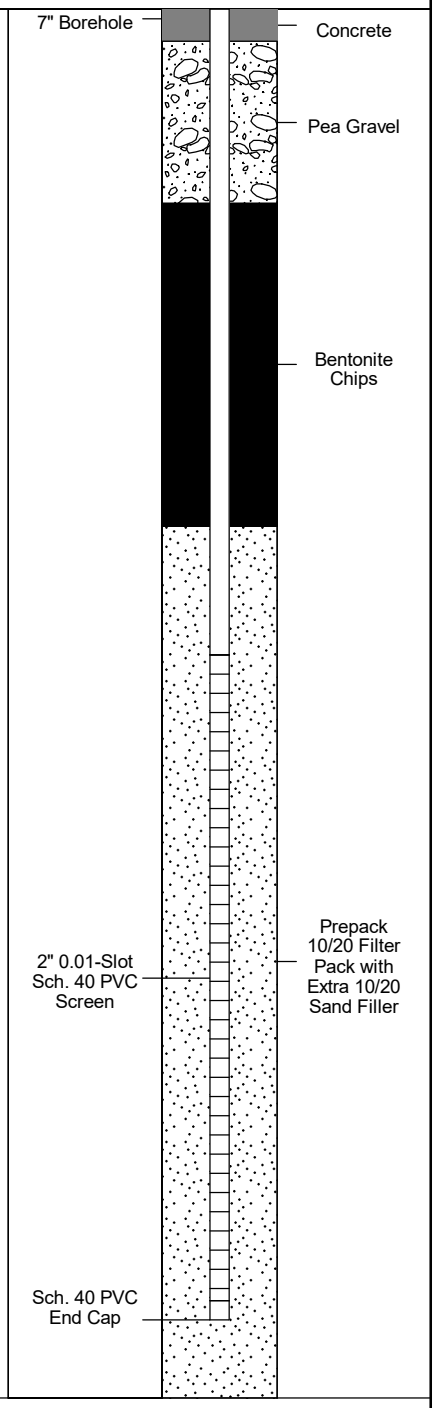
Client Name: Chevron Environmental Management Company
Project Number: 30064226
Project Name: COP5_West__306456_AK_Fairbanks

Date Started: 07-25-2023
Date Completed: 07-25-2023
Total Depth: 21.5 ft bgs

Logger: Danielle Gilbert
Reviewer: Gantt Jeffers

Depth (feet)	Sample ID	Rec. (ft)	PID (ppm)	Blow Counts	Graphic	Description	Drilling Fluid and Notes
1–21		0				(0 - 20.5 ft) No Recovery.	(0-20.5 ft) Overdrilled GEI-7R with Hollow Stem Auger
22						21.5 ft. bgs End of Boring	

Construction Details



Drilling Company: Discovery
Driller: Sailosisavu
Drilling Method: Hollow Stem Auger
Drill Rig: Geoprobe
Remarks: Additional Field Personnel: Max Bero; Bottom of well tagged 19.95 directly after install; bgs = below ground surface; ft = feet; PID = photo-ionization detector; ppm = parts per million; Rec. = recovery; amsl - above mean sea level

Sampling Method: None
Sampling Dimensions: None
First Encountered Water (ft bgs): NA
Static Water Level (ft bgs): 14.98
Top of Casing Elevation: 444.06 ft amsl
Surface Elevation: 444.27 ft amsl
North Coordinate: N 64° 50' 56.622" / 3968452.27
East Coordinate: W 147° 43' 23.711" / 1372248.68

SOIL BORING AND CONSTRUCTION LOG C:\USERS\PJEFFERS\ONEDRIVE - ARCADIS\DOCUMENTS\GINT LIBRARY\FAIRBANKS REPAIR LOGS\GINT PROJECT.GPJ GINT DATA TEMPLATE.GDT 10/24/23

Appendix D

Well Survey Data - 2023

McLANE
CONSULTING INC

25 October 2023

Survey Report

Arcadis U.S., Inc.

FOR

Monitor Well Survey
410 Driveway St = Site # 211815
418 Illinois St = Site # 1001430
328.5 Illinois St = Site # 306456
Fairbanks, AK

Prepared By:

McLANE CONSULTING INC.
38240 Kenai Spur Highway
PO Box 468
Soldotna, AK 99669

Submitted to:

Arcadis U.S., Inc.,
630 Plaza Drive Suite 100
Highlands Ranch, CO 80129

Subject: Arcadis Site #'s 306456, 211815 & 1001430

McLane Consulting, Inc. performed surveying services on September 29, 2023 at site #306456, 211815 & 1001430 Fairbanks, Alaska. Scope of work and tasks were complete as approved on Arcadis work authorization No. (30064222.19.45 – Site # 211815), (30064226.19.45 – Site # 306456) & (30064231.19.45 – Site # 1001430).

McLane Consulting Inc., has performed the following as of October 25, 2023:

- **Site 211815:** 410 Driveway St, Fairbanks, AK.
- **Site 306456:** 328.5 Illinois St, Fairbanks, AK
- **Site 1001430:** 418 Illinois St, Fairbanks, AK
    - **Survey Equipment:** Trimble GPS R10 and R12i for horizontal and Wild NA2 optical level for vertical.
    - **Office Processing Equipment:** Trimble Business Center vs 5.90, Autocad Civil3d 2024 and Microsoft Excel.
    - **Coordinate System:** Alaska State Plane Zone 3 NAD83(2011) Epoch 2010.0000 US Survey Feet. NAVD88 Geoid 12b elevation Datum
    - **Monitor Wells:**
        - GPS Locations and vertical level readings were taken at each monitor well. The elevations are reported at the surrounding ground, top of casing and top of PVC/Steel monitor well.
        - Site is a mix of asphalt, concrete & gravel areas.
    - **Site Features & Exhibit:** Fairbanks North-Star Borough-GIS site features from aerial overlay.

PNT. NO.	ASP NORTHING	ASP EASTING	ELEV. GRND	ELEV. RIM CASING	ELEV. PVC	LAT. (DMS) N	LONG. (DMS) W	DESCRIPTOR
801	3968471.21	1371780.10	444.46	444.46	444.10	N 64° 50' 56.683"	W 147° 43' 34.557"	MW 1
802	3968477.58	1371743.08	444.38	444.38	444.11	N 64° 50' 56.736"	W 147° 43' 35.417"	MW 2
803	3968524.36	1371772.58	444.47	444.42	444.25	N 64° 50' 57.204"	W 147° 43' 34.764"	MW 3
804	3968308.97	1371529.35	444.02	447.26	447.28	N 64° 50' 55.020"	W 147° 43' 40.252"	MW 4
805	3968616.21	1372055.54	444.37	444.38	444.07	N 64° 50' 58.183"	W 147° 43' 28.280"	MW 5
806	3968711.64	1371873.98	444.05	447.59	447.45	N 64° 50' 59.074"	W 147° 43' 32.538"	MW 6
813	3968257.23	1371919.27	443.76	443.77	443.32	N 64° 50' 54.615"	W 147° 43' 31.204"	MW 13
814	3968681.10	1371845.42	443.80	443.77	443.50	N 64° 50' 58.766"	W 147° 43' 33.179"	MW 14
815	3968603.02	1371771.73	443.73	443.62	443.37	N 64° 50' 57.978"	W 147° 43' 34.834"	MW 15
1105	3968384.92	1372373.00	444.09	444.06	443.69	N 64° 50' 55.993"	W 147° 43' 20.794"	K 5
1107	3968586.20	1372379.38	443.12	443.12	442.61	N 64° 50' 57.975"	W 147° 43' 20.773"	K 7
1201	3968445.65	1372137.52	444.56	444.56	444.09	N 64° 50' 56.527"	W 147° 43' 26.277"	GEI 1
1202	3968535.17	1372129.75	445.43	445.42	445.18	N 64° 50' 57.406"	W 147° 43' 26.513"	GEI 2
1203	3968606.14	1372169.30	444.91	444.78	444.39	N 64° 50' 58.115"	W 147° 43' 25.643"	GEI 3
1204	3968542.53	1372213.56	445.18	445.15	444.65	N 64° 50' 57.501"	W 147° 43' 24.580"	GEI 4
**1205	3968741.12	1372385.33	442.43	442.25	441.89	N 64° 50' 59.501"	W 147° 43' 20.733"	GEI 5**
1206	3968698.31	1372525.70	442.51	442.51	442.03	N 64° 50' 59.117"	W 147° 43' 17.461"	GEI 6
*1207	3968452.27	1372248.68	444.27	444.26	444.06	N 64° 50' 56.622"	W 147° 43' 23.711"	GEI 7R*
1208	3968513.35	1372256.94	445.00	445.01	444.66	N 64° 50' 57.226"	W 147° 43' 23.559"	GEI 8
1209	3968584.32	1372236.55	445.03	444.93	444.56	N 64° 50' 57.918"	W 147° 43' 24.075"	GEI 9
**1210	3968424.01	1372327.86	443.78	443.64	443.36	N 64° 50' 56.366"	W 147° 43' 21.862"	GEI 10**
1211	3968437.13	1372028.43	444.21	444.17	443.98	N 64° 50' 56.414"	W 147° 43' 28.794"	GEI 11
1212	3968377.12	1372137.32	444.12	444.11	443.57	N 64° 50' 55.853"	W 147° 43' 26.238"	GEI 12
5001	3968444.98	1372037.93	444.29	444.27	444.11	N 64° 50' 56.494"	W 147° 43' 28.579"	AS 1
5002	3968435.61	1372042.09	444.29	444.26	444.14	N 64° 50' 56.403"	W 147° 43' 28.477"	AS 2
5003	3968538.98	1372121.10	445.15	445.14	444.98	N 64° 50' 57.441"	W 147° 43' 26.715"	AS 3
5004	3968524.37	1372129.79	445.56	445.53	445.02	N 64° 50' 57.300"	W 147° 43' 26.505"	AS 4
5005	3968542.36	1372135.26	445.63	445.65	445.48	N 64° 50' 57.478"	W 147° 43' 26.390"	AS 5
5006	3968455.44	1372126.56	444.66	444.65	444.27	N 64° 50' 56.621"	W 147° 43' 26.537"	AS 6
5007	3968453.50	1372148.33	444.46	444.41	444.17	N 64° 50' 56.608"	W 147° 43' 26.032"	AS 7
5008	3968436.84	1372133.76	444.51	444.53	444.15	N 64° 50' 56.440"	W 147° 43' 26.359"	AS 8
5009	3968403.04	1372135.38	444.60	444.65	444.54	N 64° 50' 56.108"	W 147° 43' 26.300"	AS 9
5010	3968389.89	1372122.55	444.79	444.79	444.54	N 64° 50' 55.975"	W 147° 43' 26.588"	AS 10
5011	3968392.25	1372149.74	444.44	444.44	444.20	N 64° 50' 56.005"	W 147° 43' 25.961"	AS 11
5012	3968450.54	1372239.37	444.63	444.60	444.55	N 64° 50' 56.603"	W 147° 43' 23.925"	AS 12
5013	3968460.42	1372253.25	444.76	444.77	444.65	N 64° 50' 56.704"	W 147° 43' 23.611"	AS 13
5014	3968441.10	1372251.70	444.28	444.27	444.21	N 64° 50' 56.513"	W 147° 43' 23.634"	AS 14
1)	Monitor Well Data from Survey date: 9/29/2023							
2)	* LISTED ARE NEW LOCATIONS FOR MONITOR WELLS							
3)	** LISTED ARE REFURBISHED FROM PREVIOUS SURVEY CONDITIONS							

NORTH

GRAPHIC SCALE

0 50 100 200

1 inch = 100 ft.

SITE # 211815
410 DRIVEWAY ST

SITE # 1001430
418 ILLINOIS ST

SITE # 306456
328 1/2 ILLINOIS ST

CHARLES ST

MINNIE ST

DRIVEWAY ST

ILLINOIS ST

AR85
AR81
MW 1
MW 10R
MW 9
MW 8
MW 7
MW 15
MW 3
MW 2
MW 4
MW 5
MW 6
MW 14
MW 13
MW 2R
MW 23R
TH1
TH10
TH5
MW 25
TH2
GEI 5
GEI 6
GEI 3
GEI 9
GEI 4
GEI 8
K 7
AS 5
AS 3
GEI 2
AS 4
AS 1
AS 2
GEI 11
AS 6
AS 7
GEI 1
AS 8
AS 9
AS 11
AS 10
GEI 12
AS 12
AS 13
GEI 7R
AS 14
GEI 10
K5

SURVEY CONTROL

1. BASIS OF HORIZONTAL:
   ALASKA STATE PLANE ZONE 3 NAD83(2011)
   (EPOCH 2010.0000) US SURVEY FEET
2. VERTICAL CONTROL:
   (NAVD88) GEOID12b

REV	DATE	DESCRIPTION	BY
1	10/24/2023	SUBMITTAL	JAH

ARCADIS
SITE # 306456, 211815 & 1001430
FAIRBANKS, AK

JOB NO. 233050
FIELD BOOK NO. 24-03
FIELD WORK DATE: SEPTEMBER 2023

Chevron

McLANE Consulting Inc

ENGINEERING - TESTING
SURVEYING - MAPPING
P.O. BOX 468
SOLDOTNA, AK. 99669
VOICE: (907) 283-4218
FAX: (907) 283-3265
WWW.MCLANECG.COM

DRAWN BY: JAH
CHECKED BY: BGB
HORZ. SCALE: 1" = 100'
VERT. SCALE: N/A
SHEET: 1

Appendix E

Laboratory Analytical Reports

ANALYTICAL REPORT

July 30, 2023

Arcadis - Chevron - AK

Sample Delivery Group:	L1636957
Samples Received:	07/19/2023
Project Number:	30064226 19.45
Description:	306456
Site:	328.5 ILLINOIS ST FAIRBANKS AK
Report To:	Nick Wood/Sydney Kunze/Erika Midkiff 880 H St. Anchorage, AK 99501

Entire Report Reviewed By:

Brian Ford

Project Manager

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

GEI-1-W-071423 L1636957-01 GW

Collected by: Danielle Gilbert
Collected date/time: 07/14/23 16:50
Received date/time: 07/19/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2098874	1	07/24/23 11:14	07/27/23 09:45	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2102438	1	07/28/23 10:16	07/28/23 10:16	ADM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	20	07/21/23 17:35	07/21/23 17:35	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099251	100	07/25/23 11:21	07/25/23 11:21	BRA	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2100301	1.07	07/24/23 14:07	07/25/23 00:27	RDH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2100272	1	07/25/23 20:45	07/27/23 23:59	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2100273	1	07/25/23 20:46	07/26/23 16:04	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2098172	1	07/20/23 15:53	07/21/23 03:28	MBE	Mt. Juliet, TN

GEI-5-W-071323 L1636957-02 GW

Collected by: Danielle Gilbert
Collected date/time: 07/13/23 12:15
Received date/time: 07/19/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2098874	1	07/24/23 11:14	07/27/23 09:48	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2098838	1	07/21/23 08:08	07/21/23 08:08	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	1	07/21/23 14:05	07/21/23 14:05	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099251	100	07/25/23 11:45	07/25/23 11:45	BRA	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2100301	1.09	07/24/23 14:07	07/24/23 23:49	RDH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2100272	1	07/25/23 20:45	07/28/23 01:41	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2100273	1	07/25/23 20:46	07/26/23 16:24	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2098172	1	07/20/23 15:53	07/21/23 03:48	MBE	Mt. Juliet, TN

GEI-6-W-071223 L1636957-03 GW

Collected by: Danielle Gilbert
Collected date/time: 07/12/23 14:00
Received date/time: 07/19/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2098874	1	07/24/23 11:14	07/27/23 09:56	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2098838	1	07/21/23 08:34	07/21/23 08:34	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2098344	1	07/20/23 14:47	07/20/23 14:47	BRA	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	1	07/21/23 14:24	07/21/23 14:24	JAH	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2100301	1.1	07/24/23 14:07	07/24/23 23:24	RDH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2100272	1.02	07/25/23 20:45	07/28/23 00:19	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2100273	1.02	07/25/23 20:46	07/26/23 16:45	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2100271	1	07/25/23 20:04	07/26/23 08:34	JNJ	Mt. Juliet, TN

GEI-10-W-071323 L1636957-04 GW

Collected by: Danielle Gilbert
Collected date/time: 07/13/23 15:50
Received date/time: 07/19/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2098874	1	07/24/23 11:14	07/27/23 09:59	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2098838	1	07/21/23 09:01	07/21/23 09:01	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	1	07/21/23 14:43	07/21/23 14:43	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099251	100	07/25/23 12:08	07/25/23 12:08	BRA	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2100301	1.06	07/24/23 14:07	07/25/23 00:40	RDH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2100272	1	07/25/23 20:45	07/28/23 00:40	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2100273	1	07/25/23 20:46	07/26/23 17:05	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2098172	1	07/20/23 15:53	07/21/23 04:08	MBE	Mt. Juliet, TN

BD-1-W-071323 L1636957-05 GW

Collected by: Danielle Gilbert | Collected date/time: 07/13/23 00:00 | Received date/time: 07/19/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2098874	1	07/24/23 11:14	07/27/23 10:01	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2098838	1	07/21/23 09:28	07/21/23 09:28	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	1	07/21/23 15:02	07/21/23 15:02	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099251	100	07/25/23 12:32	07/25/23 12:32	BRA	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2100301	1.02	07/24/23 14:07	07/25/23 00:52	RDH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2100272	1	07/25/23 20:45	07/28/23 01:00	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2100273	1	07/25/23 20:46	07/26/23 17:26	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2098172	1	07/20/23 15:53	07/21/23 04:27	MBE	Mt. Juliet, TN

EB-1-W-071423 L1636957-06 GW

Collected by: Danielle Gilbert | Collected date/time: 07/14/23 17:00 | Received date/time: 07/19/23 09:30

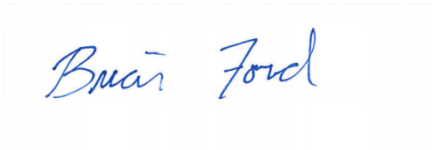
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2098874	1	07/24/23 11:14	07/27/23 09:29	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2098838	1	07/21/23 07:15	07/21/23 07:15	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2098344	1	07/20/23 15:58	07/20/23 15:58	BRA	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	1	07/21/23 13:08	07/21/23 13:08	JAH	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2100301	1.04	07/24/23 14:07	07/25/23 01:05	RDH	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2100272	1	07/25/23 20:45	07/28/23 01:20	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2100273	1	07/25/23 20:46	07/26/23 17:47	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2098172	1	07/20/23 15:53	07/21/23 04:47	MBE	Mt. Juliet, TN

TRIP BLANK-071423 L1636957-07 GW

Collected by: Danielle Gilbert | Collected date/time: 07/14/23 00:00 | Received date/time: 07/19/23 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2098838	1	07/21/23 06:21	07/21/23 06:21	NCC	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2099118	1	07/21/23 12:29	07/21/23 12:29	JAH	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2099078	1.02	07/21/23 08:06	07/21/23 21:48	LTB	Mt. Juliet, TN

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

Sample Delivery Group (SDG) Narrative

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2100271	8270E-SIM	L1636957-03

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

The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.

Batch	Lab Sample ID	Analytes
WG2099118	L1636957-01	1,2,3-Trichlorobenzene and Naphthalene
WG2099118	L1636957-02	1,2,3-Trichlorobenzene and Naphthalene
WG2099118	L1636957-03	1,2,3-Trichlorobenzene and Naphthalene
WG2099118	L1636957-04	1,2,3-Trichlorobenzene and Naphthalene
WG2099118	L1636957-05	1,2,3-Trichlorobenzene and Naphthalene
WG2099118	L1636957-06	1,2,3-Trichlorobenzene and Naphthalene
WG2099118	L1636957-07	1,2,3-Trichlorobenzene and Naphthalene

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2099118	(LCSD) R3952433-2, L1636957-01, 02, 03, 04, 05, 06, 07	1,1,2-Trichlorotrifluoroethane

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG2100272	o-Terphenyl	(BLANK) R3953220-1, (LCS) R3953220-2, (LCS) R3953220-4, (LCSD) R3953220-3, (LCSD) R3953220-5, L1636957-03, 06

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG2100272	AK102 DRO C10-C25	L1636957-03
WG2100272	AK103 RRO C25-C36	L1636957-01, 02, 03, 04, 05, 06

CASE NARRATIVE

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG2100273	o-Terphenyl	(BLANK) R3953918-1, (LCS) R3953918-2, (LCSD) R3953918-3, L1636957-03

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG2100273	AK102 DRO C10-C25	L1636957-02, 03, 04, 05, 06

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG2100271	Fluoranthene	L1636957-03

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2098172	(MSD) R3951320-4	Benzo(g,h,i)perylene and Dibenz(a,h)anthracene

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2100271	(MSD) R3953544-4	18 analytes

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	8.55		2.99	6.00	1	07/27/2023 09:45	WG2098874

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	593		28.7	100	1	07/28/2023 10:16	WG2102438
(S) a,a,a-Trifluorotoluene(FID)	*90.8*			*50.0-150*		*07/28/2023 10:16*	WG2102438

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		226	1000	20	07/21/2023 17:35	WG2099118
1,2,3-Trichloropropane	U		0.200	0.500	100	07/25/2023 11:21	WG2099251
Acrolein	U		50.8	1000	20	07/21/2023 17:35	WG2099118
Acrylonitrile	U		13.4	200	20	07/21/2023 17:35	WG2099118
Benzene	2.49	J	1.88	20.0	20	07/21/2023 17:35	WG2099118
Bromobenzene	U		2.36	20.0	20	07/21/2023 17:35	WG2099118
Bromochloromethane	U		2.56	20.0	20	07/21/2023 17:35	WG2099118
Bromodichloromethane	U		2.72	20.0	20	07/21/2023 17:35	WG2099118
Bromoform	U		2.58	20.0	20	07/21/2023 17:35	WG2099118
Bromomethane	U		12.1	100	20	07/21/2023 17:35	WG2099118
n-Butylbenzene	U		3.14	20.0	20	07/21/2023 17:35	WG2099118
sec-Butylbenzene	U		2.50	20.0	20	07/21/2023 17:35	WG2099118
tert-Butylbenzene	U		2.54	20.0	20	07/21/2023 17:35	WG2099118
Carbon disulfide	U		1.92	20.0	20	07/21/2023 17:35	WG2099118
Carbon tetrachloride	U		2.56	20.0	20	07/21/2023 17:35	WG2099118
Chlorobenzene	U		2.32	20.0	20	07/21/2023 17:35	WG2099118
Chlorodibromomethane	U		2.80	20.0	20	07/21/2023 17:35	WG2099118
Chloroethane	U		3.84	100	20	07/21/2023 17:35	WG2099118
Chloroform	U		2.22	100	20	07/21/2023 17:35	WG2099118
Chloromethane	U		19.2	50.0	20	07/21/2023 17:35	WG2099118
2-Chlorotoluene	U		2.12	20.0	20	07/21/2023 17:35	WG2099118
4-Chlorotoluene	U		2.28	20.0	20	07/21/2023 17:35	WG2099118
1,2-Dibromo-3-Chloropropane	U		5.52	100	20	07/21/2023 17:35	WG2099118
Dibromomethane	U		2.44	20.0	20	07/21/2023 17:35	WG2099118
1,2-Dichlorobenzene	U		2.14	20.0	20	07/21/2023 17:35	WG2099118
1,3-Dichlorobenzene	U		2.20	20.0	20	07/21/2023 17:35	WG2099118
1,4-Dichlorobenzene	U		2.40	20.0	20	07/21/2023 17:35	WG2099118
Dichlorodifluoromethane	U		7.48	100	20	07/21/2023 17:35	WG2099118
1,1-Dichloroethane	U		2.00	20.0	20	07/21/2023 17:35	WG2099118
1,2-Dichloroethane	U		1.64	20.0	20	07/21/2023 17:35	WG2099118
1,1-Dichloroethene	U		3.76	20.0	20	07/21/2023 17:35	WG2099118
cis-1,2-Dichloroethene	U		2.52	20.0	20	07/21/2023 17:35	WG2099118
trans-1,2-Dichloroethene	U		2.98	20.0	20	07/21/2023 17:35	WG2099118
1,2-Dichloropropane	U		2.98	20.0	20	07/21/2023 17:35	WG2099118
1,1-Dichloropropene	U		2.84	20.0	20	07/21/2023 17:35	WG2099118
1,3-Dichloropropane	U		2.20	20.0	20	07/21/2023 17:35	WG2099118
cis-1,3-Dichloropropene	U		2.22	20.0	20	07/21/2023 17:35	WG2099118
trans-1,3-Dichloropropene	U		2.36	20.0	20	07/21/2023 17:35	WG2099118
2,2-Dichloropropane	U		3.22	20.0	20	07/21/2023 17:35	WG2099118
Di-isopropyl ether	U		2.10	20.0	20	07/21/2023 17:35	WG2099118
Ethylbenzene	4.13	J	2.74	20.0	20	07/21/2023 17:35	WG2099118
Hexachloro-1,3-butadiene	U		6.74	20.0	20	07/21/2023 17:35	WG2099118
Isopropylbenzene	U		2.10	20.0	20	07/21/2023 17:35	WG2099118

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
p-Isopropyltoluene	U		2.40	20.0	20	07/21/2023 17:35	WG2099118
2-Butanone (MEK)	U		23.8	200	20	07/21/2023 17:35	WG2099118
Methylene Chloride	U		8.60	100	20	07/21/2023 17:35	WG2099118
4-Methyl-2-pentanone (MIBK)	U		9.56	200	20	07/21/2023 17:35	WG2099118
Methyl tert-butyl ether	U		2.02	20.0	20	07/21/2023 17:35	WG2099118
Naphthalene	U	C3	20.0	100	20	07/21/2023 17:35	WG2099118
n-Propylbenzene	U		1.99	20.0	20	07/21/2023 17:35	WG2099118
Styrene	U		2.36	20.0	20	07/21/2023 17:35	WG2099118
1,1,1,2-Tetrachloroethane	U		2.94	20.0	20	07/21/2023 17:35	WG2099118
1,1,2,2-Tetrachloroethane	U		2.66	20.0	20	07/21/2023 17:35	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	3.60	20.0	20	07/21/2023 17:35	WG2099118
Tetrachloroethene	U		6.00	20.0	20	07/21/2023 17:35	WG2099118
Toluene	U		5.56	20.0	20	07/21/2023 17:35	WG2099118
1,2,3-Trichlorobenzene	U	C3	4.60	20.0	20	07/21/2023 17:35	WG2099118
1,2,4-Trichlorobenzene	U		9.62	20.0	20	07/21/2023 17:35	WG2099118
1,1,1-Trichloroethane	U		2.98	20.0	20	07/21/2023 17:35	WG2099118
1,1,2-Trichloroethane	U		3.16	20.0	20	07/21/2023 17:35	WG2099118
Trichloroethene	U		3.80	20.0	20	07/21/2023 17:35	WG2099118
Trichlorofluoromethane	U		3.20	100	20	07/21/2023 17:35	WG2099118
1,2,4-Trimethylbenzene	14.5	J	6.44	20.0	20	07/21/2023 17:35	WG2099118
1,2,3-Trimethylbenzene	77.5		2.08	20.0	20	07/21/2023 17:35	WG2099118
1,3,5-Trimethylbenzene	31.6		2.08	20.0	20	07/21/2023 17:35	WG2099118
Vinyl chloride	U		4.68	20.0	20	07/21/2023 17:35	WG2099118
Xylenes, Total	26.7	J	3.48	60.0	20	07/21/2023 17:35	WG2099118
o-Xylene	6.63	J	3.48	20.0	20	07/21/2023 17:35	WG2099118
m&p-Xylene	20.1	J	8.60	40.0	20	07/21/2023 17:35	WG2099118
(S) Toluene-d8	*100*			*80.0-120*		*07/21/2023 17:35*	WG2099118
(S) 4-Bromofluorobenzene	*99.0*			*77.0-126*		*07/21/2023 17:35*	WG2099118
(S) 1,2-Dichloroethane-d4	*109*			*70.0-130*		*07/21/2023 17:35*	WG2099118

Sample Narrative:

L1636957-01 WG2099118, WG2099251: Non-target compounds too high to run at a lower dilution.

EDB / DBCP by Method 8011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ethylene Dibromide	U		0.00574	0.0214	1.07	07/25/2023 00:27	WG2100301

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	17100		170	800	1	07/27/2023 23:59	WG2100272
AK103 RRO C25-C36	1610	B	460	800	1	07/27/2023 23:59	WG2100272
(S) o-Terphenyl	*113*			*50.0-150*		*07/27/2023 23:59*	WG2100272
(S) n-Triacontane d62	*66.5*			*50.0-150*		*07/27/2023 23:59*	WG2100272

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	9200		170	800	1	07/26/2023 16:04	WG2100273
(S) o-Terphenyl	*87.4*			*50.0-150*		*07/26/2023 16:04*	WG2100273

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	0.525		0.0190	0.0500	1	07/21/2023 03:28	WG2098172
Acenaphthene	U		0.0190	0.0500	1	07/21/2023 03:28	WG2098172
Acenaphthylene	0.606		0.0170	0.0500	1	07/21/2023 03:28	WG2098172
Benzo(a)anthracene	U		0.0200	0.0500	1	07/21/2023 03:28	WG2098172
Benzo(a)pyrene	U		0.0180	0.0500	1	07/21/2023 03:28	WG2098172
Benzo(b)fluoranthene	U		0.0170	0.0500	1	07/21/2023 03:28	WG2098172
Benzo(g,h,i)perylene	U		0.0180	0.0500	1	07/21/2023 03:28	WG2098172
Benzo(k)fluoranthene	U		0.0200	0.250	1	07/21/2023 03:28	WG2098172
Chrysene	0.0280	J	0.0180	0.0500	1	07/21/2023 03:28	WG2098172
Dibenz(a,h)anthracene	U		0.0180	0.0500	1	07/21/2023 03:28	WG2098172
Fluoranthene	0.0638		0.0110	0.0500	1	07/21/2023 03:28	WG2098172
Fluorene	0.378		0.0170	0.0500	1	07/21/2023 03:28	WG2098172
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500	1	07/21/2023 03:28	WG2098172
Naphthalene	1.00		0.128	0.500	1	07/21/2023 03:28	WG2098172
Phenanthrene	0.288		0.0180	0.0500	1	07/21/2023 03:28	WG2098172
Pyrene	0.0783		0.0170	0.0500	1	07/21/2023 03:28	WG2098172
1-Methylnaphthalene	0.812		0.0200	0.500	1	07/21/2023 03:28	WG2098172
2-Methylnaphthalene	U		0.0280	0.500	1	07/21/2023 03:28	WG2098172
2-Chloronaphthalene	U		0.0120	0.500	1	07/21/2023 03:28	WG2098172
(S) Nitrobenzene-d5	*131*			*11.0-135*		*07/21/2023 03:28*	WG2098172
(S) 2-Fluorobiphenyl	*37.1*			*32.0-120*		*07/21/2023 03:28*	WG2098172
(S) p-Terphenyl-d14	*37.4*			*23.0-122*		*07/21/2023 03:28*	WG2098172

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	4.49	J	2.99	6.00	1	07/27/2023 09:48	WG2098874

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	347		28.7	100	1	07/21/2023 08:08	WG2098838
(S) a,a,a-Trifluorotoluene(FID)	*95.8*			*50.0-150*		*07/21/2023 08:08*	WG2098838

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	38.0	J	11.3	50.0	1	07/21/2023 14:05	WG2099118
1,2,3-Trichloropropane	U		0.200	0.500	100	07/25/2023 11:45	WG2099251
Acrolein	U		2.54	50.0	1	07/21/2023 14:05	WG2099118
Acrylonitrile	U		0.671	10.0	1	07/21/2023 14:05	WG2099118
Benzene	U		0.0941	1.00	1	07/21/2023 14:05	WG2099118
Bromobenzene	U		0.118	1.00	1	07/21/2023 14:05	WG2099118
Bromochloromethane	U		0.128	1.00	1	07/21/2023 14:05	WG2099118
Bromodichloromethane	U		0.136	1.00	1	07/21/2023 14:05	WG2099118
Bromoform	U		0.129	1.00	1	07/21/2023 14:05	WG2099118
Bromomethane	U		0.605	5.00	1	07/21/2023 14:05	WG2099118
n-Butylbenzene	2.58		0.157	1.00	1	07/21/2023 14:05	WG2099118
sec-Butylbenzene	4.25		0.125	1.00	1	07/21/2023 14:05	WG2099118
tert-Butylbenzene	0.546	J	0.127	1.00	1	07/21/2023 14:05	WG2099118
Carbon disulfide	U		0.0962	1.00	1	07/21/2023 14:05	WG2099118
Carbon tetrachloride	U		0.128	1.00	1	07/21/2023 14:05	WG2099118
Chlorobenzene	U		0.116	1.00	1	07/21/2023 14:05	WG2099118
Chlorodibromomethane	U		0.140	1.00	1	07/21/2023 14:05	WG2099118
Chloroethane	U		0.192	5.00	1	07/21/2023 14:05	WG2099118
Chloroform	U		0.111	5.00	1	07/21/2023 14:05	WG2099118
Chloromethane	U		0.960	2.50	1	07/21/2023 14:05	WG2099118
2-Chlorotoluene	U		0.106	1.00	1	07/21/2023 14:05	WG2099118
4-Chlorotoluene	U		0.114	1.00	1	07/21/2023 14:05	WG2099118
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	07/21/2023 14:05	WG2099118
Dibromomethane	U		0.122	1.00	1	07/21/2023 14:05	WG2099118
1,2-Dichlorobenzene	U		0.107	1.00	1	07/21/2023 14:05	WG2099118
1,3-Dichlorobenzene	U		0.110	1.00	1	07/21/2023 14:05	WG2099118
1,4-Dichlorobenzene	U		0.120	1.00	1	07/21/2023 14:05	WG2099118
Dichlorodifluoromethane	U		0.374	5.00	1	07/21/2023 14:05	WG2099118
1,1-Dichloroethane	U		0.100	1.00	1	07/21/2023 14:05	WG2099118
1,2-Dichloroethane	U		0.0819	1.00	1	07/21/2023 14:05	WG2099118
1,1-Dichloroethene	U		0.188	1.00	1	07/21/2023 14:05	WG2099118
cis-1,2-Dichloroethene	U		0.126	1.00	1	07/21/2023 14:05	WG2099118
trans-1,2-Dichloroethene	U		0.149	1.00	1	07/21/2023 14:05	WG2099118
1,2-Dichloropropane	U		0.149	1.00	1	07/21/2023 14:05	WG2099118
1,1-Dichloropropene	U		0.142	1.00	1	07/21/2023 14:05	WG2099118
1,3-Dichloropropane	U		0.110	1.00	1	07/21/2023 14:05	WG2099118
cis-1,3-Dichloropropene	U		0.111	1.00	1	07/21/2023 14:05	WG2099118
trans-1,3-Dichloropropene	U		0.118	1.00	1	07/21/2023 14:05	WG2099118
2,2-Dichloropropane	U		0.161	1.00	1	07/21/2023 14:05	WG2099118
Di-isopropyl ether	U		0.105	1.00	1	07/21/2023 14:05	WG2099118
Ethylbenzene	0.257	J	0.137	1.00	1	07/21/2023 14:05	WG2099118
Hexachloro-1,3-butadiene	U		0.337	1.00	1	07/21/2023 14:05	WG2099118
Isopropylbenzene	2.37		0.105	1.00	1	07/21/2023 14:05	WG2099118

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
p-Isopropyltoluene	3.95		0.120	1.00	1	07/21/2023 14:05	WG2099118
2-Butanone (MEK)	3.85	J	1.19	10.0	1	07/21/2023 14:05	WG2099118
Methylene Chloride	U		0.430	5.00	1	07/21/2023 14:05	WG2099118
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	07/21/2023 14:05	WG2099118
Methyl tert-butyl ether	U		0.101	1.00	1	07/21/2023 14:05	WG2099118
Naphthalene	5.35	C3	1.00	5.00	1	07/21/2023 14:05	WG2099118
n-Propylbenzene	6.24		0.0993	1.00	1	07/21/2023 14:05	WG2099118
Styrene	U		0.118	1.00	1	07/21/2023 14:05	WG2099118
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	07/21/2023 14:05	WG2099118
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	07/21/2023 14:05	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	0.180	1.00	1	07/21/2023 14:05	WG2099118
Tetrachloroethene	U		0.300	1.00	1	07/21/2023 14:05	WG2099118
Toluene	U		0.278	1.00	1	07/21/2023 14:05	WG2099118
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	07/21/2023 14:05	WG2099118
1,2,4-Trichlorobenzene	U		0.481	1.00	1	07/21/2023 14:05	WG2099118
1,1,1-Trichloroethane	U		0.149	1.00	1	07/21/2023 14:05	WG2099118
1,1,2-Trichloroethane	U		0.158	1.00	1	07/21/2023 14:05	WG2099118
Trichloroethene	U		0.190	1.00	1	07/21/2023 14:05	WG2099118
Trichlorofluoromethane	U		0.160	5.00	1	07/21/2023 14:05	WG2099118
1,2,4-Trimethylbenzene	45.9		0.322	1.00	1	07/21/2023 14:05	WG2099118
1,2,3-Trimethylbenzene	23.4		0.104	1.00	1	07/21/2023 14:05	WG2099118
1,3,5-Trimethylbenzene	19.3		0.104	1.00	1	07/21/2023 14:05	WG2099118
Vinyl chloride	U		0.234	1.00	1	07/21/2023 14:05	WG2099118
Xylenes, Total	1.54	J	0.174	3.00	1	07/21/2023 14:05	WG2099118
o-Xylene	0.685	J	0.174	1.00	1	07/21/2023 14:05	WG2099118
m&p-Xylene	0.851	J	0.430	2.00	1	07/21/2023 14:05	WG2099118
(S) Toluene-d8	*97.6*			*80.0-120*		*07/21/2023 14:05*	WG2099118
(S) 4-Bromofluorobenzene	*99.7*			*77.0-126*		*07/21/2023 14:05*	WG2099118
(S) 1,2-Dichloroethane-d4	*117*			*70.0-130*		*07/21/2023 14:05*	WG2099118

Sample Narrative:

L1636957-02 WG2099251: Non-target compounds too high to run at a lower dilution.

EDB / DBCP by Method 8011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ethylene Dibromide	U		0.00584	0.0218	1.09	07/24/2023 23:49	WG2100301

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	3060		170	800	1	07/28/2023 01:41	WG2100272
AK103 RRO C25-C36	1030	B	460	800	1	07/28/2023 01:41	WG2100272
(S) o-Terphenyl	*146*			*50.0-150*		*07/28/2023 01:41*	WG2100272
(S) n-Triacontane d62	*92.5*			*50.0-150*		*07/28/2023 01:41*	WG2100272

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	1440	B	170	800	1	07/26/2023 16:24	WG2100273
(S) o-Terphenyl	*112*			*50.0-150*		*07/26/2023 16:24*	WG2100273

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0190	0.0500	1	07/21/2023 03:48	WG2098172
Acenaphthene	0.171		0.0190	0.0500	1	07/21/2023 03:48	WG2098172
Acenaphthylene	0.0394	J	0.0170	0.0500	1	07/21/2023 03:48	WG2098172
Benzo(a)anthracene	U		0.0200	0.0500	1	07/21/2023 03:48	WG2098172
Benzo(a)pyrene	U		0.0180	0.0500	1	07/21/2023 03:48	WG2098172
Benzo(b)fluoranthene	U		0.0170	0.0500	1	07/21/2023 03:48	WG2098172
Benzo(g,h,i)perylene	U		0.0180	0.0500	1	07/21/2023 03:48	WG2098172
Benzo(k)fluoranthene	U		0.0200	0.250	1	07/21/2023 03:48	WG2098172
Chrysene	U		0.0180	0.0500	1	07/21/2023 03:48	WG2098172
Dibenz(a,h)anthracene	U		0.0180	0.0500	1	07/21/2023 03:48	WG2098172
Fluoranthene	U		0.0110	0.0500	1	07/21/2023 03:48	WG2098172
Fluorene	0.283		0.0170	0.0500	1	07/21/2023 03:48	WG2098172
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500	1	07/21/2023 03:48	WG2098172
Naphthalene	3.10		0.128	0.500	1	07/21/2023 03:48	WG2098172
Phenanthrene	U		0.0180	0.0500	1	07/21/2023 03:48	WG2098172
Pyrene	U		0.0170	0.0500	1	07/21/2023 03:48	WG2098172
1-Methylnaphthalene	6.24		0.0200	0.500	1	07/21/2023 03:48	WG2098172
2-Methylnaphthalene	0.774		0.0280	0.500	1	07/21/2023 03:48	WG2098172
2-Chloronaphthalene	U		0.0120	0.500	1	07/21/2023 03:48	WG2098172
(S) Nitrobenzene-d5	*47.9*			*11.0-135*		*07/21/2023 03:48*	WG2098172
(S) 2-Fluorobiphenyl	*56.8*			*32.0-120*		*07/21/2023 03:48*	WG2098172
(S) p-Terphenyl-d14	*30.6*			*23.0-122*		*07/21/2023 03:48*	WG2098172

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	U		2.99	6.00	1	07/27/2023 09:56	WG2098874

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	38.2	J	28.7	100	1	07/21/2023 08:34	WG2098838
(S) a,a,a-Trifluorotoluene(FID)	*95.9*			*50.0-150*		*07/21/2023 08:34*	WG2098838

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	07/21/2023 14:24	WG2099118
1,2,3-Trichloropropane	U		0.00200	0.00500	1	07/20/2023 14:47	WG2098344
Acrolein	U		2.54	50.0	1	07/21/2023 14:24	WG2099118
Acrylonitrile	U		0.671	10.0	1	07/21/2023 14:24	WG2099118
Benzene	U		0.0941	1.00	1	07/21/2023 14:24	WG2099118
Bromobenzene	U		0.118	1.00	1	07/21/2023 14:24	WG2099118
Bromochloromethane	U		0.128	1.00	1	07/21/2023 14:24	WG2099118
Bromodichloromethane	U		0.136	1.00	1	07/21/2023 14:24	WG2099118
Bromoform	U		0.129	1.00	1	07/21/2023 14:24	WG2099118
Bromomethane	U		0.605	5.00	1	07/21/2023 14:24	WG2099118
n-Butylbenzene	U		0.157	1.00	1	07/21/2023 14:24	WG2099118
sec-Butylbenzene	U		0.125	1.00	1	07/21/2023 14:24	WG2099118
tert-Butylbenzene	U		0.127	1.00	1	07/21/2023 14:24	WG2099118
Carbon disulfide	U		0.0962	1.00	1	07/21/2023 14:24	WG2099118
Carbon tetrachloride	U		0.128	1.00	1	07/21/2023 14:24	WG2099118
Chlorobenzene	U		0.116	1.00	1	07/21/2023 14:24	WG2099118
Chlorodibromomethane	U		0.140	1.00	1	07/21/2023 14:24	WG2099118
Chloroethane	U		0.192	5.00	1	07/21/2023 14:24	WG2099118
Chloroform	U		0.111	5.00	1	07/21/2023 14:24	WG2099118
Chloromethane	U		0.960	2.50	1	07/21/2023 14:24	WG2099118
2-Chlorotoluene	U		0.106	1.00	1	07/21/2023 14:24	WG2099118
4-Chlorotoluene	U		0.114	1.00	1	07/21/2023 14:24	WG2099118
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	07/21/2023 14:24	WG2099118
Dibromomethane	U		0.122	1.00	1	07/21/2023 14:24	WG2099118
1,2-Dichlorobenzene	U		0.107	1.00	1	07/21/2023 14:24	WG2099118
1,3-Dichlorobenzene	U		0.110	1.00	1	07/21/2023 14:24	WG2099118
1,4-Dichlorobenzene	U		0.120	1.00	1	07/21/2023 14:24	WG2099118
Dichlorodifluoromethane	U		0.374	5.00	1	07/21/2023 14:24	WG2099118
1,1-Dichloroethane	U		0.100	1.00	1	07/21/2023 14:24	WG2099118
1,2-Dichloroethane	U		0.0819	1.00	1	07/21/2023 14:24	WG2099118
1,1-Dichloroethene	U		0.188	1.00	1	07/21/2023 14:24	WG2099118
cis-1,2-Dichloroethene	U		0.126	1.00	1	07/21/2023 14:24	WG2099118
trans-1,2-Dichloroethene	U		0.149	1.00	1	07/21/2023 14:24	WG2099118
1,2-Dichloropropane	U		0.149	1.00	1	07/21/2023 14:24	WG2099118
1,1-Dichloropropene	U		0.142	1.00	1	07/21/2023 14:24	WG2099118
1,3-Dichloropropane	U		0.110	1.00	1	07/21/2023 14:24	WG2099118
cis-1,3-Dichloropropene	U		0.111	1.00	1	07/21/2023 14:24	WG2099118
trans-1,3-Dichloropropene	U		0.118	1.00	1	07/21/2023 14:24	WG2099118
2,2-Dichloropropane	U		0.161	1.00	1	07/21/2023 14:24	WG2099118
Di-isopropyl ether	U		0.105	1.00	1	07/21/2023 14:24	WG2099118
Ethylbenzene	U		0.137	1.00	1	07/21/2023 14:24	WG2099118
Hexachloro-1,3-butadiene	U		0.337	1.00	1	07/21/2023 14:24	WG2099118
Isopropylbenzene	U		0.105	1.00	1	07/21/2023 14:24	WG2099118

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
p-Isopropyltoluene	U		0.120	1.00	1	07/21/2023 14:24	WG2099118
2-Butanone (MEK)	12.2		1.19	10.0	1	07/21/2023 14:24	WG2099118
Methylene Chloride	U		0.430	5.00	1	07/21/2023 14:24	WG2099118
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	07/21/2023 14:24	WG2099118
Methyl tert-butyl ether	U		0.101	1.00	1	07/21/2023 14:24	WG2099118
Naphthalene	U	C3	1.00	5.00	1	07/21/2023 14:24	WG2099118
n-Propylbenzene	U		0.0993	1.00	1	07/21/2023 14:24	WG2099118
Styrene	U		0.118	1.00	1	07/21/2023 14:24	WG2099118
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	07/21/2023 14:24	WG2099118
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	07/21/2023 14:24	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	0.180	1.00	1	07/21/2023 14:24	WG2099118
Tetrachloroethene	0.752	J	0.300	1.00	1	07/21/2023 14:24	WG2099118
Toluene	U		0.278	1.00	1	07/21/2023 14:24	WG2099118
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	07/21/2023 14:24	WG2099118
1,2,4-Trichlorobenzene	U		0.481	1.00	1	07/21/2023 14:24	WG2099118
1,1,1-Trichloroethane	U		0.149	1.00	1	07/21/2023 14:24	WG2099118
1,1,2-Trichloroethane	U		0.158	1.00	1	07/21/2023 14:24	WG2099118
Trichloroethene	U		0.190	1.00	1	07/21/2023 14:24	WG2099118
Trichlorofluoromethane	U		0.160	5.00	1	07/21/2023 14:24	WG2099118
1,2,4-Trimethylbenzene	U		0.322	1.00	1	07/21/2023 14:24	WG2099118
1,2,3-Trimethylbenzene	U		0.104	1.00	1	07/21/2023 14:24	WG2099118
1,3,5-Trimethylbenzene	U		0.104	1.00	1	07/21/2023 14:24	WG2099118
Vinyl chloride	U		0.234	1.00	1	07/21/2023 14:24	WG2099118
Xylenes, Total	U		0.174	3.00	1	07/21/2023 14:24	WG2099118
o-Xylene	U		0.174	1.00	1	07/21/2023 14:24	WG2099118
m&p-Xylene	U		0.430	2.00	1	07/21/2023 14:24	WG2099118
(S) Toluene-d8	*103*			*80.0-120*		*07/21/2023 14:24*	WG2099118
(S) 4-Bromofluorobenzene	*98.8*			*77.0-126*		*07/21/2023 14:24*	WG2099118
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*07/21/2023 14:24*	WG2099118

EDB / DBCP by Method 8011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ethylene Dibromide	U		0.00590	0.0220	1.1	07/24/2023 23:24	WG2100301

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	782	B J	173	816	1.02	07/28/2023 00:19	WG2100272
AK103 RRO C25-C36	1240	B	469	816	1.02	07/28/2023 00:19	WG2100272
(S) o-Terphenyl	*165*	J1		*50.0-150*		*07/28/2023 00:19*	WG2100272
(S) n-Triacontane d62	*119*			*50.0-150*		*07/28/2023 00:19*	WG2100272

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	182	B J	173	816	1.02	07/26/2023 16:45	WG2100273
(S) o-Terphenyl	*152*	J1		*50.0-150*		*07/26/2023 16:45*	WG2100273

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U	T8	0.0190	0.0500	1	07/26/2023 08:34	WG2100271
Acenaphthene	U	T8	0.0190	0.0500	1	07/26/2023 08:34	WG2100271
Acenaphthylene	U	T8	0.0170	0.0500	1	07/26/2023 08:34	WG2100271
Benzo(a)anthracene	U	T8	0.0200	0.0500	1	07/26/2023 08:34	WG2100271
Benzo(a)pyrene	U	T8	0.0180	0.0500	1	07/26/2023 08:34	WG2100271
Benzo(b)fluoranthene	U	T8	0.0170	0.0500	1	07/26/2023 08:34	WG2100271
Benzo(g,h,i)perylene	U	T8	0.0180	0.0500	1	07/26/2023 08:34	WG2100271
Benzo(k)fluoranthene	U	T8	0.0200	0.250	1	07/26/2023 08:34	WG2100271
Chrysene	U	T8	0.0180	0.0500	1	07/26/2023 08:34	WG2100271
Dibenz(a,h)anthracene	U	T8	0.0180	0.0500	1	07/26/2023 08:34	WG2100271
Fluoranthene	0.0159	B J T8	0.0110	0.0500	1	07/26/2023 08:34	WG2100271
Fluorene	U	T8	0.0170	0.0500	1	07/26/2023 08:34	WG2100271
Indeno(1,2,3-cd)pyrene	U	T8	0.0180	0.0500	1	07/26/2023 08:34	WG2100271
Naphthalene	U	T8	0.128	0.500	1	07/26/2023 08:34	WG2100271
Phenanthrene	U	T8	0.0180	0.0500	1	07/26/2023 08:34	WG2100271
Pyrene	U	T8	0.0170	0.0500	1	07/26/2023 08:34	WG2100271
1-Methylnaphthalene	U	T8	0.0200	0.500	1	07/26/2023 08:34	WG2100271
2-Methylnaphthalene	U	T8	0.0280	0.500	1	07/26/2023 08:34	WG2100271
2-Chloronaphthalene	U	T8	0.0120	0.500	1	07/26/2023 08:34	WG2100271
(S) Nitrobenzene-d5	*72.5*			*11.0-135*		*07/26/2023 08:34*	WG2100271
(S) 2-Fluorobiphenyl	*65.0*			*32.0-120*		*07/26/2023 08:34*	WG2100271
(S) p-Terphenyl-d14	*62.5*			*23.0-122*		*07/26/2023 08:34*	WG2100271

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Lead	U		2.99	6.00	1	07/27/2023 09:59	WG2098874

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	1860		28.7	100	1	07/21/2023 09:01	WG2098838
(S) a,a,a-Trifluorotoluene(FID)	*99.8*			*50.0-150*		*07/21/2023 09:01*	WG2098838

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		11.3	50.0	1	07/21/2023 14:43	WG2099118
1,2,3-Trichloropropane	U		0.200	0.500	100	07/25/2023 12:08	WG2099251
Acrolein	U		2.54	50.0	1	07/21/2023 14:43	WG2099118
Acrylonitrile	U		0.671	10.0	1	07/21/2023 14:43	WG2099118
Benzene	94.3		0.0941	1.00	1	07/21/2023 14:43	WG2099118
Bromobenzene	U		0.118	1.00	1	07/21/2023 14:43	WG2099118
Bromochloromethane	U		0.128	1.00	1	07/21/2023 14:43	WG2099118
Bromodichloromethane	U		0.136	1.00	1	07/21/2023 14:43	WG2099118
Bromoform	U		0.129	1.00	1	07/21/2023 14:43	WG2099118
Bromomethane	U		0.605	5.00	1	07/21/2023 14:43	WG2099118
n-Butylbenzene	U		0.157	1.00	1	07/21/2023 14:43	WG2099118
sec-Butylbenzene	1.65		0.125	1.00	1	07/21/2023 14:43	WG2099118
tert-Butylbenzene	0.936	J	0.127	1.00	1	07/21/2023 14:43	WG2099118
Carbon disulfide	0.193	J	0.0962	1.00	1	07/21/2023 14:43	WG2099118
Carbon tetrachloride	U		0.128	1.00	1	07/21/2023 14:43	WG2099118
Chlorobenzene	U		0.116	1.00	1	07/21/2023 14:43	WG2099118
Chlorodibromomethane	U		0.140	1.00	1	07/21/2023 14:43	WG2099118
Chloroethane	U		0.192	5.00	1	07/21/2023 14:43	WG2099118
Chloroform	U		0.111	5.00	1	07/21/2023 14:43	WG2099118
Chloromethane	U		0.960	2.50	1	07/21/2023 14:43	WG2099118
2-Chlorotoluene	U		0.106	1.00	1	07/21/2023 14:43	WG2099118
4-Chlorotoluene	U		0.114	1.00	1	07/21/2023 14:43	WG2099118
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	07/21/2023 14:43	WG2099118
Dibromomethane	U		0.122	1.00	1	07/21/2023 14:43	WG2099118
1,2-Dichlorobenzene	U		0.107	1.00	1	07/21/2023 14:43	WG2099118
1,3-Dichlorobenzene	U		0.110	1.00	1	07/21/2023 14:43	WG2099118
1,4-Dichlorobenzene	U		0.120	1.00	1	07/21/2023 14:43	WG2099118
Dichlorodifluoromethane	U		0.374	5.00	1	07/21/2023 14:43	WG2099118
1,1-Dichloroethane	U		0.100	1.00	1	07/21/2023 14:43	WG2099118
1,2-Dichloroethane	U		0.0819	1.00	1	07/21/2023 14:43	WG2099118
1,1-Dichloroethene	U		0.188	1.00	1	07/21/2023 14:43	WG2099118
cis-1,2-Dichloroethene	U		0.126	1.00	1	07/21/2023 14:43	WG2099118
trans-1,2-Dichloroethene	U		0.149	1.00	1	07/21/2023 14:43	WG2099118
1,2-Dichloropropane	U		0.149	1.00	1	07/21/2023 14:43	WG2099118
1,1-Dichloropropene	U		0.142	1.00	1	07/21/2023 14:43	WG2099118
1,3-Dichloropropane	U		0.110	1.00	1	07/21/2023 14:43	WG2099118
cis-1,3-Dichloropropene	U		0.111	1.00	1	07/21/2023 14:43	WG2099118
trans-1,3-Dichloropropene	U		0.118	1.00	1	07/21/2023 14:43	WG2099118
2,2-Dichloropropane	U		0.161	1.00	1	07/21/2023 14:43	WG2099118
Di-isopropyl ether	U		0.105	1.00	1	07/21/2023 14:43	WG2099118
Ethylbenzene	13.9		0.137	1.00	1	07/21/2023 14:43	WG2099118
Hexachloro-1,3-butadiene	U		0.337	1.00	1	07/21/2023 14:43	WG2099118
Isopropylbenzene	2.08		0.105	1.00	1	07/21/2023 14:43	WG2099118

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
p-Isopropyltoluene	3.92		0.120	1.00	1	07/21/2023 14:43	WG2099118
2-Butanone (MEK)	6.19	J	1.19	10.0	1	07/21/2023 14:43	WG2099118
Methylene Chloride	U		0.430	5.00	1	07/21/2023 14:43	WG2099118
4-Methyl-2-pentanone (MIBK)	3.06	J	0.478	10.0	1	07/21/2023 14:43	WG2099118
Methyl tert-butyl ether	U		0.101	1.00	1	07/21/2023 14:43	WG2099118
Naphthalene	73.2	C3	1.00	5.00	1	07/21/2023 14:43	WG2099118
n-Propylbenzene	3.26		0.0993	1.00	1	07/21/2023 14:43	WG2099118
Styrene	U		0.118	1.00	1	07/21/2023 14:43	WG2099118
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	07/21/2023 14:43	WG2099118
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	07/21/2023 14:43	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	0.180	1.00	1	07/21/2023 14:43	WG2099118
Tetrachloroethene	U		0.300	1.00	1	07/21/2023 14:43	WG2099118
Toluene	5.15		0.278	1.00	1	07/21/2023 14:43	WG2099118
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	07/21/2023 14:43	WG2099118
1,2,4-Trichlorobenzene	U		0.481	1.00	1	07/21/2023 14:43	WG2099118
1,1,1-Trichloroethane	U		0.149	1.00	1	07/21/2023 14:43	WG2099118
1,1,2-Trichloroethane	U		0.158	1.00	1	07/21/2023 14:43	WG2099118
Trichloroethene	U		0.190	1.00	1	07/21/2023 14:43	WG2099118
Trichlorofluoromethane	U		0.160	5.00	1	07/21/2023 14:43	WG2099118
1,2,4-Trimethylbenzene	178		0.322	1.00	1	07/21/2023 14:43	WG2099118
1,2,3-Trimethylbenzene	92.2		0.104	1.00	1	07/21/2023 14:43	WG2099118
1,3,5-Trimethylbenzene	72.3		0.104	1.00	1	07/21/2023 14:43	WG2099118
Vinyl chloride	U		0.234	1.00	1	07/21/2023 14:43	WG2099118
Xylenes, Total	213		0.174	3.00	1	07/21/2023 14:43	WG2099118
o-Xylene	7.02		0.174	1.00	1	07/21/2023 14:43	WG2099118
m&p-Xylene	206		0.430	2.00	1	07/21/2023 14:43	WG2099118
(S) Toluene-d8	*98.4*			*80.0-120*		*07/21/2023 14:43*	WG2099118
(S) 4-Bromofluorobenzene	*94.1*			*77.0-126*		*07/21/2023 14:43*	WG2099118
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*07/21/2023 14:43*	WG2099118

Sample Narrative:

L1636957-04 WG2099251: Non-target compounds too high to run at a lower dilution.

EDB / DBCP by Method 8011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ethylene Dibromide	U		0.00568	0.0212	1.06	07/25/2023 00:40	WG2100301

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	3350		170	800	1	07/28/2023 00:40	WG2100272
AK103 RRO C25-C36	981	B	460	800	1	07/28/2023 00:40	WG2100272
(S) o-Terphenyl	*99.4*			*50.0-150*		*07/28/2023 00:40*	WG2100272
(S) n-Triacontane d62	*65.0*			*50.0-150*		*07/28/2023 00:40*	WG2100272

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	975	B	170	800	1	07/26/2023 17:05	WG2100273
(S) o-Terphenyl	*80.6*			*50.0-150*		*07/26/2023 17:05*	WG2100273

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0190	0.0500	1	07/21/2023 04:08	WG2098172
Acenaphthene	0.432		0.0190	0.0500	1	07/21/2023 04:08	WG2098172
Acenaphthylene	U		0.0170	0.0500	1	07/21/2023 04:08	WG2098172
Benzo(a)anthracene	U		0.0200	0.0500	1	07/21/2023 04:08	WG2098172
Benzo(a)pyrene	U		0.0180	0.0500	1	07/21/2023 04:08	WG2098172
Benzo(b)fluoranthene	U		0.0170	0.0500	1	07/21/2023 04:08	WG2098172
Benzo(g,h,i)perylene	U		0.0180	0.0500	1	07/21/2023 04:08	WG2098172
Benzo(k)fluoranthene	U		0.0200	0.250	1	07/21/2023 04:08	WG2098172
Chrysene	U		0.0180	0.0500	1	07/21/2023 04:08	WG2098172
Dibenz(a,h)anthracene	U		0.0180	0.0500	1	07/21/2023 04:08	WG2098172
Fluoranthene	0.0387	J	0.0110	0.0500	1	07/21/2023 04:08	WG2098172
Fluorene	0.707		0.0170	0.0500	1	07/21/2023 04:08	WG2098172
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500	1	07/21/2023 04:08	WG2098172
Naphthalene	20.7		0.128	0.500	1	07/21/2023 04:08	WG2098172
Phenanthrene	0.0572		0.0180	0.0500	1	07/21/2023 04:08	WG2098172
Pyrene	0.0429	J	0.0170	0.0500	1	07/21/2023 04:08	WG2098172
1-Methylnaphthalene	7.80		0.0200	0.500	1	07/21/2023 04:08	WG2098172
2-Methylnaphthalene	3.49		0.0280	0.500	1	07/21/2023 04:08	WG2098172
2-Chloronaphthalene	U		0.0120	0.500	1	07/21/2023 04:08	WG2098172
(S) Nitrobenzene-d5	*64.2*			*11.0-135*		*07/21/2023 04:08*	WG2098172
(S) 2-Fluorobiphenyl	*65.3*			*32.0-120*		*07/21/2023 04:08*	WG2098172
(S) p-Terphenyl-d14	*35.3*			*23.0-122*		*07/21/2023 04:08*	WG2098172

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Lead	U		2.99	6.00	1	07/27/2023 10:01	WG2098874

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	335		28.7	100	1	07/21/2023 09:28	WG2098838
(S) a,a,a-Trifluorotoluene(FID)	*94.5*			*50.0-150*		*07/21/2023 09:28*	WG2098838

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	29.5	J	11.3	50.0	1	07/21/2023 15:02	WG2099118
1,2,3-Trichloropropane	U		0.200	0.500	100	07/25/2023 12:32	WG2099251
Acrolein	U		2.54	50.0	1	07/21/2023 15:02	WG2099118
Acrylonitrile	U		0.671	10.0	1	07/21/2023 15:02	WG2099118
Benzene	U		0.0941	1.00	1	07/21/2023 15:02	WG2099118
Bromobenzene	U		0.118	1.00	1	07/21/2023 15:02	WG2099118
Bromochloromethane	U		0.128	1.00	1	07/21/2023 15:02	WG2099118
Bromodichloromethane	U		0.136	1.00	1	07/21/2023 15:02	WG2099118
Bromoform	U		0.129	1.00	1	07/21/2023 15:02	WG2099118
Bromomethane	U		0.605	5.00	1	07/21/2023 15:02	WG2099118
n-Butylbenzene	2.81		0.157	1.00	1	07/21/2023 15:02	WG2099118
sec-Butylbenzene	4.23		0.125	1.00	1	07/21/2023 15:02	WG2099118
tert-Butylbenzene	0.507	J	0.127	1.00	1	07/21/2023 15:02	WG2099118
Carbon disulfide	U		0.0962	1.00	1	07/21/2023 15:02	WG2099118
Carbon tetrachloride	U		0.128	1.00	1	07/21/2023 15:02	WG2099118
Chlorobenzene	U		0.116	1.00	1	07/21/2023 15:02	WG2099118
Chlorodibromomethane	U		0.140	1.00	1	07/21/2023 15:02	WG2099118
Chloroethane	U		0.192	5.00	1	07/21/2023 15:02	WG2099118
Chloroform	U		0.111	5.00	1	07/21/2023 15:02	WG2099118
Chloromethane	U		0.960	2.50	1	07/21/2023 15:02	WG2099118
2-Chlorotoluene	U		0.106	1.00	1	07/21/2023 15:02	WG2099118
4-Chlorotoluene	U		0.114	1.00	1	07/21/2023 15:02	WG2099118
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	07/21/2023 15:02	WG2099118
Dibromomethane	U		0.122	1.00	1	07/21/2023 15:02	WG2099118
1,2-Dichlorobenzene	U		0.107	1.00	1	07/21/2023 15:02	WG2099118
1,3-Dichlorobenzene	U		0.110	1.00	1	07/21/2023 15:02	WG2099118
1,4-Dichlorobenzene	U		0.120	1.00	1	07/21/2023 15:02	WG2099118
Dichlorodifluoromethane	U		0.374	5.00	1	07/21/2023 15:02	WG2099118
1,1-Dichloroethane	U		0.100	1.00	1	07/21/2023 15:02	WG2099118
1,2-Dichloroethane	U		0.0819	1.00	1	07/21/2023 15:02	WG2099118
1,1-Dichloroethene	U		0.188	1.00	1	07/21/2023 15:02	WG2099118
cis-1,2-Dichloroethene	U		0.126	1.00	1	07/21/2023 15:02	WG2099118
trans-1,2-Dichloroethene	U		0.149	1.00	1	07/21/2023 15:02	WG2099118
1,2-Dichloropropane	U		0.149	1.00	1	07/21/2023 15:02	WG2099118
1,1-Dichloropropene	U		0.142	1.00	1	07/21/2023 15:02	WG2099118
1,3-Dichloropropane	U		0.110	1.00	1	07/21/2023 15:02	WG2099118
cis-1,3-Dichloropropene	U		0.111	1.00	1	07/21/2023 15:02	WG2099118
trans-1,3-Dichloropropene	U		0.118	1.00	1	07/21/2023 15:02	WG2099118
2,2-Dichloropropane	U		0.161	1.00	1	07/21/2023 15:02	WG2099118
Di-isopropyl ether	U		0.105	1.00	1	07/21/2023 15:02	WG2099118
Ethylbenzene	0.260	J	0.137	1.00	1	07/21/2023 15:02	WG2099118
Hexachloro-1,3-butadiene	U		0.337	1.00	1	07/21/2023 15:02	WG2099118
Isopropylbenzene	2.50		0.105	1.00	1	07/21/2023 15:02	WG2099118

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
p-Isopropyltoluene	4.03		0.120	1.00	1	07/21/2023 15:02	WG2099118
2-Butanone (MEK)	3.11	J	1.19	10.0	1	07/21/2023 15:02	WG2099118
Methylene Chloride	U		0.430	5.00	1	07/21/2023 15:02	WG2099118
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	07/21/2023 15:02	WG2099118
Methyl tert-butyl ether	U		0.101	1.00	1	07/21/2023 15:02	WG2099118
Naphthalene	6.42	C3	1.00	5.00	1	07/21/2023 15:02	WG2099118
n-Propylbenzene	6.54		0.0993	1.00	1	07/21/2023 15:02	WG2099118
Styrene	U		0.118	1.00	1	07/21/2023 15:02	WG2099118
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	07/21/2023 15:02	WG2099118
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	07/21/2023 15:02	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	0.180	1.00	1	07/21/2023 15:02	WG2099118
Tetrachloroethene	U		0.300	1.00	1	07/21/2023 15:02	WG2099118
Toluene	U		0.278	1.00	1	07/21/2023 15:02	WG2099118
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	07/21/2023 15:02	WG2099118
1,2,4-Trichlorobenzene	U		0.481	1.00	1	07/21/2023 15:02	WG2099118
1,1,1-Trichloroethane	U		0.149	1.00	1	07/21/2023 15:02	WG2099118
1,1,2-Trichloroethane	U		0.158	1.00	1	07/21/2023 15:02	WG2099118
Trichloroethene	U		0.190	1.00	1	07/21/2023 15:02	WG2099118
Trichlorofluoromethane	U		0.160	5.00	1	07/21/2023 15:02	WG2099118
1,2,4-Trimethylbenzene	49.4		0.322	1.00	1	07/21/2023 15:02	WG2099118
1,2,3-Trimethylbenzene	26.5		0.104	1.00	1	07/21/2023 15:02	WG2099118
1,3,5-Trimethylbenzene	20.9		0.104	1.00	1	07/21/2023 15:02	WG2099118
Vinyl chloride	U		0.234	1.00	1	07/21/2023 15:02	WG2099118
Xylenes, Total	1.81	J	0.174	3.00	1	07/21/2023 15:02	WG2099118
o-Xylene	0.596	J	0.174	1.00	1	07/21/2023 15:02	WG2099118
m&p-Xylene	1.21	J	0.430	2.00	1	07/21/2023 15:02	WG2099118
(S) Toluene-d8	*101*			*80.0-120*		*07/21/2023 15:02*	WG2099118
(S) 4-Bromofluorobenzene	*100*			*77.0-126*		*07/21/2023 15:02*	WG2099118
(S) 1,2-Dichloroethane-d4	*111*			*70.0-130*		*07/21/2023 15:02*	WG2099118

Sample Narrative:

L1636957-05 WG2099251: Non-target compounds too high to run at a lower dilution.

EDB / DBCP by Method 8011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ethylene Dibromide	U		0.00547	0.0204	1.02	07/25/2023 00:52	WG2100301

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	3040		170	800	1	07/28/2023 01:00	WG2100272
AK103 RRO C25-C36	967	B	460	800	1	07/28/2023 01:00	WG2100272
(S) o-Terphenyl	*135*			*50.0-150*		*07/28/2023 01:00*	WG2100272
(S) n-Triacontane d62	*87.0*			*50.0-150*		*07/28/2023 01:00*	WG2100272

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	1500	B	170	800	1	07/26/2023 17:26	WG2100273
(S) o-Terphenyl	*117*			*50.0-150*		*07/26/2023 17:26*	WG2100273

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0190	0.0500	1	07/21/2023 04:27	WG2098172
Acenaphthene	0.200		0.0190	0.0500	1	07/21/2023 04:27	WG2098172
Acenaphthylene	0.0414	J	0.0170	0.0500	1	07/21/2023 04:27	WG2098172
Benzo(a)anthracene	U		0.0200	0.0500	1	07/21/2023 04:27	WG2098172
Benzo(a)pyrene	U		0.0180	0.0500	1	07/21/2023 04:27	WG2098172
Benzo(b)fluoranthene	U		0.0170	0.0500	1	07/21/2023 04:27	WG2098172
Benzo(g,h,i)perylene	U		0.0180	0.0500	1	07/21/2023 04:27	WG2098172
Benzo(k)fluoranthene	U		0.0200	0.250	1	07/21/2023 04:27	WG2098172
Chrysene	U		0.0180	0.0500	1	07/21/2023 04:27	WG2098172
Dibenz(a,h)anthracene	U		0.0180	0.0500	1	07/21/2023 04:27	WG2098172
Fluoranthene	U		0.0110	0.0500	1	07/21/2023 04:27	WG2098172
Fluorene	0.345		0.0170	0.0500	1	07/21/2023 04:27	WG2098172
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500	1	07/21/2023 04:27	WG2098172
Naphthalene	3.10		0.128	0.500	1	07/21/2023 04:27	WG2098172
Phenanthrene	U		0.0180	0.0500	1	07/21/2023 04:27	WG2098172
Pyrene	U		0.0170	0.0500	1	07/21/2023 04:27	WG2098172
1-Methylnaphthalene	5.39		0.0200	0.500	1	07/21/2023 04:27	WG2098172
2-Methylnaphthalene	0.297	J	0.0280	0.500	1	07/21/2023 04:27	WG2098172
2-Chloronaphthalene	U		0.0120	0.500	1	07/21/2023 04:27	WG2098172
(S) Nitrobenzene-d5	*59.0*			*11.0-135*		*07/21/2023 04:27*	WG2098172
(S) 2-Fluorobiphenyl	*71.0*			*32.0-120*		*07/21/2023 04:27*	WG2098172
(S) p-Terphenyl-d14	*53.0*			*23.0-122*		*07/21/2023 04:27*	WG2098172

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Lead	U		2.99	6.00	1	07/27/2023 09:29	WG2098874

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	U		28.7	100	1	07/21/2023 07:15	WG2098838
(S) a,a,a-Trifluorotoluene(FID)	*97.8*			*50.0-150*		*07/21/2023 07:15*	WG2098838

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		11.3	50.0	1	07/21/2023 13:08	WG2099118
1,2,3-Trichloropropane	U		0.00200	0.00500	1	07/20/2023 15:58	WG2098344
Acrolein	U		2.54	50.0	1	07/21/2023 13:08	WG2099118
Acrylonitrile	U		0.671	10.0	1	07/21/2023 13:08	WG2099118
Benzene	U		0.0941	1.00	1	07/21/2023 13:08	WG2099118
Bromobenzene	U		0.118	1.00	1	07/21/2023 13:08	WG2099118
Bromochloromethane	U		0.128	1.00	1	07/21/2023 13:08	WG2099118
Bromodichloromethane	U		0.136	1.00	1	07/21/2023 13:08	WG2099118
Bromoform	U		0.129	1.00	1	07/21/2023 13:08	WG2099118
Bromomethane	U		0.605	5.00	1	07/21/2023 13:08	WG2099118
n-Butylbenzene	U		0.157	1.00	1	07/21/2023 13:08	WG2099118
sec-Butylbenzene	U		0.125	1.00	1	07/21/2023 13:08	WG2099118
tert-Butylbenzene	U		0.127	1.00	1	07/21/2023 13:08	WG2099118
Carbon disulfide	0.118	J	0.0962	1.00	1	07/21/2023 13:08	WG2099118
Carbon tetrachloride	U		0.128	1.00	1	07/21/2023 13:08	WG2099118
Chlorobenzene	U		0.116	1.00	1	07/21/2023 13:08	WG2099118
Chlorodibromomethane	U		0.140	1.00	1	07/21/2023 13:08	WG2099118
Chloroethane	U		0.192	5.00	1	07/21/2023 13:08	WG2099118
Chloroform	U		0.111	5.00	1	07/21/2023 13:08	WG2099118
Chloromethane	U		0.960	2.50	1	07/21/2023 13:08	WG2099118
2-Chlorotoluene	U		0.106	1.00	1	07/21/2023 13:08	WG2099118
4-Chlorotoluene	U		0.114	1.00	1	07/21/2023 13:08	WG2099118
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	07/21/2023 13:08	WG2099118
Dibromomethane	U		0.122	1.00	1	07/21/2023 13:08	WG2099118
1,2-Dichlorobenzene	U		0.107	1.00	1	07/21/2023 13:08	WG2099118
1,3-Dichlorobenzene	U		0.110	1.00	1	07/21/2023 13:08	WG2099118
1,4-Dichlorobenzene	U		0.120	1.00	1	07/21/2023 13:08	WG2099118
Dichlorodifluoromethane	U		0.374	5.00	1	07/21/2023 13:08	WG2099118
1,1-Dichloroethane	U		0.100	1.00	1	07/21/2023 13:08	WG2099118
1,2-Dichloroethane	U		0.0819	1.00	1	07/21/2023 13:08	WG2099118
1,1-Dichloroethene	U		0.188	1.00	1	07/21/2023 13:08	WG2099118
cis-1,2-Dichloroethene	U		0.126	1.00	1	07/21/2023 13:08	WG2099118
trans-1,2-Dichloroethene	U		0.149	1.00	1	07/21/2023 13:08	WG2099118
1,2-Dichloropropane	U		0.149	1.00	1	07/21/2023 13:08	WG2099118
1,1-Dichloropropene	U		0.142	1.00	1	07/21/2023 13:08	WG2099118
1,3-Dichloropropane	U		0.110	1.00	1	07/21/2023 13:08	WG2099118
cis-1,3-Dichloropropene	U		0.111	1.00	1	07/21/2023 13:08	WG2099118
trans-1,3-Dichloropropene	U		0.118	1.00	1	07/21/2023 13:08	WG2099118
2,2-Dichloropropane	U		0.161	1.00	1	07/21/2023 13:08	WG2099118
Di-isopropyl ether	U		0.105	1.00	1	07/21/2023 13:08	WG2099118
Ethylbenzene	U		0.137	1.00	1	07/21/2023 13:08	WG2099118
Hexachloro-1,3-butadiene	U		0.337	1.00	1	07/21/2023 13:08	WG2099118
Isopropylbenzene	U		0.105	1.00	1	07/21/2023 13:08	WG2099118

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
p-Isopropyltoluene	U		0.120	1.00	1	07/21/2023 13:08	WG2099118
2-Butanone (MEK)	U		1.19	10.0	1	07/21/2023 13:08	WG2099118
Methylene Chloride	U		0.430	5.00	1	07/21/2023 13:08	WG2099118
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	07/21/2023 13:08	WG2099118
Methyl tert-butyl ether	U		0.101	1.00	1	07/21/2023 13:08	WG2099118
Naphthalene	U	C3	1.00	5.00	1	07/21/2023 13:08	WG2099118
n-Propylbenzene	U		0.0993	1.00	1	07/21/2023 13:08	WG2099118
Styrene	U		0.118	1.00	1	07/21/2023 13:08	WG2099118
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	07/21/2023 13:08	WG2099118
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	07/21/2023 13:08	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	0.180	1.00	1	07/21/2023 13:08	WG2099118
Tetrachloroethene	U		0.300	1.00	1	07/21/2023 13:08	WG2099118
Toluene	U		0.278	1.00	1	07/21/2023 13:08	WG2099118
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	07/21/2023 13:08	WG2099118
1,2,4-Trichlorobenzene	U		0.481	1.00	1	07/21/2023 13:08	WG2099118
1,1,1-Trichloroethane	U		0.149	1.00	1	07/21/2023 13:08	WG2099118
1,1,2-Trichloroethane	U		0.158	1.00	1	07/21/2023 13:08	WG2099118
Trichloroethene	U		0.190	1.00	1	07/21/2023 13:08	WG2099118
Trichlorofluoromethane	U		0.160	5.00	1	07/21/2023 13:08	WG2099118
1,2,4-Trimethylbenzene	U		0.322	1.00	1	07/21/2023 13:08	WG2099118
1,2,3-Trimethylbenzene	U		0.104	1.00	1	07/21/2023 13:08	WG2099118
1,3,5-Trimethylbenzene	U		0.104	1.00	1	07/21/2023 13:08	WG2099118
Vinyl chloride	U		0.234	1.00	1	07/21/2023 13:08	WG2099118
Xylenes, Total	U		0.174	3.00	1	07/21/2023 13:08	WG2099118
o-Xylene	U		0.174	1.00	1	07/21/2023 13:08	WG2099118
m&p-Xylene	U		0.430	2.00	1	07/21/2023 13:08	WG2099118
(S) Toluene-d8	*103*			*80.0-120*		*07/21/2023 13:08*	WG2099118
(S) 4-Bromofluorobenzene	*99.7*			*77.0-126*		*07/21/2023 13:08*	WG2099118
(S) 1,2-Dichloroethane-d4	*116*			*70.0-130*		*07/21/2023 13:08*	WG2099118

EDB / DBCP by Method 8011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ethylene Dibromide	U		0.00557	0.0208	1.04	07/25/2023 01:05	WG2100301

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	U		170	800	1	07/28/2023 01:20	WG2100272
AK103 RRO C25-C36	764	B J	460	800	1	07/28/2023 01:20	WG2100272
(S) o-Terphenyl	*157*	J1		*50.0-150*		*07/28/2023 01:20*	WG2100272
(S) n-Triacontane d62	*101*			*50.0-150*		*07/28/2023 01:20*	WG2100272

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	181	B J	170	800	1	07/26/2023 17:47	WG2100273
(S) o-Terphenyl	*140*			*50.0-150*		*07/26/2023 17:47*	WG2100273

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0190	0.0500	1	07/21/2023 04:47	WG2098172
Acenaphthene	U		0.0190	0.0500	1	07/21/2023 04:47	WG2098172
Acenaphthylene	U		0.0170	0.0500	1	07/21/2023 04:47	WG2098172
Benzo(a)anthracene	U		0.0200	0.0500	1	07/21/2023 04:47	WG2098172
Benzo(a)pyrene	U		0.0180	0.0500	1	07/21/2023 04:47	WG2098172
Benzo(b)fluoranthene	U		0.0170	0.0500	1	07/21/2023 04:47	WG2098172
Benzo(g,h,i)perylene	U		0.0180	0.0500	1	07/21/2023 04:47	WG2098172
Benzo(k)fluoranthene	U		0.0200	0.250	1	07/21/2023 04:47	WG2098172
Chrysene	U		0.0180	0.0500	1	07/21/2023 04:47	WG2098172
Dibenz(a,h)anthracene	U		0.0180	0.0500	1	07/21/2023 04:47	WG2098172
Fluoranthene	U		0.0110	0.0500	1	07/21/2023 04:47	WG2098172
Fluorene	U		0.0170	0.0500	1	07/21/2023 04:47	WG2098172
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500	1	07/21/2023 04:47	WG2098172
Naphthalene	U		0.128	0.500	1	07/21/2023 04:47	WG2098172
Phenanthrene	U		0.0180	0.0500	1	07/21/2023 04:47	WG2098172
Pyrene	U		0.0170	0.0500	1	07/21/2023 04:47	WG2098172
1-Methylnaphthalene	U		0.0200	0.500	1	07/21/2023 04:47	WG2098172
2-Methylnaphthalene	U		0.0280	0.500	1	07/21/2023 04:47	WG2098172
2-Chloronaphthalene	U		0.0120	0.500	1	07/21/2023 04:47	WG2098172
(S) Nitrobenzene-d5	*68.5*			*11.0-135*		*07/21/2023 04:47*	WG2098172
(S) 2-Fluorobiphenyl	*79.5*			*32.0-120*		*07/21/2023 04:47*	WG2098172
(S) p-Terphenyl-d14	*90.5*			*23.0-122*		*07/21/2023 04:47*	WG2098172

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	30.9	J	28.7	100	1	07/21/2023 06:21	WG2098838
(S) a,a,a-Trifluorotoluene(FID)	*100*			*50.0-150*		*07/21/2023 06:21*	WG2098838

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	07/21/2023 12:29	WG2099118
Acrolein	U		2.54	50.0	1	07/21/2023 12:29	WG2099118
Acrylonitrile	U		0.671	10.0	1	07/21/2023 12:29	WG2099118
Benzene	U		0.0941	1.00	1	07/21/2023 12:29	WG2099118
Bromobenzene	U		0.118	1.00	1	07/21/2023 12:29	WG2099118
Bromochloromethane	U		0.128	1.00	1	07/21/2023 12:29	WG2099118
Bromodichloromethane	U		0.136	1.00	1	07/21/2023 12:29	WG2099118
Bromoform	U		0.129	1.00	1	07/21/2023 12:29	WG2099118
Bromomethane	U		0.605	5.00	1	07/21/2023 12:29	WG2099118
n-Butylbenzene	U		0.157	1.00	1	07/21/2023 12:29	WG2099118
sec-Butylbenzene	U		0.125	1.00	1	07/21/2023 12:29	WG2099118
tert-Butylbenzene	U		0.127	1.00	1	07/21/2023 12:29	WG2099118
Carbon disulfide	U		0.0962	1.00	1	07/21/2023 12:29	WG2099118
Carbon tetrachloride	U		0.128	1.00	1	07/21/2023 12:29	WG2099118
Chlorobenzene	U		0.116	1.00	1	07/21/2023 12:29	WG2099118
Chlorodibromomethane	U		0.140	1.00	1	07/21/2023 12:29	WG2099118
Chloroethane	U		0.192	5.00	1	07/21/2023 12:29	WG2099118
Chloroform	U		0.111	5.00	1	07/21/2023 12:29	WG2099118
Chloromethane	U		0.960	2.50	1	07/21/2023 12:29	WG2099118
2-Chlorotoluene	U		0.106	1.00	1	07/21/2023 12:29	WG2099118
4-Chlorotoluene	U		0.114	1.00	1	07/21/2023 12:29	WG2099118
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	07/21/2023 12:29	WG2099118
Dibromomethane	U		0.122	1.00	1	07/21/2023 12:29	WG2099118
1,2-Dichlorobenzene	U		0.107	1.00	1	07/21/2023 12:29	WG2099118
1,3-Dichlorobenzene	U		0.110	1.00	1	07/21/2023 12:29	WG2099118
1,4-Dichlorobenzene	U		0.120	1.00	1	07/21/2023 12:29	WG2099118
Dichlorodifluoromethane	U		0.374	5.00	1	07/21/2023 12:29	WG2099118
1,1-Dichloroethane	U		0.100	1.00	1	07/21/2023 12:29	WG2099118
1,2-Dichloroethane	U		0.0819	1.00	1	07/21/2023 12:29	WG2099118
1,1-Dichloroethene	U		0.188	1.00	1	07/21/2023 12:29	WG2099118
cis-1,2-Dichloroethene	U		0.126	1.00	1	07/21/2023 12:29	WG2099118
trans-1,2-Dichloroethene	U		0.149	1.00	1	07/21/2023 12:29	WG2099118
1,2-Dichloropropane	U		0.149	1.00	1	07/21/2023 12:29	WG2099118
1,1-Dichloropropene	U		0.142	1.00	1	07/21/2023 12:29	WG2099118
1,3-Dichloropropane	U		0.110	1.00	1	07/21/2023 12:29	WG2099118
cis-1,3-Dichloropropene	U		0.111	1.00	1	07/21/2023 12:29	WG2099118
trans-1,3-Dichloropropene	U		0.118	1.00	1	07/21/2023 12:29	WG2099118
2,2-Dichloropropane	U		0.161	1.00	1	07/21/2023 12:29	WG2099118
Di-isopropyl ether	U		0.105	1.00	1	07/21/2023 12:29	WG2099118
Ethylbenzene	U		0.137	1.00	1	07/21/2023 12:29	WG2099118
Hexachloro-1,3-butadiene	U		0.337	1.00	1	07/21/2023 12:29	WG2099118
Isopropylbenzene	U		0.105	1.00	1	07/21/2023 12:29	WG2099118
p-Isopropyltoluene	U		0.120	1.00	1	07/21/2023 12:29	WG2099118
2-Butanone (MEK)	U		1.19	10.0	1	07/21/2023 12:29	WG2099118
Methylene Chloride	U		0.430	5.00	1	07/21/2023 12:29	WG2099118
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	07/21/2023 12:29	WG2099118
Methyl tert-butyl ether	U		0.101	1.00	1	07/21/2023 12:29	WG2099118
Naphthalene	U	C3	1.00	5.00	1	07/21/2023 12:29	WG2099118
n-Propylbenzene	U		0.0993	1.00	1	07/21/2023 12:29	WG2099118

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Styrene	U		0.118	1.00	1	07/21/2023 12:29	WG2099118
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	07/21/2023 12:29	WG2099118
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	07/21/2023 12:29	WG2099118
1,1,2-Trichlorotrifluoroethane	U	J3	0.180	1.00	1	07/21/2023 12:29	WG2099118
Tetrachloroethene	U		0.300	1.00	1	07/21/2023 12:29	WG2099118
Toluene	U		0.278	1.00	1	07/21/2023 12:29	WG2099118
1,2,3-Trichlorobenzene	U	C3	0.230	1.00	1	07/21/2023 12:29	WG2099118
1,2,4-Trichlorobenzene	U		0.481	1.00	1	07/21/2023 12:29	WG2099118
1,1,1-Trichloroethane	U		0.149	1.00	1	07/21/2023 12:29	WG2099118
1,1,2-Trichloroethane	U		0.158	1.00	1	07/21/2023 12:29	WG2099118
Trichloroethene	U		0.190	1.00	1	07/21/2023 12:29	WG2099118
Trichlorofluoromethane	U		0.160	5.00	1	07/21/2023 12:29	WG2099118
1,2,4-Trimethylbenzene	U		0.322	1.00	1	07/21/2023 12:29	WG2099118
1,2,3-Trimethylbenzene	U		0.104	1.00	1	07/21/2023 12:29	WG2099118
1,3,5-Trimethylbenzene	U		0.104	1.00	1	07/21/2023 12:29	WG2099118
Vinyl chloride	U		0.234	1.00	1	07/21/2023 12:29	WG2099118
Xylenes, Total	U		0.174	3.00	1	07/21/2023 12:29	WG2099118
o-Xylene	U		0.174	1.00	1	07/21/2023 12:29	WG2099118
m&p-Xylene	U		0.430	2.00	1	07/21/2023 12:29	WG2099118
(S) Toluene-d8	*99.9*			*80.0-120*		*07/21/2023 12:29*	WG2099118
(S) 4-Bromofluorobenzene	*102*			*77.0-126*		*07/21/2023 12:29*	WG2099118
(S) 1,2-Dichloroethane-d4	*118*			*70.0-130*		*07/21/2023 12:29*	WG2099118

EDB / DBCP by Method 8011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ethylene Dibromide	U		0.00547	0.0204	1.02	07/21/2023 21:48	WG2099078

Method Blank (MB)

(MB) R3953536-1 07/27/23 09:23

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		2.99	6.00

Laboratory Control Sample (LCS)

(LCS) R3953536-2 07/27/23 09:26

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	1000	963	96.3	80.0-120	

L1636957-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1636957-06 07/27/23 09:29 • (MS) R3953536-4 07/27/23 09:34 • (MSD) R3953536-5 07/27/23 09:37

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	1000	U	943	959	94.3	95.9	1	75.0-125			1.68	20

Method Blank (MB)

(MB) R3953166-3 07/21/23 00:50

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	U		28.7	100
(S) a,a,a-Trifluorotoluene(FID)	*96.1*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3953166-1 07/20/23 23:10 • (LCSD) R3953166-2 07/20/23 23:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	4870	4820	97.4	96.4	60.0-120			1.03	20
(S) a,a,a-Trifluorotoluene(FID)				*111*	*113*	*60.0-120*				

Method Blank (MB)

(MB) R3954111-2 07/28/23 03:41

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	U		28.7	100
(S) a,a,a-Trifluorotoluene(FID)	*97.2*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3954111-1 07/28/23 02:21 • (LCSD) R3954111-3 07/28/23 07:07

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	5520	5060	110	101	60.0-120			8.70	20
(S) a,a,a-Trifluorotoluene(FID)				*93.8*	*102*	*60.0-120*				

Method Blank (MB)

(MB) R3951166-2 07/20/23 13:45

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,2,3-Trichloropropane	U		0.00200	0.00500

Laboratory Control Sample (LCS)

(LCS) R3951166-1 07/20/23 13:21

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,3-Trichloropropane	0.0500	0.0600	120	70.0-130	

Method Blank (MB)

(MB) R3952433-3 07/21/23 09:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		11.3	50.0
Acrolein	U		2.54	50.0
Acrylonitrile	U		0.671	10.0
Benzene	U		0.0941	1.00
Bromobenzene	U		0.118	1.00
Bromochloromethane	U		0.128	1.00
Bromodichloromethane	U		0.136	1.00
Bromoform	U		0.129	1.00
Bromomethane	U		0.605	5.00
n-Butylbenzene	U		0.157	1.00
sec-Butylbenzene	U		0.125	1.00
tert-Butylbenzene	U		0.127	1.00
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chlorobenzene	U		0.116	1.00
Chlorodibromomethane	U		0.140	1.00
Chloroethane	U		0.192	5.00
Chloroform	U		0.111	5.00
Chloromethane	U		0.960	2.50
2-Chlorotoluene	U		0.106	1.00
4-Chlorotoluene	U		0.114	1.00
1,2-Dibromo-3-Chloropropane	U		0.276	5.00
Dibromomethane	U		0.122	1.00
1,2-Dichlorobenzene	U		0.107	1.00
1,3-Dichlorobenzene	U		0.110	1.00
1,4-Dichlorobenzene	U		0.120	1.00
Dichlorodifluoromethane	U		0.374	5.00
1,1-Dichloroethane	U		0.100	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
1,2-Dichloropropane	U		0.149	1.00
1,1-Dichloropropene	U		0.142	1.00
1,3-Dichloropropane	U		0.110	1.00
cis-1,3-Dichloropropene	U		0.111	1.00
trans-1,3-Dichloropropene	U		0.118	1.00
2,2-Dichloropropane	U		0.161	1.00
Di-isopropyl ether	U		0.105	1.00
Ethylbenzene	U		0.137	1.00

Method Blank (MB)

(MB) R3952433-3 07/21/23 09:54

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	U		0.337	1.00
Isopropylbenzene	U		0.105	1.00
p-Isopropyltoluene	U		0.120	1.00
2-Butanone (MEK)	U		1.19	10.0
Methylene Chloride	U		0.430	5.00
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0
Methyl tert-butyl ether	U		0.101	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.0993	1.00
Styrene	U		0.118	1.00
1,1,1,2-Tetrachloroethane	U		0.147	1.00
1,1,2,2-Tetrachloroethane	U		0.133	1.00
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.481	1.00
1,1,1-Trichloroethane	U		0.149	1.00
1,1,2-Trichloroethane	U		0.158	1.00
Trichloroethene	U		0.190	1.00
Trichlorofluoromethane	U		0.160	5.00
1,2,4-Trimethylbenzene	U		0.322	1.00
1,2,3-Trimethylbenzene	U		0.104	1.00
1,3,5-Trimethylbenzene	U		0.104	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
o-Xylene	U		0.174	1.00
m&p-Xylene	U		0.430	2.00
(S) Toluene-d8	*105*			*80.0-120*
(S) 4-Bromofluorobenzene	*94.4*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*112*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3952433-1 07/21/23 08:56 • (LCSD) R3952433-2 07/21/23 09:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	26.7	25.8	107	103	19.0-160			3.43	27
Acrolein	25.0	22.6	22.6	90.4	90.4	10.0-160			0.000	26

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3952433-1 07/21/23 08:56 • (LCSD) R3952433-2 07/21/23 09:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acrylonitrile	25.0	28.1	27.6	112	110	55.0-149			1.80	20
Benzene	5.00	5.10	4.75	102	95.0	70.0-123			7.11	20
Bromobenzene	5.00	4.71	4.81	94.2	96.2	73.0-121			2.10	20
Bromochloromethane	5.00	5.13	4.96	103	99.2	76.0-122			3.37	20
Bromodichloromethane	5.00	5.12	4.95	102	99.0	75.0-120			3.38	20
Bromoform	5.00	4.67	4.89	93.4	97.8	68.0-132			4.60	20
Bromomethane	5.00	5.15	4.86	103	97.2	10.0-160			5.79	25
n-Butylbenzene	5.00	4.30	4.13	86.0	82.6	73.0-125			4.03	20
sec-Butylbenzene	5.00	4.39	4.30	87.8	86.0	75.0-125			2.07	20
tert-Butylbenzene	5.00	4.48	4.39	89.6	87.8	76.0-124			2.03	20
Carbon disulfide	5.00	4.95	4.43	99.0	88.6	61.0-128			11.1	20
Carbon tetrachloride	5.00	5.51	4.86	110	97.2	68.0-126			12.5	20
Chlorobenzene	5.00	4.94	4.71	98.8	94.2	80.0-121			4.77	20
Chlorodibromomethane	5.00	4.74	4.93	94.8	98.6	77.0-125			3.93	20
Chloroethane	5.00	5.15	4.57	103	91.4	47.0-150			11.9	20
Chloroform	5.00	5.37	5.15	107	103	73.0-120			4.18	20
Chloromethane	5.00	5.56	5.26	111	105	41.0-142			5.55	20
2-Chlorotoluene	5.00	4.81	4.69	96.2	93.8	76.0-123			2.53	20
4-Chlorotoluene	5.00	4.79	4.51	95.8	90.2	75.0-122			6.02	20
1,2-Dibromo-3-Chloropropane	5.00	4.19	4.27	83.8	85.4	58.0-134			1.89	20
Dibromomethane	5.00	5.33	5.30	107	106	80.0-120			0.564	20
1,2-Dichlorobenzene	5.00	4.70	4.65	94.0	93.0	79.0-121			1.07	20
1,3-Dichlorobenzene	5.00	4.68	4.65	93.6	93.0	79.0-120			0.643	20
1,4-Dichlorobenzene	5.00	4.73	4.71	94.6	94.2	79.0-120			0.424	20
Dichlorodifluoromethane	5.00	5.23	4.39	105	87.8	51.0-149			17.5	20
1,1-Dichloroethane	5.00	5.28	4.99	106	99.8	70.0-126			5.65	20
1,2-Dichloroethane	5.00	5.77	5.66	115	113	70.0-128			1.92	20
1,1-Dichloroethene	5.00	4.71	4.21	94.2	84.2	71.0-124			11.2	20
cis-1,2-Dichloroethene	5.00	5.02	4.58	100	91.6	73.0-120			9.17	20
trans-1,2-Dichloroethene	5.00	5.10	4.48	102	89.6	73.0-120			12.9	20
1,2-Dichloropropane	5.00	5.40	5.04	108	101	77.0-125			6.90	20
1,1-Dichloropropene	5.00	5.36	4.57	107	91.4	74.0-126			15.9	20
1,3-Dichloropropane	5.00	4.86	4.79	97.2	95.8	80.0-120			1.45	20
cis-1,3-Dichloropropene	5.00	5.04	4.85	101	97.0	80.0-123			3.84	20
trans-1,3-Dichloropropene	5.00	4.90	4.90	98.0	98.0	78.0-124			0.000	20
2,2-Dichloropropane	5.00	5.58	4.87	112	97.4	58.0-130			13.6	20
Di-isopropyl ether	5.00	5.61	5.49	112	110	58.0-138			2.16	20
Ethylbenzene	5.00	4.73	4.33	94.6	86.6	79.0-123			8.83	20
Hexachloro-1,3-butadiene	5.00	4.45	4.45	89.0	89.0	54.0-138			0.000	20
Isopropylbenzene	5.00	4.68	4.45	93.6	89.0	76.0-127			5.04	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3952433-1 07/21/23 08:56 • (LCSD) R3952433-2 07/21/23 09:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
p-Isopropyltoluene	5.00	4.41	4.46	88.2	89.2	76.0-125			1.13	20
2-Butanone (MEK)	25.0	27.3	27.4	109	110	44.0-160			0.366	20
Methylene Chloride	5.00	5.11	4.65	102	93.0	67.0-120			9.43	20
4-Methyl-2-pentanone (MIBK)	25.0	28.5	30.0	114	120	68.0-142			5.13	20
Methyl tert-butyl ether	5.00	4.96	4.97	99.2	99.4	68.0-125			0.201	20
Naphthalene	5.00	3.65	4.36	73.0	87.2	54.0-135			17.7	20
n-Propylbenzene	5.00	4.71	4.44	94.2	88.8	77.0-124			5.90	20
Styrene	5.00	4.40	4.12	88.0	82.4	73.0-130			6.57	20
1,1,1,2-Tetrachloroethane	5.00	4.79	4.78	95.8	95.6	75.0-125			0.209	20
1,1,2,2-Tetrachloroethane	5.00	4.89	5.15	97.8	103	65.0-130			5.18	20
1,1,2-Trichlorotrifluoroethane	5.00	5.34	4.33	107	86.6	69.0-132		J3	20.9	20
Tetrachloroethene	5.00	4.99	4.48	99.8	89.6	72.0-132			10.8	20
Toluene	5.00	4.73	4.63	94.6	92.6	79.0-120			2.14	20
1,2,3-Trichlorobenzene	5.00	3.88	4.62	77.6	92.4	50.0-138			17.4	20
1,2,4-Trichlorobenzene	5.00	4.01	4.47	80.2	89.4	57.0-137			10.8	20
1,1,1-Trichloroethane	5.00	5.45	4.90	109	98.0	73.0-124			10.6	20
1,1,2-Trichloroethane	5.00	4.73	4.88	94.6	97.6	80.0-120			3.12	20
Trichloroethene	5.00	4.98	4.81	99.6	96.2	78.0-124			3.47	20
Trichlorofluoromethane	5.00	5.87	4.93	117	98.6	59.0-147			17.4	20
1,2,4-Trimethylbenzene	5.00	4.50	4.41	90.0	88.2	76.0-121			2.02	20
1,2,3-Trimethylbenzene	5.00	4.46	4.51	89.2	90.2	77.0-120			1.11	20
1,3,5-Trimethylbenzene	5.00	4.62	4.49	92.4	89.8	76.0-122			2.85	20
Vinyl chloride	5.00	5.06	4.39	101	87.8	67.0-131			14.2	20
Xylenes, Total	15.0	14.3	13.3	95.3	88.7	79.0-123			7.25	20
o-Xylene	5.00	4.55	4.35	91.0	87.0	80.0-122			4.49	20
m&p-Xylene	10.0	9.71	8.98	97.1	89.8	80.0-122			7.81	20
(S) Toluene-d8				*99.9*	*103*	*80.0-120*				
(S) 4-Bromofluorobenzene				*99.2*	*96.9*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*118*	*113*	*70.0-130*				

Method Blank (MB)

(MB) R3952418-2 07/25/23 10:57

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,2,3-Trichloropropane	U		0.00200	0.00500

Laboratory Control Sample (LCS)

(LCS) R3952418-1 07/25/23 10:33

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,3-Trichloropropane	0.0500	0.0570	114	70.0-130	

Method Blank (MB)

(MB) R3951670-1 07/21/23 14:06

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylene Dibromide	U		0.00536	0.0200

L1635955-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1635955-01 07/21/23 15:01 • (DUP) R3951670-3 07/21/23 14:47

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethylene Dibromide	U	U	1.04	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3951670-4 07/21/23 15:44 • (LCSD) R3951670-5 07/21/23 15:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylene Dibromide	0.250	0.200	0.243	80.0	97.2	60.0-140			19.4	20

L1635858-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1635858-01 07/21/23 14:34 • (MS) R3951670-2 07/21/23 14:21

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ethylene Dibromide	0.0995	U	0.0997	100	1	64.0-159	

Method Blank (MB)

(MB) R3952562-1 07/24/23 22:58

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylene Dibromide	U		0.00536	0.0200

L1636957-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1636957-02 07/24/23 23:49 • (DUP) R3952562-3 07/24/23 23:36

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethylene Dibromide	U	U	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3952562-4 07/25/23 01:56 • (LCSD) R3952562-5 07/25/23 04:41

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylene Dibromide	0.250	0.209	0.215	83.6	86.0	60.0-140			2.83	20

L1636957-03 Original Sample (OS) • Matrix Spike (MS)

(OS) L1636957-03 07/24/23 23:24 • (MS) R3952562-2 07/24/23 23:10

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ethylene Dibromide	0.0989	U	0.0976	98.7	1	64.0-159	

Method Blank (MB)

(MB) R3953220-1 07/27/23 01:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
AK102 DRO C10-C25	194	J	170	800
AK103 RRO C25-C36	484	J	460	800
(S) o-Terphenyl	*165*	J1		*60.0-120*
(S) n-Triacontane d62	*97.5*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3953220-2 07/27/23 02:19 • (LCSD) R3953220-3 07/27/23 02:39

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK102 DRO C10-C25	6000	6680	6720	111	112	75.0-125			0.597	20
(S) o-Terphenyl				*286*	*285*	*60.0-120*	J1	J1		
(S) n-Triacontane d62				*108*	*108*	*60.0-120*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3953220-4 07/27/23 02:59 • (LCSD) R3953220-5 07/27/23 03:19

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK103 RRO C25-C36	6000	6170	5870	103	97.8	60.0-120			4.98	20
(S) o-Terphenyl				*190*	*174*	*60.0-120*	J1	J1		
(S) n-Triacontane d62				*113*	*109*	*60.0-120*				

Method Blank (MB)

(MB) R3953918-1 07/26/23 15:04

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
AK102 DRO C10-C25	194	J	170	800
(S) o-Terphenyl	*121*	J1		*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3953918-2 07/26/23 15:23 • (LCSD) R3953918-3 07/26/23 15:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6000	4790	4830	79.8	80.5	75.0-125			0.832	20
(S) o-Terphenyl				*197*	*194*	*60.0-120*	J1	J1		

Method Blank (MB)

(MB) R3951320-2 07/20/23 23:01

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0190	0.0500
Acenaphthene	U		0.0190	0.0500
Acenaphthylene	U		0.0170	0.0500
Benzo(a)anthracene	U		0.0200	0.0500
Benzo(a)pyrene	U		0.0180	0.0500
Benzo(b)fluoranthene	U		0.0170	0.0500
Benzo(g,h,i)perylene	U		0.0180	0.0500
Benzo(k)fluoranthene	U		0.0200	0.250
Chrysene	U		0.0180	0.0500
Dibenz(a,h)anthracene	U		0.0180	0.0500
Fluoranthene	U		0.0110	0.0500
Fluorene	U		0.0170	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500
Naphthalene	U		0.128	0.500
Phenanthrene	U		0.0180	0.0500
Pyrene	U		0.0170	0.0500
1-Methylnaphthalene	U		0.0200	0.500
2-Methylnaphthalene	U		0.0280	0.500
2-Chloronaphthalene	U		0.0120	0.500
(S) Nitrobenzene-d5	*69.5*			*11.0-135*
(S) 2-Fluorobiphenyl	*82.0*			*32.0-120*
(S) p-Terphenyl-d14	*90.0*			*23.0-122*

Laboratory Control Sample (LCS)

(LCS) R3951320-1 07/20/23 22:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	2.00	1.58	79.0	43.0-127	
Acenaphthene	2.00	1.54	77.0	42.0-120	
Acenaphthylene	2.00	1.59	79.5	43.0-120	
Benzo(a)anthracene	2.00	1.80	90.0	46.0-120	
Benzo(a)pyrene	2.00	1.93	96.5	44.0-122	
Benzo(b)fluoranthene	2.00	2.09	105	43.0-122	
Benzo(g,h,i)perylene	2.00	1.75	87.5	25.0-137	
Benzo(k)fluoranthene	2.00	1.98	99.0	39.0-128	
Chrysene	2.00	2.01	100	42.0-129	
Dibenz(a,h)anthracene	2.00	1.70	85.0	25.0-139	
Fluoranthene	2.00	1.80	90.0	48.0-131	

Laboratory Control Sample (LCS)

(LCS) R3951320-1 07/20/23 22:42

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	2.00	1.83	91.5	42.0-120	
Indeno(1,2,3-cd)pyrene	2.00	1.99	99.5	37.0-133	
Naphthalene	2.00	1.60	80.0	30.0-120	
Phenanthrene	2.00	1.81	90.5	42.0-120	
Pyrene	2.00	1.88	94.0	38.0-124	
1-Methylnaphthalene	2.00	1.65	82.5	43.0-120	
2-Methylnaphthalene	2.00	1.60	80.0	40.0-120	
2-Chloronaphthalene	2.00	1.64	82.0	39.0-120	
(S) Nitrobenzene-d5			*72.5*	*11.0-135*	
(S) 2-Fluorobiphenyl			*84.5*	*32.0-120*	
(S) p-Terphenyl-d14			*93.5*	*23.0-122*	

L1636894-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1636894-04 07/21/23 00:32 • (MS) R3951320-3 07/21/23 00:51 • (MSD) R3951320-4 07/21/23 01:11

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	U	1.53	1.41	76.5	70.5	1	28.0-120			8.16	25
Acenaphthene	2.00	U	1.45	1.38	72.5	69.0	1	16.0-120			4.95	25
Acenaphthylene	2.00	0.233	1.46	1.40	61.3	58.3	1	16.0-121			4.20	26
Benzo(a)anthracene	2.00	U	1.53	1.31	76.5	65.5	1	19.0-125			15.5	26
Benzo(a)pyrene	2.00	U	1.01	0.785	50.5	39.2	1	10.0-126			25.1	32
Benzo(b)fluoranthene	2.00	U	1.12	0.843	56.0	42.1	1	10.0-125			28.2	36
Benzo(g,h,i)perylene	2.00	U	0.208	0.166	10.4	8.30	1	10.0-128		J6	22.5	37
Benzo(k)fluoranthene	2.00	U	1.05	0.822	52.5	41.1	1	10.0-124			24.4	32
Chrysene	2.00	U	1.77	1.52	88.5	76.0	1	18.0-127			15.2	26
Dibenz(a,h)anthracene	2.00	U	0.206	0.166	10.3	8.30	1	10.0-132		J6	21.5	43
Fluoranthene	2.00	U	1.71	1.56	85.5	78.0	1	37.0-122			9.17	23
Fluorene	2.00	U	1.74	1.66	87.0	83.0	1	20.0-120			4.71	26
Indeno(1,2,3-cd)pyrene	2.00	U	0.269	0.205	13.4	10.3	1	10.0-130			27.0	38
Naphthalene	2.00	0.754	2.20	2.24	72.3	74.3	1	14.0-120			1.80	20
Phenanthrene	2.00	U	1.74	1.69	87.0	84.5	1	26.0-120			2.92	24
Pyrene	2.00	U	1.78	1.66	89.0	83.0	1	29.0-120			6.98	24
1-Methylnaphthalene	2.00	0.0423	1.55	1.58	75.4	76.9	1	10.0-145			1.92	24
2-Methylnaphthalene	2.00	U	1.49	1.68	74.5	84.0	1	10.0-143			12.0	24
2-Chloronaphthalene	2.00	U	1.51	1.45	75.5	72.5	1	16.0-120			4.05	25
(S) Nitrobenzene-d5					*62.5*	*64.5*		*11.0-135*				
(S) 2-Fluorobiphenyl					*76.0*	*73.5*		*32.0-120*				
(S) p-Terphenyl-d14					*84.5*	*72.5*		*23.0-122*				

Method Blank (MB)

(MB) R3953544-2 07/26/23 04:44

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0190	0.0500
Acenaphthene	U		0.0190	0.0500
Acenaphthylene	U		0.0170	0.0500
Benzo(a)anthracene	U		0.0200	0.0500
Benzo(a)pyrene	U		0.0180	0.0500
Benzo(b)fluoranthene	U		0.0170	0.0500
Benzo(g,h,i)perylene	U		0.0180	0.0500
Benzo(k)fluoranthene	U		0.0200	0.250
Chrysene	U		0.0180	0.0500
Dibenz(a,h)anthracene	U		0.0180	0.0500
Fluoranthene	0.0149	J	0.0110	0.0500
Fluorene	U		0.0170	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500
Naphthalene	U		0.128	0.500
Phenanthrene	U		0.0180	0.0500
Pyrene	U		0.0170	0.0500
1-Methylnaphthalene	U		0.0200	0.500
2-Methylnaphthalene	U		0.0280	0.500
2-Chloronaphthalene	U		0.0120	0.500
(S) Nitrobenzene-d5	*91.0*			*11.0-135*
(S) 2-Fluorobiphenyl	*82.0*			*32.0-120*
(S) p-Terphenyl-d14	*94.5*			*23.0-122*

Laboratory Control Sample (LCS)

(LCS) R3953544-1 07/26/23 04:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	2.00	1.68	84.0	43.0-127	
Acenaphthene	2.00	1.71	85.5	42.0-120	
Acenaphthylene	2.00	1.74	87.0	43.0-120	
Benzo(a)anthracene	2.00	1.99	99.5	46.0-120	
Benzo(a)pyrene	2.00	1.92	96.0	44.0-122	
Benzo(b)fluoranthene	2.00	1.96	98.0	43.0-122	
Benzo(g,h,i)perylene	2.00	1.70	85.0	25.0-137	
Benzo(k)fluoranthene	2.00	2.13	106	39.0-128	
Chrysene	2.00	1.98	99.0	42.0-129	
Dibenz(a,h)anthracene	2.00	1.59	79.5	25.0-139	
Fluoranthene	2.00	2.05	103	48.0-131	

Laboratory Control Sample (LCS)

(LCS) R3953544-1 07/26/23 04:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	2.00	1.83	91.5	42.0-120	
Indeno(1,2,3-cd)pyrene	2.00	2.05	103	37.0-133	
Naphthalene	2.00	1.57	78.5	30.0-120	
Phenanthrene	2.00	1.82	91.0	42.0-120	
Pyrene	2.00	1.91	95.5	38.0-124	
1-Methylnaphthalene	2.00	1.68	84.0	43.0-120	
2-Methylnaphthalene	2.00	1.61	80.5	40.0-120	
2-Chloronaphthalene	2.00	1.59	79.5	39.0-120	
(S) Nitrobenzene-d5			*89.5*	*11.0-135*	
(S) 2-Fluorobiphenyl			*82.0*	*32.0-120*	
(S) p-Terphenyl-d14			*90.5*	*23.0-122*	

L1638256-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1638256-01 07/26/23 06:13 • (MS) R3953544-3 07/26/23 06:30 • (MSD) R3953544-4 07/26/23 06:48

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	2.00	U	1.59	1.18	79.5	59.0	1	28.0-120		J3	29.6	25
Acenaphthene	2.00	U	1.73	1.31	86.5	65.5	1	16.0-120		J3	27.6	25
Acenaphthylene	2.00	U	1.82	1.40	91.0	70.0	1	16.0-121		J3	26.1	26
Benzo(a)anthracene	2.00	U	1.56	1.04	78.0	52.0	1	19.0-125		J3	40.0	26
Benzo(a)pyrene	2.00	U	0.926	0.639	46.3	31.9	1	10.0-126		J3	36.7	32
Benzo(b)fluoranthene	2.00	U	0.947	0.569	47.3	28.5	1	10.0-125		J3	49.9	36
Benzo(g,h,i)perylene	2.00	U	0.320	0.205	16.0	10.3	1	10.0-128		J3	43.8	37
Benzo(k)fluoranthene	2.00	U	1.07	0.680	53.5	34.0	1	10.0-124		J3	44.6	32
Chrysene	2.00	U	1.51	1.14	75.5	57.0	1	18.0-127		J3	27.9	26
Dibenz(a,h)anthracene	2.00	U	0.353	0.242	17.6	12.1	1	10.0-132			37.3	43
Fluoranthene	2.00	U	1.74	1.27	87.0	63.5	1	37.0-122		J3	31.2	23
Fluorene	2.00	U	1.80	1.38	90.0	69.0	1	20.0-120		J3	26.4	26
Indeno(1,2,3-cd)pyrene	2.00	U	0.374	0.226	18.7	11.3	1	10.0-130		J3	49.3	38
Naphthalene	2.00	U	1.66	1.31	83.0	65.5	1	14.0-120		J3	23.6	20
Phenanthrene	2.00	U	1.73	1.28	86.5	64.0	1	26.0-120		J3	29.9	24
Pyrene	2.00	U	1.61	1.19	80.5	59.5	1	29.0-120		J3	30.0	24
1-Methylnaphthalene	2.00	U	1.75	1.35	87.5	67.5	1	10.0-145		J3	25.8	24
2-Methylnaphthalene	2.00	U	1.67	1.29	83.5	64.5	1	10.0-143		J3	25.7	24
2-Chloronaphthalene	2.00	U	1.64	1.25	82.0	62.5	1	16.0-120		J3	27.0	25
(S) Nitrobenzene-d5					*99.5*	*84.5*		*11.0-135*				
(S) 2-Fluorobiphenyl					*81.0*	*61.0*		*32.0-120*				
(S) p-Terphenyl-d14					*58.0*	*40.5*		*23.0-122*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
C3	The reported concentration is an estimate. The continuing calibration standard associated with this data responded low. Method sensitivity check is acceptable.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Arcadis - Chevron - AK

880 H St.
Anchorage, AK 99501

Billing Information:
Attn: Acounts Payable
630 Plaza Dr Ste 600
Highlands Ranch, CO 80129

Pres Chk

Report to: Nick Wood/Erika Midkiff/Sydney Clark

Email To: Alaura.Gonzalez@arcadis.com;environmentDM-

Project Description: 306456

City/State Collected: Fairbanks / AK

Please Circle: ~~PT MT CT ET~~ Alaska

Phone: 907-276-8095

Client Project # 30064226 19.45

Lab Project # CHEVARCAK-306456

Collected by (print): Danielle Sly Gilbert

Site/Facility ID # 328.5 ILLINOIS ST FAIRBANKS

P.O. #

Collected by (signature): Danielle Gilbert

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: Standard

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	123TCP 524LL 40mlAmb-HCl	AK101 40mlAmb HCl	AK102 w/ SGC 100ml Amb HCl	AK102/103 no SGC 100ml Amb HCl	EDB 8011 40mlClr-NaThio	PAHs 8270SIM 100ml Amb-NoPres	Total Lead 6010 250mlHDPE-HNO3	VOCs 8260 40mlAmb-HCl			Remarks	Sample # (lab only)
GEI-1-W-071423	Grab	GW	—	7-14-23	1650	18	X	X	X	X	X	X	X	X				-01
GEI-5-W-071323		GW	—	7-13-23	1215													-02
GEI-6-W-071223		GW	—	7-12-23	1400													-03
GEI-10-W-071323		GW	—	7-13-23	1550													-04
BD-1-W-071323		GW	—	7-13-23	—													-05
EB-DSO-W-071423		GW	—	7-14-23	1700													-06
Trip Blank		GW	—	—	—	5		X			X			X				-07
		GW																

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN
12065 Lebanon Rd Mount Juliet, TN 37122
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 636957
E015

Acctnum: CHEVARCAK
Template: T232904
Prelogin: P1008175
PM: 110 - Brian Ford
PB: 08/28/23
Shipped Via: FedEx 2nd Day

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via: __ UPS ✓ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: __NP ✓Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: ✓Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: (Yes) / No HCL / MeoH TBR	If preservation required by Login: Date/Time
Dan Olsen	7/18/23	1200		10	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 108	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Caleb TORP	Date: 7/19/23 Time: 09:30	Hold: Condition: NCF / (OK)

U1636187

Tracking Numbers	Temperature
6337 2257 4715	DPAG 2.6+0=26
6337 2257 4800	DPAG 5.1+0=5.1

ANALYTICAL REPORT

August 24, 2023

Arcadis - Chevron - AK

Sample Delivery Group:	L1645654
Samples Received:	08/12/2023
Project Number:	30064226
Description:	306456
Site:	328.5 ILLINOIS ST FAIRBANKS AK
Report To:	Nick Wood/Erika Midkiff 880 H St. Anchorage, AK 99501

Entire Report Reviewed By:

Brian Ford

Project Manager

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GEI-7R-W-20230809 L1645654-01 GW

Collected by: G. Jeffers | Collected date/time: 08/09/23 13:35 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2113306	1	08/16/23 00:35	08/18/23 10:34	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2116271	5	08/20/23 23:50	08/20/23 23:50	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114642	50	08/16/23 07:58	08/16/23 07:58	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2115859	1000	08/23/23 13:38	08/23/23 13:38	BRA	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2114515	1.02	08/16/23 06:27	08/16/23 23:11	MFM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2117861	1	08/22/23 17:44	08/23/23 15:57	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2117862	1	08/23/23 01:02	08/24/23 04:20	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2113397	1	08/15/23 05:19	08/15/23 13:38	AED	Mt. Juliet, TN

BD-1-W-20230809 L1645654-02 GW

Collected by: G. Jeffers | Collected date/time: 08/09/23 00:00 | Received date/time: 08/12/23 09:00

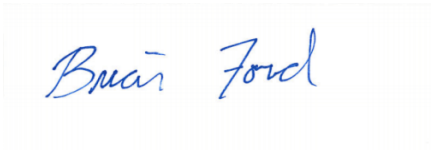
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Metals (ICP) by Method 6010D	WG2113306	1	08/16/23 00:35	08/18/23 10:42	CCE	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2117350	50	08/21/23 03:12	08/21/23 03:12	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114642	50	08/16/23 08:19	08/16/23 08:19	BAM	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2115859	1000	08/23/23 14:02	08/23/23 14:02	BRA	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2114515	1.03	08/16/23 06:27	08/16/23 23:23	MFM	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2117861	1.05	08/22/23 17:44	08/23/23 16:17	DMG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102SGT	WG2117862	1	08/23/23 01:02	08/24/23 04:00	DMG	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM	WG2113397	1	08/15/23 05:19	08/15/23 13:56	AED	Mt. Juliet, TN

TB-1 L1645654-03 GW

Collected by: G. Jeffers | Collected date/time: 08/09/23 00:00 | Received date/time: 08/12/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method AK101	WG2117350	1	08/20/23 21:57	08/20/23 21:57	AV	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2113515	1	08/14/23 14:33	08/14/23 14:33	JHH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2114642	1	08/16/23 02:30	08/16/23 02:30	BAM	Mt. Juliet, TN
EDB / DBCP by Method 8011	WG2114515	1.02	08/16/23 06:27	08/16/23 23:37	MFM	Mt. Juliet, TN

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

Volatile Organic Compounds (GC) by Method AK101

The same analyte is found in the associated blank.

Batch	Analyte	Lab Sample ID
WG2116271	TPHGAK C6 to C10	L1645654-01
WG2117350	TPHGAK C6 to C10	L1645654-02, 03

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2117350	(MS) R3963967-4, (MSD) R3963967-5	TPHGAK C6 to C10

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2117861	n-Triacontane d62	(BLANK) R3964865-1, (LCS) R3964865-4, (LCS) R3964865-2, (LCSD) R3964865-5, (LCSD) R3964865-3, (MS) R3964865-6, (MSD) R3964865-9, L1645654-01, 02

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG2117861	o-Terphenyl	(LCSD) R3964865-5

The associated batch QC was below the established quality control range for accuracy.

Batch	Lab Sample ID	Analytes
WG2117861	(LCS) R3964865-4, (LCSD) R3964865-5, L1645654-01, 02	AK103 RRO C25-C36

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2117861	(MS) R3964865-6, (MS) R3964865-8, (MSD) R3964865-7, (MSD) R3964865-9	AK102 DRO C10-C25 and AK103 RRO C25-C36

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2117862	(MS) R3964866-4, (MSD) R3964866-5	AK102 DRO C10-C25

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG2113397	Nitrobenzene-d5	(MS) R3961387-3, (MSD) R3961387-4

The sample concentration is too high to evaluate accurate spike recoveries.

Batch	Lab Sample ID	Analytes
WG2113397	(MS) R3961387-3, (MSD) R3961387-4	1-Methylnaphthalene, 2-Methylnaphthalene and Naphthalene

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2113397	(MS) R3961387-3, (MSD) R3961387-4	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene and Pyrene

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2113397	(MSD) R3961387-4	Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene and Pyrene

Metals (ICP) by Method 6010D

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Lead	6.55		2.99	6.00	1	08/18/2023 10:34	WG2113306

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	676	B	143	500	5	08/20/2023 23:50	WG2116271
(S) a,a,a-Trifluorotoluene(FID)	*86.0*			*50.0-150*		*08/20/2023 23:50*	WG2116271

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		565	2500	50	08/16/2023 07:58	WG2114642
1,2,3-Trichloropropane	U		2.00	5.00	1000	08/23/2023 13:38	WG2115859
Acrolein	U		127	2500	50	08/16/2023 07:58	WG2114642
Acrylonitrile	U		33.6	500	50	08/16/2023 07:58	WG2114642
Benzene	U		4.71	50.0	50	08/16/2023 07:58	WG2114642
Bromobenzene	U		5.90	50.0	50	08/16/2023 07:58	WG2114642
Bromochloromethane	U		6.40	50.0	50	08/16/2023 07:58	WG2114642
Bromodichloromethane	U		6.80	50.0	50	08/16/2023 07:58	WG2114642
Bromoform	U		6.45	50.0	50	08/16/2023 07:58	WG2114642
Bromomethane	U		30.3	250	50	08/16/2023 07:58	WG2114642
n-Butylbenzene	U		7.85	50.0	50	08/16/2023 07:58	WG2114642
sec-Butylbenzene	U		6.25	50.0	50	08/16/2023 07:58	WG2114642
tert-Butylbenzene	U		6.35	50.0	50	08/16/2023 07:58	WG2114642
Carbon disulfide	U		4.81	50.0	50	08/16/2023 07:58	WG2114642
Carbon tetrachloride	U		6.40	50.0	50	08/16/2023 07:58	WG2114642
Chlorobenzene	U		5.80	50.0	50	08/16/2023 07:58	WG2114642
Chlorodibromomethane	U		7.00	50.0	50	08/16/2023 07:58	WG2114642
Chloroethane	U		9.60	250	50	08/16/2023 07:58	WG2114642
Chloroform	U		5.55	250	50	08/16/2023 07:58	WG2114642
Chloromethane	U		48.0	125	50	08/16/2023 07:58	WG2114642
2-Chlorotoluene	U		5.30	50.0	50	08/16/2023 07:58	WG2114642
4-Chlorotoluene	U		5.70	50.0	50	08/16/2023 07:58	WG2114642
1,2-Dibromo-3-Chloropropane	U		13.8	250	50	08/16/2023 07:58	WG2114642
1,2-Dibromoethane	U		6.30	50.0	50	08/16/2023 07:58	WG2114642
Dibromomethane	U		6.10	50.0	50	08/16/2023 07:58	WG2114642
1,2-Dichlorobenzene	U		5.35	50.0	50	08/16/2023 07:58	WG2114642
1,3-Dichlorobenzene	U		5.50	50.0	50	08/16/2023 07:58	WG2114642
1,4-Dichlorobenzene	U		6.00	50.0	50	08/16/2023 07:58	WG2114642
Dichlorodifluoromethane	U		18.7	250	50	08/16/2023 07:58	WG2114642
1,1-Dichloroethane	U		5.00	50.0	50	08/16/2023 07:58	WG2114642
1,2-Dichloroethane	U		4.09	50.0	50	08/16/2023 07:58	WG2114642
1,1-Dichloroethene	U		9.40	50.0	50	08/16/2023 07:58	WG2114642
cis-1,2-Dichloroethene	U		6.30	50.0	50	08/16/2023 07:58	WG2114642
trans-1,2-Dichloroethene	U		7.45	50.0	50	08/16/2023 07:58	WG2114642
1,2-Dichloropropane	U		7.45	50.0	50	08/16/2023 07:58	WG2114642
1,1-Dichloropropene	U		7.10	50.0	50	08/16/2023 07:58	WG2114642
1,3-Dichloropropane	U		5.50	50.0	50	08/16/2023 07:58	WG2114642
cis-1,3-Dichloropropene	U		5.55	50.0	50	08/16/2023 07:58	WG2114642
trans-1,3-Dichloropropene	U		5.90	50.0	50	08/16/2023 07:58	WG2114642
2,2-Dichloropropane	U		8.05	50.0	50	08/16/2023 07:58	WG2114642
Di-isopropyl ether	U		5.25	50.0	50	08/16/2023 07:58	WG2114642
Ethylbenzene	U		6.85	50.0	50	08/16/2023 07:58	WG2114642
Hexachloro-1,3-butadiene	U		16.9	50.0	50	08/16/2023 07:58	WG2114642

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	U		5.25	50.0	50	08/16/2023 07:58	WG2114642
p-Isopropyltoluene	12.5	J	6.00	50.0	50	08/16/2023 07:58	WG2114642
2-Butanone (MEK)	U		59.5	500	50	08/16/2023 07:58	WG2114642
Methylene Chloride	U		21.5	250	50	08/16/2023 07:58	WG2114642
4-Methyl-2-pentanone (MIBK)	U		23.9	500	50	08/16/2023 07:58	WG2114642
Methyl tert-butyl ether	U		5.05	50.0	50	08/16/2023 07:58	WG2114642
Naphthalene	U		50.0	250	50	08/16/2023 07:58	WG2114642
n-Propylbenzene	U		4.97	50.0	50	08/16/2023 07:58	WG2114642
Styrene	U		5.90	50.0	50	08/16/2023 07:58	WG2114642
1,1,1,2-Tetrachloroethane	U		7.35	50.0	50	08/16/2023 07:58	WG2114642
1,1,2,2-Tetrachloroethane	U		6.65	50.0	50	08/16/2023 07:58	WG2114642
1,1,2-Trichlorotrifluoroethane	U		9.00	50.0	50	08/16/2023 07:58	WG2114642
Tetrachloroethene	U		15.0	50.0	50	08/16/2023 07:58	WG2114642
Toluene	U		13.9	50.0	50	08/16/2023 07:58	WG2114642
1,2,3-Trichlorobenzene	U		11.5	50.0	50	08/16/2023 07:58	WG2114642
1,2,4-Trichlorobenzene	U		24.1	50.0	50	08/16/2023 07:58	WG2114642
1,1,1-Trichloroethane	U		7.45	50.0	50	08/16/2023 07:58	WG2114642
1,1,2-Trichloroethane	U		7.90	50.0	50	08/16/2023 07:58	WG2114642
Trichloroethene	U		9.50	50.0	50	08/16/2023 07:58	WG2114642
Trichlorofluoromethane	U		8.00	250	50	08/16/2023 07:58	WG2114642
1,2,3-Trichloropropane	U		11.9	125	50	08/16/2023 07:58	WG2114642
1,2,4-Trimethylbenzene	81.9		16.1	50.0	50	08/16/2023 07:58	WG2114642
1,2,3-Trimethylbenzene	98.7		5.20	50.0	50	08/16/2023 07:58	WG2114642
1,3,5-Trimethylbenzene	64.6		5.20	50.0	50	08/16/2023 07:58	WG2114642
Vinyl chloride	U		11.7	50.0	50	08/16/2023 07:58	WG2114642
Xylenes, Total	74.8	J	8.70	150	50	08/16/2023 07:58	WG2114642
o-Xylene	U		8.70	50.0	50	08/16/2023 07:58	WG2114642
m&p-Xylene	74.8	J	21.5	100	50	08/16/2023 07:58	WG2114642
(S) Toluene-d8	*107*			*80.0-120*		*08/16/2023 07:58*	WG2114642
(S) 4-Bromofluorobenzene	*101*			*77.0-126*		*08/16/2023 07:58*	WG2114642
(S) 1,2-Dichloroethane-d4	*107*			*70.0-130*		*08/16/2023 07:58*	WG2114642

Sample Narrative:

L1645654-01 WG2114642, WG2115859: Non-target compounds too high to run at a lower dilution.

EDB / DBCP by Method 8011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ethylene Dibromide	U		0.00547	0.0204	1.02	08/16/2023 23:11	WG2114515

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	14000		170	800	1	08/23/2023 15:57	WG2117861
AK103 RRO C25-C36	1010	J4	460	800	1	08/23/2023 15:57	WG2117861
(S) o-Terphenyl	*88.5*			*50.0-150*		*08/23/2023 15:57*	WG2117861
(S) n-Triacontane d62	*0.000*	J2		*50.0-150*		*08/23/2023 15:57*	WG2117861

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	2900		170	800	1	08/24/2023 04:20	WG2117862
(S) o-Terphenyl	*75.5*			*50.0-150*		*08/24/2023 04:20*	WG2117862

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	0.0657		0.0190	0.0500	1	08/15/2023 13:38	WG2113397
Acenaphthene	0.346		0.0190	0.0500	1	08/15/2023 13:38	WG2113397
Acenaphthylene	U		0.0170	0.0500	1	08/15/2023 13:38	WG2113397
Benzo(a)anthracene	0.137		0.0200	0.0500	1	08/15/2023 13:38	WG2113397
Benzo(a)pyrene	0.121		0.0180	0.0500	1	08/15/2023 13:38	WG2113397
Benzo(b)fluoranthene	0.101		0.0170	0.0500	1	08/15/2023 13:38	WG2113397
Benzo(g,h,i)perylene	0.174		0.0180	0.0500	1	08/15/2023 13:38	WG2113397
Benzo(k)fluoranthene	0.193	J	0.0200	0.250	1	08/15/2023 13:38	WG2113397
Chrysene	0.247		0.0180	0.0500	1	08/15/2023 13:38	WG2113397
Dibenz(a,h)anthracene	0.255		0.0180	0.0500	1	08/15/2023 13:38	WG2113397
Fluoranthene	U		0.0110	0.0500	1	08/15/2023 13:38	WG2113397
Fluorene	0.464		0.0170	0.0500	1	08/15/2023 13:38	WG2113397
Indeno(1,2,3-cd)pyrene	0.171		0.0180	0.0500	1	08/15/2023 13:38	WG2113397
Naphthalene	4.41		0.128	0.500	1	08/15/2023 13:38	WG2113397
Phenanthrene	0.0255	J	0.0180	0.0500	1	08/15/2023 13:38	WG2113397
Pyrene	U		0.0170	0.0500	1	08/15/2023 13:38	WG2113397
1-Methylnaphthalene	3.28		0.0200	0.500	1	08/15/2023 13:38	WG2113397
2-Methylnaphthalene	0.318	J	0.0280	0.500	1	08/15/2023 13:38	WG2113397
2-Chloronaphthalene	U		0.0120	0.500	1	08/15/2023 13:38	WG2113397
(S) Nitrobenzene-d5	*94.0*			*11.0-135*		*08/15/2023 13:38*	WG2113397
(S) 2-Fluorobiphenyl	*59.5*			*32.0-120*		*08/15/2023 13:38*	WG2113397
(S) p-Terphenyl-d14	*43.0*			*23.0-122*		*08/15/2023 13:38*	WG2113397

Metals (ICP) by Method 6010D

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Lead	7.09		2.99	6.00	1	08/18/2023 10:42	WG2113306

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	6730	B	1440	5000	50	08/21/2023 03:12	WG2117350
(S) a,a,a-Trifluorotoluene(FID)	*87.7*			*50.0-150*		*08/21/2023 03:12*	WG2117350

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		565	2500	50	08/16/2023 08:19	WG2114642
1,2,3-Trichloropropane	U		2.00	5.00	1000	08/23/2023 14:02	WG2115859
Acrolein	U		127	2500	50	08/16/2023 08:19	WG2114642
Acrylonitrile	U		33.6	500	50	08/16/2023 08:19	WG2114642
Benzene	U		4.71	50.0	50	08/16/2023 08:19	WG2114642
Bromobenzene	U		5.90	50.0	50	08/16/2023 08:19	WG2114642
Bromochloromethane	U		6.40	50.0	50	08/16/2023 08:19	WG2114642
Bromodichloromethane	U		6.80	50.0	50	08/16/2023 08:19	WG2114642
Bromoform	U		6.45	50.0	50	08/16/2023 08:19	WG2114642
Bromomethane	U		30.3	250	50	08/16/2023 08:19	WG2114642
n-Butylbenzene	U		7.85	50.0	50	08/16/2023 08:19	WG2114642
sec-Butylbenzene	U		6.25	50.0	50	08/16/2023 08:19	WG2114642
tert-Butylbenzene	U		6.35	50.0	50	08/16/2023 08:19	WG2114642
Carbon disulfide	U		4.81	50.0	50	08/16/2023 08:19	WG2114642
Carbon tetrachloride	U		6.40	50.0	50	08/16/2023 08:19	WG2114642
Chlorobenzene	U		5.80	50.0	50	08/16/2023 08:19	WG2114642
Chlorodibromomethane	U		7.00	50.0	50	08/16/2023 08:19	WG2114642
Chloroethane	U		9.60	250	50	08/16/2023 08:19	WG2114642
Chloroform	U		5.55	250	50	08/16/2023 08:19	WG2114642
Chloromethane	U		48.0	125	50	08/16/2023 08:19	WG2114642
2-Chlorotoluene	U		5.30	50.0	50	08/16/2023 08:19	WG2114642
4-Chlorotoluene	U		5.70	50.0	50	08/16/2023 08:19	WG2114642
1,2-Dibromo-3-Chloropropane	U		13.8	250	50	08/16/2023 08:19	WG2114642
1,2-Dibromoethane	U		6.30	50.0	50	08/16/2023 08:19	WG2114642
Dibromomethane	U		6.10	50.0	50	08/16/2023 08:19	WG2114642
1,2-Dichlorobenzene	U		5.35	50.0	50	08/16/2023 08:19	WG2114642
1,3-Dichlorobenzene	U		5.50	50.0	50	08/16/2023 08:19	WG2114642
1,4-Dichlorobenzene	U		6.00	50.0	50	08/16/2023 08:19	WG2114642
Dichlorodifluoromethane	U		18.7	250	50	08/16/2023 08:19	WG2114642
1,1-Dichloroethane	U		5.00	50.0	50	08/16/2023 08:19	WG2114642
1,2-Dichloroethane	U		4.09	50.0	50	08/16/2023 08:19	WG2114642
1,1-Dichloroethene	U		9.40	50.0	50	08/16/2023 08:19	WG2114642
cis-1,2-Dichloroethene	U		6.30	50.0	50	08/16/2023 08:19	WG2114642
trans-1,2-Dichloroethene	U		7.45	50.0	50	08/16/2023 08:19	WG2114642
1,2-Dichloropropane	U		7.45	50.0	50	08/16/2023 08:19	WG2114642
1,1-Dichloropropene	U		7.10	50.0	50	08/16/2023 08:19	WG2114642
1,3-Dichloropropane	U		5.50	50.0	50	08/16/2023 08:19	WG2114642
cis-1,3-Dichloropropene	U		5.55	50.0	50	08/16/2023 08:19	WG2114642
trans-1,3-Dichloropropene	U		5.90	50.0	50	08/16/2023 08:19	WG2114642
2,2-Dichloropropane	U		8.05	50.0	50	08/16/2023 08:19	WG2114642
Di-isopropyl ether	U		5.25	50.0	50	08/16/2023 08:19	WG2114642
Ethylbenzene	U		6.85	50.0	50	08/16/2023 08:19	WG2114642
Hexachloro-1,3-butadiene	U		16.9	50.0	50	08/16/2023 08:19	WG2114642

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Isopropylbenzene	U		5.25	50.0	50	08/16/2023 08:19	WG2114642
p-Isopropyltoluene	U		6.00	50.0	50	08/16/2023 08:19	WG2114642
2-Butanone (MEK)	U		59.5	500	50	08/16/2023 08:19	WG2114642
Methylene Chloride	U		21.5	250	50	08/16/2023 08:19	WG2114642
4-Methyl-2-pentanone (MIBK)	U		23.9	500	50	08/16/2023 08:19	WG2114642
Methyl tert-butyl ether	U		5.05	50.0	50	08/16/2023 08:19	WG2114642
Naphthalene	U		50.0	250	50	08/16/2023 08:19	WG2114642
n-Propylbenzene	U		4.97	50.0	50	08/16/2023 08:19	WG2114642
Styrene	U		5.90	50.0	50	08/16/2023 08:19	WG2114642
1,1,1,2-Tetrachloroethane	U		7.35	50.0	50	08/16/2023 08:19	WG2114642
1,1,2,2-Tetrachloroethane	U		6.65	50.0	50	08/16/2023 08:19	WG2114642
1,1,2-Trichlorotrifluoroethane	U		9.00	50.0	50	08/16/2023 08:19	WG2114642
Tetrachloroethene	U		15.0	50.0	50	08/16/2023 08:19	WG2114642
Toluene	U		13.9	50.0	50	08/16/2023 08:19	WG2114642
1,2,3-Trichlorobenzene	U		11.5	50.0	50	08/16/2023 08:19	WG2114642
1,2,4-Trichlorobenzene	U		24.1	50.0	50	08/16/2023 08:19	WG2114642
1,1,1-Trichloroethane	U		7.45	50.0	50	08/16/2023 08:19	WG2114642
1,1,2-Trichloroethane	U		7.90	50.0	50	08/16/2023 08:19	WG2114642
Trichloroethene	U		9.50	50.0	50	08/16/2023 08:19	WG2114642
Trichlorofluoromethane	U		8.00	250	50	08/16/2023 08:19	WG2114642
1,2,3-Trichloropropane	U		11.9	125	50	08/16/2023 08:19	WG2114642
1,2,4-Trimethylbenzene	82.1		16.1	50.0	50	08/16/2023 08:19	WG2114642
1,2,3-Trimethylbenzene	105		5.20	50.0	50	08/16/2023 08:19	WG2114642
1,3,5-Trimethylbenzene	62.7		5.20	50.0	50	08/16/2023 08:19	WG2114642
Vinyl chloride	U		11.7	50.0	50	08/16/2023 08:19	WG2114642
Xylenes, Total	66.1	J	8.70	150	50	08/16/2023 08:19	WG2114642
o-Xylene	U		8.70	50.0	50	08/16/2023 08:19	WG2114642
m&p-Xylene	66.1	J	21.5	100	50	08/16/2023 08:19	WG2114642
(S) Toluene-d8	*107*			*80.0-120*		*08/16/2023 08:19*	WG2114642
(S) 4-Bromofluorobenzene	*100*			*77.0-126*		*08/16/2023 08:19*	WG2114642
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*		*08/16/2023 08:19*	WG2114642

Sample Narrative:

L1645654-02 WG2114642, WG2115859: Non-target compounds too high to run at a lower dilution.

EDB / DBCP by Method 8011

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Ethylene Dibromide	U		0.00552	0.0206	1.03	08/16/2023 23:23	WG2114515

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	9670		179	840	1.05	08/23/2023 16:17	WG2117861
AK103 RRO C25-C36	668	J J4	483	840	1.05	08/23/2023 16:17	WG2117861
(S) o-Terphenyl	*63.6*			*50.0-150*		*08/23/2023 16:17*	WG2117861
(S) n-Triacontane d62	*31.6*	J2		*50.0-150*		*08/23/2023 16:17*	WG2117861

Semi-Volatile Organic Compounds (GC) by Method AK102SGT

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
AK102 DRO C10-C25	3830		170	800	1	08/24/2023 04:00	WG2117862
(S) o-Terphenyl	*59.7*			*50.0-150*		*08/24/2023 04:00*	WG2117862

Semi Volatile Organic Compounds (GC/MS) by Method 8270E-SIM

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Anthracene	U		0.0190	0.0500	1	08/15/2023 13:56	WG2113397
Acenaphthene	0.386		0.0190	0.0500	1	08/15/2023 13:56	WG2113397
Acenaphthylene	U		0.0170	0.0500	1	08/15/2023 13:56	WG2113397
Benzo(a)anthracene	U		0.0200	0.0500	1	08/15/2023 13:56	WG2113397
Benzo(a)pyrene	U		0.0180	0.0500	1	08/15/2023 13:56	WG2113397
Benzo(b)fluoranthene	U		0.0170	0.0500	1	08/15/2023 13:56	WG2113397
Benzo(g,h,i)perylene	U		0.0180	0.0500	1	08/15/2023 13:56	WG2113397
Benzo(k)fluoranthene	U		0.0200	0.250	1	08/15/2023 13:56	WG2113397
Chrysene	U		0.0180	0.0500	1	08/15/2023 13:56	WG2113397
Dibenz(a,h)anthracene	U		0.0180	0.0500	1	08/15/2023 13:56	WG2113397
Fluoranthene	U		0.0110	0.0500	1	08/15/2023 13:56	WG2113397
Fluorene	0.489		0.0170	0.0500	1	08/15/2023 13:56	WG2113397
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500	1	08/15/2023 13:56	WG2113397
Naphthalene	2.60		0.128	0.500	1	08/15/2023 13:56	WG2113397
Phenanthrene	U		0.0180	0.0500	1	08/15/2023 13:56	WG2113397
Pyrene	U		0.0170	0.0500	1	08/15/2023 13:56	WG2113397
1-Methylnaphthalene	1.86		0.0200	0.500	1	08/15/2023 13:56	WG2113397
2-Methylnaphthalene	0.112	J	0.0280	0.500	1	08/15/2023 13:56	WG2113397
2-Chloronaphthalene	U		0.0120	0.500	1	08/15/2023 13:56	WG2113397
(S) Nitrobenzene-d5	*70.0*			*11.0-135*		*08/15/2023 13:56*	WG2113397
(S) 2-Fluorobiphenyl	*61.0*			*32.0-120*		*08/15/2023 13:56*	WG2113397
(S) p-Terphenyl-d14	*54.0*			*23.0-122*		*08/15/2023 13:56*	WG2113397

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
TPHGAK C6 to C10	43.6	B J	28.7	100	1	08/20/2023 21:57	WG2117350
(S) a,a,a-Trifluorotoluene(FID)	*88.4*			*50.0-150*		*08/20/2023 21:57*	WG2117350

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	U		11.3	50.0	1	08/16/2023 02:30	WG2114642
1,2,3-Trichloropropane	U		0.00200	0.00500	1	08/14/2023 14:33	WG2113515
Acrolein	U		2.54	50.0	1	08/16/2023 02:30	WG2114642
Acrylonitrile	U		0.671	10.0	1	08/16/2023 02:30	WG2114642
Benzene	U		0.0941	1.00	1	08/16/2023 02:30	WG2114642
Bromobenzene	U		0.118	1.00	1	08/16/2023 02:30	WG2114642
Bromochloromethane	U		0.128	1.00	1	08/16/2023 02:30	WG2114642
Bromodichloromethane	U		0.136	1.00	1	08/16/2023 02:30	WG2114642
Bromoform	U		0.129	1.00	1	08/16/2023 02:30	WG2114642
Bromomethane	U		0.605	5.00	1	08/16/2023 02:30	WG2114642
n-Butylbenzene	U		0.157	1.00	1	08/16/2023 02:30	WG2114642
sec-Butylbenzene	U		0.125	1.00	1	08/16/2023 02:30	WG2114642
tert-Butylbenzene	U		0.127	1.00	1	08/16/2023 02:30	WG2114642
Carbon disulfide	U		0.0962	1.00	1	08/16/2023 02:30	WG2114642
Carbon tetrachloride	U		0.128	1.00	1	08/16/2023 02:30	WG2114642
Chlorobenzene	U		0.116	1.00	1	08/16/2023 02:30	WG2114642
Chlorodibromomethane	U		0.140	1.00	1	08/16/2023 02:30	WG2114642
Chloroethane	U		0.192	5.00	1	08/16/2023 02:30	WG2114642
Chloroform	U		0.111	5.00	1	08/16/2023 02:30	WG2114642
Chloromethane	U		0.960	2.50	1	08/16/2023 02:30	WG2114642
2-Chlorotoluene	U		0.106	1.00	1	08/16/2023 02:30	WG2114642
4-Chlorotoluene	U		0.114	1.00	1	08/16/2023 02:30	WG2114642
1,2-Dibromo-3-Chloropropane	U		0.276	5.00	1	08/16/2023 02:30	WG2114642
1,2-Dibromoethane	U		0.126	1.00	1	08/16/2023 02:30	WG2114642
Dibromomethane	U		0.122	1.00	1	08/16/2023 02:30	WG2114642
1,2-Dichlorobenzene	U		0.107	1.00	1	08/16/2023 02:30	WG2114642
1,3-Dichlorobenzene	U		0.110	1.00	1	08/16/2023 02:30	WG2114642
1,4-Dichlorobenzene	U		0.120	1.00	1	08/16/2023 02:30	WG2114642
Dichlorodifluoromethane	U		0.374	5.00	1	08/16/2023 02:30	WG2114642
1,1-Dichloroethane	U		0.100	1.00	1	08/16/2023 02:30	WG2114642
1,2-Dichloroethane	U		0.0819	1.00	1	08/16/2023 02:30	WG2114642
1,1-Dichloroethene	U		0.188	1.00	1	08/16/2023 02:30	WG2114642
cis-1,2-Dichloroethene	U		0.126	1.00	1	08/16/2023 02:30	WG2114642
trans-1,2-Dichloroethene	U		0.149	1.00	1	08/16/2023 02:30	WG2114642
1,2-Dichloropropane	U		0.149	1.00	1	08/16/2023 02:30	WG2114642
1,1-Dichloropropene	U		0.142	1.00	1	08/16/2023 02:30	WG2114642
1,3-Dichloropropane	U		0.110	1.00	1	08/16/2023 02:30	WG2114642
cis-1,3-Dichloropropene	U		0.111	1.00	1	08/16/2023 02:30	WG2114642
trans-1,3-Dichloropropene	U		0.118	1.00	1	08/16/2023 02:30	WG2114642
2,2-Dichloropropane	U		0.161	1.00	1	08/16/2023 02:30	WG2114642
Di-isopropyl ether	U		0.105	1.00	1	08/16/2023 02:30	WG2114642
Ethylbenzene	U		0.137	1.00	1	08/16/2023 02:30	WG2114642
Hexachloro-1,3-butadiene	U		0.337	1.00	1	08/16/2023 02:30	WG2114642
Isopropylbenzene	U		0.105	1.00	1	08/16/2023 02:30	WG2114642
p-Isopropyltoluene	U		0.120	1.00	1	08/16/2023 02:30	WG2114642
2-Butanone (MEK)	U		1.19	10.0	1	08/16/2023 02:30	WG2114642
Methylene Chloride	U		0.430	5.00	1	08/16/2023 02:30	WG2114642
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0	1	08/16/2023 02:30	WG2114642
Methyl tert-butyl ether	U		0.101	1.00	1	08/16/2023 02:30	WG2114642

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Naphthalene	U		1.00	5.00	1	08/16/2023 02:30	WG2114642
n-Propylbenzene	U		0.0993	1.00	1	08/16/2023 02:30	WG2114642
Styrene	U		0.118	1.00	1	08/16/2023 02:30	WG2114642
1,1,1,2-Tetrachloroethane	U		0.147	1.00	1	08/16/2023 02:30	WG2114642
1,1,2,2-Tetrachloroethane	U		0.133	1.00	1	08/16/2023 02:30	WG2114642
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00	1	08/16/2023 02:30	WG2114642
Tetrachloroethene	U		0.300	1.00	1	08/16/2023 02:30	WG2114642
Toluene	U		0.278	1.00	1	08/16/2023 02:30	WG2114642
1,2,3-Trichlorobenzene	U		0.230	1.00	1	08/16/2023 02:30	WG2114642
1,2,4-Trichlorobenzene	U		0.481	1.00	1	08/16/2023 02:30	WG2114642
1,1,1-Trichloroethane	U		0.149	1.00	1	08/16/2023 02:30	WG2114642
1,1,2-Trichloroethane	U		0.158	1.00	1	08/16/2023 02:30	WG2114642
Trichloroethene	U		0.190	1.00	1	08/16/2023 02:30	WG2114642
Trichlorofluoromethane	U		0.160	5.00	1	08/16/2023 02:30	WG2114642
1,2,3-Trichloropropane	U		0.237	2.50	1	08/16/2023 02:30	WG2114642
1,2,4-Trimethylbenzene	U		0.322	1.00	1	08/16/2023 02:30	WG2114642
1,2,3-Trimethylbenzene	U		0.104	1.00	1	08/16/2023 02:30	WG2114642
1,3,5-Trimethylbenzene	U		0.104	1.00	1	08/16/2023 02:30	WG2114642
Vinyl chloride	U		0.234	1.00	1	08/16/2023 02:30	WG2114642
Xylenes, Total	U		0.174	3.00	1	08/16/2023 02:30	WG2114642
o-Xylene	U		0.174	1.00	1	08/16/2023 02:30	WG2114642
m&p-Xylene	U		0.430	2.00	1	08/16/2023 02:30	WG2114642
(S) Toluene-d8	*109*			*80.0-120*		*08/16/2023 02:30*	WG2114642
(S) 4-Bromofluorobenzene	*95.6*			*77.0-126*		*08/16/2023 02:30*	WG2114642
(S) 1,2-Dichloroethane-d4	*105*			*70.0-130*		*08/16/2023 02:30*	WG2114642

EDB / DBCP by Method 8011

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Ethylene Dibromide	U		0.00547	0.0204	1.02	08/16/2023 23:37	WG2114515

Method Blank (MB)

(MB) R3962514-1 08/18/23 09:33

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Lead	U		2.99	6.00

Laboratory Control Sample (LCS)

(LCS) R3962514-2 08/18/23 09:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Lead	1000	925	92.5	80.0-120	

L1645337-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645337-03 08/18/23 09:39 • (MS) R3962514-4 08/18/23 09:44 • (MSD) R3962514-5 08/18/23 09:47

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Lead	1000	U	933	933	93.3	93.3	1	75.0-125			0.0772	20

Method Blank (MB)

(MB) R3963966-3 08/20/23 13:33

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	56.8	J	28.7	100
(S) a,a,a-Trifluorotoluene(FID)	*93.4*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3963966-1 08/20/23 12:24 • (LCSD) R3963966-2 08/20/23 12:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	3900	3860	78.0	77.2	60.0-120			1.03	20
(S) a,a,a-Trifluorotoluene(FID)				*98.6*	*95.2*	*60.0-120*				

Method Blank (MB)

(MB) R3963967-3 08/20/23 13:33

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	56.8	J	28.7	100
(S) a,a,a-Trifluorotoluene(FID)	*93.4*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3963967-1 08/20/23 12:24 • (LCSD) R3963967-2 08/20/23 12:47

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	3900	3860	78.0	77.2	60.0-120			1.03	20
(S) a,a,a-Trifluorotoluene(FID)				*98.6*	*95.2*	*60.0-120*				

L1646366-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1646366-03 08/21/23 02:27 • (MS) R3963967-4 08/21/23 03:35 • (MSD) R3963967-5 08/21/23 03:57

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	155	3530	3370	67.5	64.3	1	70.0-130	J6	J6	4.64	20
(S) a,a,a-Trifluorotoluene(FID)					*96.1*	*95.9*		*50.0-150*				

Method Blank (MB)

(MB) R3961822-2 08/14/23 10:46

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,2,3-Trichloropropane	U		0.00200	0.00500

Laboratory Control Sample (LCS)

(LCS) R3961822-1 08/14/23 10:22

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,3-Trichloropropane	0.0500	0.0510	102	70.0-130	

L1645337-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645337-03 08/14/23 18:32 • (MS) R3961822-3 08/14/23 21:19 • (MSD) R3961822-4 08/14/23 21:43

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,2,3-Trichloropropane	0.0500	U	0.0520	0.0510	104	102	1	70.0-130			1.94	20

Method Blank (MB)

(MB) R3961638-3 08/15/23 22:42

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		11.3	50.0
Acrolein	U		2.54	50.0
Acrylonitrile	U		0.671	10.0
Benzene	U		0.0941	1.00
Bromobenzene	U		0.118	1.00
Bromochloromethane	U		0.128	1.00
Bromodichloromethane	U		0.136	1.00
Bromoform	U		0.129	1.00
Bromomethane	U		0.605	5.00
n-Butylbenzene	U		0.157	1.00
sec-Butylbenzene	U		0.125	1.00
tert-Butylbenzene	U		0.127	1.00
Carbon disulfide	U		0.0962	1.00
Carbon tetrachloride	U		0.128	1.00
Chlorobenzene	U		0.116	1.00
Chlorodibromomethane	U		0.140	1.00
Chloroethane	U		0.192	5.00
Chloroform	U		0.111	5.00
Chloromethane	U		0.960	2.50
2-Chlorotoluene	U		0.106	1.00
4-Chlorotoluene	U		0.114	1.00
1,2-Dibromo-3-Chloropropane	U		0.276	5.00
1,2-Dibromoethane	U		0.126	1.00
Dibromomethane	U		0.122	1.00
1,2-Dichlorobenzene	U		0.107	1.00
1,3-Dichlorobenzene	U		0.110	1.00
1,4-Dichlorobenzene	U		0.120	1.00
Dichlorodifluoromethane	U		0.374	5.00
1,1-Dichloroethane	U		0.100	1.00
1,2-Dichloroethane	U		0.0819	1.00
1,1-Dichloroethene	U		0.188	1.00
cis-1,2-Dichloroethene	U		0.126	1.00
trans-1,2-Dichloroethene	U		0.149	1.00
1,2-Dichloropropane	U		0.149	1.00
1,1-Dichloropropene	U		0.142	1.00
1,3-Dichloropropane	U		0.110	1.00
cis-1,3-Dichloropropene	U		0.111	1.00
trans-1,3-Dichloropropene	U		0.118	1.00
2,2-Dichloropropane	U		0.161	1.00
Di-isopropyl ether	U		0.105	1.00

Method Blank (MB)

(MB) R3961638-3 08/15/23 22:42

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylbenzene	U		0.137	1.00
Hexachloro-1,3-butadiene	U		0.337	1.00
Isopropylbenzene	U		0.105	1.00
p-Isopropyltoluene	U		0.120	1.00
2-Butanone (MEK)	U		1.19	10.0
Methylene Chloride	U		0.430	5.00
4-Methyl-2-pentanone (MIBK)	U		0.478	10.0
Methyl tert-butyl ether	U		0.101	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.0993	1.00
Styrene	U		0.118	1.00
1,1,1,2-Tetrachloroethane	U		0.147	1.00
1,1,2,2-Tetrachloroethane	U		0.133	1.00
1,1,2-Trichlorotrifluoroethane	U		0.180	1.00
Tetrachloroethene	U		0.300	1.00
Toluene	U		0.278	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.481	1.00
1,1,1-Trichloroethane	U		0.149	1.00
1,1,2-Trichloroethane	U		0.158	1.00
Trichloroethene	U		0.190	1.00
Trichlorofluoromethane	U		0.160	5.00
1,2,3-Trichloropropane	U		0.237	2.50
1,2,4-Trimethylbenzene	U		0.322	1.00
1,2,3-Trimethylbenzene	U		0.104	1.00
1,3,5-Trimethylbenzene	U		0.104	1.00
Vinyl chloride	U		0.234	1.00
Xylenes, Total	U		0.174	3.00
o-Xylene	U		0.174	1.00
m&p-Xylene	U		0.430	2.00
(S) Toluene-d8	*110*			*80.0-120*
(S) 4-Bromofluorobenzene	*95.5*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*108*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3961638-1 08/15/23 21:14 • (LCSD) R3961638-2 08/15/23 21:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	25.0	27.5	30.7	110	123	19.0-160			11.0	27
Acrolein	25.0	25.8	20.2	103	80.8	10.0-160			24.3	26
Acrylonitrile	25.0	26.0	26.5	104	106	55.0-149			1.90	20
Benzene	5.00	4.88	4.64	97.6	92.8	70.0-123			5.04	20
Bromobenzene	5.00	5.17	5.00	103	100	73.0-121			3.34	20
Bromochloromethane	5.00	4.51	4.65	90.2	93.0	76.0-122			3.06	20
Bromodichloromethane	5.00	5.04	5.17	101	103	75.0-120			2.55	20
Bromoform	5.00	4.07	4.35	81.4	87.0	68.0-132			6.65	20
Bromomethane	5.00	6.74	6.06	135	121	10.0-160			10.6	25
n-Butylbenzene	5.00	4.74	5.19	94.8	104	73.0-125			9.06	20
sec-Butylbenzene	5.00	4.89	5.26	97.8	105	75.0-125			7.29	20
tert-Butylbenzene	5.00	4.99	5.10	99.8	102	76.0-124			2.18	20
Carbon disulfide	5.00	4.57	4.59	91.4	91.8	61.0-128			0.437	20
Carbon tetrachloride	5.00	4.92	4.88	98.4	97.6	68.0-126			0.816	20
Chlorobenzene	5.00	4.58	4.92	91.6	98.4	80.0-121			7.16	20
Chlorodibromomethane	5.00	4.29	4.48	85.8	89.6	77.0-125			4.33	20
Chloroethane	5.00	6.92	6.58	138	132	47.0-150			5.04	20
Chloroform	5.00	4.90	5.16	98.0	103	73.0-120			5.17	20
Chloromethane	5.00	5.69	5.51	114	110	41.0-142			3.21	20
2-Chlorotoluene	5.00	5.10	5.19	102	104	76.0-123			1.75	20
4-Chlorotoluene	5.00	5.24	4.96	105	99.2	75.0-122			5.49	20
1,2-Dibromo-3-Chloropropane	5.00	4.26	4.92	85.2	98.4	58.0-134			14.4	20
1,2-Dibromoethane	5.00	4.64	4.65	92.8	93.0	80.0-122			0.215	20
Dibromomethane	5.00	5.25	4.95	105	99.0	80.0-120			5.88	20
1,2-Dichlorobenzene	5.00	4.92	4.91	98.4	98.2	79.0-121			0.203	20
1,3-Dichlorobenzene	5.00	4.88	4.84	97.6	96.8	79.0-120			0.823	20
1,4-Dichlorobenzene	5.00	4.70	4.96	94.0	99.2	79.0-120			5.38	20
Dichlorodifluoromethane	5.00	5.72	4.93	114	98.6	51.0-149			14.8	20
1,1-Dichloroethane	5.00	4.85	4.94	97.0	98.8	70.0-126			1.84	20
1,2-Dichloroethane	5.00	5.43	5.12	109	102	70.0-128			5.88	20
1,1-Dichloroethene	5.00	4.73	4.96	94.6	99.2	71.0-124			4.75	20
cis-1,2-Dichloroethene	5.00	4.65	4.89	93.0	97.8	73.0-120			5.03	20
trans-1,2-Dichloroethene	5.00	4.92	4.89	98.4	97.8	73.0-120			0.612	20
1,2-Dichloropropane	5.00	4.98	4.95	99.6	99.0	77.0-125			0.604	20
1,1-Dichloropropene	5.00	5.09	4.98	102	99.6	74.0-126			2.18	20
1,3-Dichloropropane	5.00	4.72	4.80	94.4	96.0	80.0-120			1.68	20
cis-1,3-Dichloropropene	5.00	4.71	4.61	94.2	92.2	80.0-123			2.15	20
trans-1,3-Dichloropropene	5.00	4.61	4.43	92.2	88.6	78.0-124			3.98	20
2,2-Dichloropropane	5.00	5.32	5.15	106	103	58.0-130			3.25	20
Di-isopropyl ether	5.00	5.11	4.88	102	97.6	58.0-138			4.60	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3961638-1 08/15/23 21:14 • (LCSD) R3961638-2 08/15/23 21:36

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylbenzene	5.00	4.73	4.53	94.6	90.6	79.0-123			4.32	20
Hexachloro-1,3-butadiene	5.00	4.99	5.83	99.8	117	54.0-138			15.5	20
Isopropylbenzene	5.00	4.49	4.63	89.8	92.6	76.0-127			3.07	20
p-Isopropyltoluene	5.00	4.98	4.88	99.6	97.6	76.0-125			2.03	20
2-Butanone (MEK)	25.0	24.9	24.9	99.6	99.6	44.0-160			0.000	20
Methylene Chloride	5.00	4.98	5.09	99.6	102	67.0-120			2.18	20
4-Methyl-2-pentanone (MIBK)	25.0	24.6	24.5	98.4	98.0	68.0-142			0.407	20
Methyl tert-butyl ether	5.00	4.90	5.05	98.0	101	68.0-125			3.02	20
Naphthalene	5.00	4.64	4.89	92.8	97.8	54.0-135			5.25	20
n-Propylbenzene	5.00	5.12	5.11	102	102	77.0-124			0.196	20
Styrene	5.00	4.44	4.52	88.8	90.4	73.0-130			1.79	20
1,1,1,2-Tetrachloroethane	5.00	4.55	4.57	91.0	91.4	75.0-125			0.439	20
1,1,2,2-Tetrachloroethane	5.00	5.36	5.39	107	108	65.0-130			0.558	20
1,1,2-Trichlorotrifluoroethane	5.00	4.91	4.80	98.2	96.0	69.0-132			2.27	20
Tetrachloroethene	5.00	4.32	4.16	86.4	83.2	72.0-132			3.77	20
Toluene	5.00	4.56	4.61	91.2	92.2	79.0-120			1.09	20
1,2,3-Trichlorobenzene	5.00	5.32	5.26	106	105	50.0-138			1.13	20
1,2,4-Trichlorobenzene	5.00	5.14	4.71	103	94.2	57.0-137			8.73	20
1,1,1-Trichloroethane	5.00	5.07	5.03	101	101	73.0-124			0.792	20
1,1,2-Trichloroethane	5.00	4.84	4.78	96.8	95.6	80.0-120			1.25	20
Trichloroethene	5.00	4.70	4.67	94.0	93.4	78.0-124			0.640	20
Trichlorofluoromethane	5.00	6.25	6.10	125	122	59.0-147			2.43	20
1,2,3-Trichloropropane	5.00	5.06	5.00	101	100	73.0-130			1.19	20
1,2,4-Trimethylbenzene	5.00	5.06	5.16	101	103	76.0-121			1.96	20
1,2,3-Trimethylbenzene	5.00	4.83	5.14	96.6	103	77.0-120			6.22	20
1,3,5-Trimethylbenzene	5.00	4.88	4.98	97.6	99.6	76.0-122			2.03	20
Vinyl chloride	5.00	6.29	6.44	126	129	67.0-131			2.36	20
Xylenes, Total	15.0	13.9	13.4	92.7	89.3	79.0-123			3.66	20
o-Xylene	5.00	4.60	4.41	92.0	88.2	80.0-122			4.22	20
m&p-Xylene	10.0	9.32	9.01	93.2	90.1	80.0-122			3.38	20
(S) Toluene-d8				*107*	*103*	*80.0-120*				
(S) 4-Bromofluorobenzene				*95.6*	*95.1*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*111*	*114*	*70.0-130*				

Method Blank (MB)

(MB) R3964939-2 08/23/23 09:29

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
1,2,3-Trichloropropane	U		0.00200	0.00500

Laboratory Control Sample (LCS)

(LCS) R3964939-1 08/23/23 09:05

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,2,3-Trichloropropane	0.0500	0.0500	100	70.0-130	

QUALITY CONTROL SUMMARY

L1645654-01,02,03

Method Blank (MB)

(MB) R3963278-1 08/16/23 19:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylene Dibromide	U		0.00536	0.0200

L1645653-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1645653-02 08/16/23 19:58 • (DUP) R3963278-3 08/16/23 19:45

Analyte	Original Result ug/l	DUP Result ug/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Ethylene Dibromide	U	U	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3963278-4 08/16/23 22:05 • (LCSD) R3963278-5 08/17/23 00:53

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Ethylene Dibromide	0.250	0.229	0.238	91.6	95.2	60.0-140			3.85	20

L1645653-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L1645653-01 08/16/23 19:33 • (MS) R3963278-2 08/16/23 19:20

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Ethylene Dibromide	0.106	U	0.105	99.1	1.06	64.0-159	

Method Blank (MB)

(MB) R3964865-1 08/23/23 13:36

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
AK102 DRO C10-C25	U		170	800
AK103 RRO C25-C36	U		460	800
(S) o-Terphenyl	*93.8*			*60.0-120*
(S) n-Triacontane d62	*46.7*	J2		*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3964865-2 08/23/23 13:56 • (LCSD) R3964865-3 08/23/23 14:16

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK102 DRO C10-C25	6000	5220	5160	87.0	86.0	75.0-125			1.16	20
(S) o-Terphenyl				*113*	*115*	*60.0-120*				
(S) n-Triacontane d62				*49.9*	*49.8*	*60.0-120*	J2	J2		

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3964865-4 08/23/23 14:36 • (LCSD) R3964865-5 08/23/23 14:57

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
AK103 RRO C25-C36	6000	2830	3210	47.2	53.5	60.0-120	J4	J4	12.6	20
(S) o-Terphenyl				*108*	*126*	*60.0-120*		J1		
(S) n-Triacontane d62				*46.3*	*52.5*	*60.0-120*	J2	J2		

L1646852-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1646852-07 08/24/23 03:00 • (MS) R3964865-6 08/23/23 19:59 • (MSD) R3964865-7 08/23/23 20:19

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	ug/l	%	%		%			%	%
AK102 DRO C10-C25	6000	1280	5370	5680	68.2	73.3	1	75.0-125	J6	J6	5.61	20
(S) o-Terphenyl					*75.5*	*107*		*50.0-150*				
(S) n-Triacontane d62					*48.5*	*51.5*		*50.0-150*	J2			

L1646852-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1646852-07 08/24/23 03:00 • (MS) R3964865-8 08/23/23 20:39 • (MSD) R3964865-9 08/23/23 20:59

Analyte	Spike Amount ug/l	Original Result	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
AK103 RRO C25-C36	6000		3260	2910	54.3	48.5	1	60.0-120	J6	J6	11.3	20
(S) o-Terphenyl					*94.3*	*98.1*		*50.0-150*				
(S) n-Triacontane d62					*54.5*	*43.7*		*50.0-150*		J2		

Method Blank (MB)

(MB) R3964866-1 08/23/23 12:35

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
AK102 DRO C10-C25	177	J	170	800
(S) o-Terphenyl	*82.0*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3964866-2 08/23/23 12:55 • (LCSD) R3964866-3 08/23/23 13:15

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6000	4520	4780	75.3	79.7	75.0-125			5.59	20
(S) o-Terphenyl				*91.5*	*94.6*	*60.0-120*				

L1646852-07 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1646852-07 08/24/23 03:00 • (MS) R3964866-4 08/24/23 03:20 • (MSD) R3964866-5 08/24/23 03:40

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6000	1280	4870	4400	59.8	52.0	1	75.0-125	J6	J6	10.1	20
(S) o-Terphenyl					*94.0*	*64.7*		*50.0-150*				

Method Blank (MB)

(MB) R3961387-2 08/15/23 11:36

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Anthracene	U		0.0190	0.0500
Acenaphthene	U		0.0190	0.0500
Acenaphthylene	U		0.0170	0.0500
Benzo(a)anthracene	U		0.0200	0.0500
Benzo(a)pyrene	U		0.0180	0.0500
Benzo(b)fluoranthene	U		0.0170	0.0500
Benzo(g,h,i)perylene	U		0.0180	0.0500
Benzo(k)fluoranthene	U		0.0200	0.250
Chrysene	U		0.0180	0.0500
Dibenz(a,h)anthracene	U		0.0180	0.0500
Fluoranthene	U		0.0110	0.0500
Fluorene	U		0.0170	0.0500
Indeno(1,2,3-cd)pyrene	U		0.0180	0.0500
Naphthalene	U		0.128	0.500
Phenanthrene	U		0.0180	0.0500
Pyrene	U		0.0170	0.0500
1-Methylnaphthalene	U		0.0200	0.500
2-Methylnaphthalene	U		0.0280	0.500
2-Chloronaphthalene	U		0.0120	0.500
(S) Nitrobenzene-d5	*106*			*11.0-135*
(S) 2-Fluorobiphenyl	*84.0*			*32.0-120*
(S) p-Terphenyl-d14	*103*			*23.0-122*

Laboratory Control Sample (LCS)

(LCS) R3961387-1 08/15/23 11:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Anthracene	2.00	1.71	85.5	43.0-127	
Acenaphthene	2.00	1.67	83.5	42.0-120	
Acenaphthylene	2.00	1.71	85.5	43.0-120	
Benzo(a)anthracene	2.00	1.83	91.5	46.0-120	
Benzo(a)pyrene	2.00	1.77	88.5	44.0-122	
Benzo(b)fluoranthene	2.00	1.65	82.5	43.0-122	
Benzo(g,h,i)perylene	2.00	1.38	69.0	25.0-137	
Benzo(k)fluoranthene	2.00	1.56	78.0	39.0-128	
Chrysene	2.00	1.84	92.0	42.0-129	
Dibenz(a,h)anthracene	2.00	1.23	61.5	25.0-139	
Fluoranthene	2.00	1.81	90.5	48.0-131	

Laboratory Control Sample (LCS)

(LCS) R3961387-1 08/15/23 11:18

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Fluorene	2.00	1.68	84.0	42.0-120	
Indeno(1,2,3-cd)pyrene	2.00	1.65	82.5	37.0-133	
Naphthalene	2.00	1.68	84.0	30.0-120	
Phenanthrene	2.00	1.72	86.0	42.0-120	
Pyrene	2.00	1.87	93.5	38.0-124	
1-Methylnaphthalene	2.00	1.64	82.0	43.0-120	
2-Methylnaphthalene	2.00	1.67	83.5	40.0-120	
2-Chloronaphthalene	2.00	1.52	76.0	39.0-120	
(S) Nitrobenzene-d5			*108*	*11.0-135*	
(S) 2-Fluorobiphenyl			*83.0*	*32.0-120*	
(S) p-Terphenyl-d14			*93.5*	*23.0-122*	

L1645704-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645704-02 08/15/23 11:53 • (MS) R3961387-3 08/15/23 12:11 • (MSD) R3961387-4 08/15/23 12:28

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	1.82	U	1.03	0.820	56.6	45.1	1	28.0-120			22.7	25
Acenaphthene	1.82	1.51	2.58	2.20	58.8	37.9	1	16.0-120			15.9	25
Acenaphthylene	1.82	U	1.23	1.05	67.6	57.7	1	16.0-121			15.8	26
Benzo(a)anthracene	1.82	U	0.310	0.139	17.0	7.64	1	19.0-125	J6	J3 J6	76.2	26
Benzo(a)pyrene	1.82	U	0.0894	0.0298	4.91	1.64	1	10.0-126	J6	J3 J6	100	32
Benzo(b)fluoranthene	1.82	U	0.0965	0.0332	5.30	1.82	1	10.0-125	J6	J3 J6	97.6	36
Benzo(g,h,i)perylene	1.82	U	0.0389	U	2.14	0.000	1	10.0-128	J6	J3 J6	200	37
Benzo(k)fluoranthene	1.82	U	0.0781	0.0224	4.29	1.23	1	10.0-124	J6	J3 J6	111	32
Chrysene	1.82	U	0.313	0.135	17.2	7.42	1	18.0-127	J6	J3 J6	79.5	26
Dibenz(a,h)anthracene	1.82	U	0.0318	U	1.75	0.000	1	10.0-132	J6	J3 J6	200	43
Fluoranthene	1.82	U	0.703	0.466	38.6	25.6	1	37.0-122		J3 J6	40.5	23
Fluorene	1.82	1.94	3.10	2.60	63.7	36.3	1	20.0-120			17.5	26
Indeno(1,2,3-cd)pyrene	1.82	U	0.0367	U	2.02	0.000	1	10.0-130	J6	J3 J6	200	38
Naphthalene	1.82	190	197	168	385	0.000	1	14.0-120	E V	E V	15.9	20
Phenanthrene	1.82	1.42	2.46	1.95	57.1	29.1	1	26.0-120			23.1	24
Pyrene	1.82	U	0.757	0.495	41.6	27.2	1	29.0-120		J3 J6	41.9	24
1-Methylnaphthalene	1.82	45.5	49.2	41.7	203	0.000	1	10.0-145	V	V	16.5	24
2-Methylnaphthalene	1.82	58.0	62.5	51.6	247	0.000	1	10.0-143	V	V	19.1	24
2-Chloronaphthalene	1.82	U	0.997	0.842	54.8	46.3	1	16.0-120			16.9	25
(S) Nitrobenzene-d5					*251*	*227*		*11.0-135*	J1	J1		
(S) 2-Fluorobiphenyl					*56.0*	*46.6*		*32.0-120*				
(S) p-Terphenyl-d14					*37.6*	*24.2*		*23.0-122*				

L1645704-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645704-02 08/15/23 11:53 • (MS) R3961387-3 08/15/23 12:11 • (MSD) R3961387-4 08/15/23 12:28

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %

Sample Narrative:

OS: Surrogate failure due to matrix interference

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Arcadis - Chevron

Billing Information:
Attn: Accounts Payable
630 Plaza Dr. Ste. 600
Highlands Ranch, CO 80129

Pres Chk

Report to:
Nick Wood/Gantt Jeffers

Email To:
envorpnmentalDM-India@arcadis.com

Project Description: 306456

City/State Collected: **Fairbanks, AK**

Please Circle: PT MT CT ET (AK)

Phone: **907-276-8095**

Client Project # 30064226

Lab Project # **CHEVARCAK-306456**

Collected by (print): Gantt Jeffers

Site/Facility ID # 328 ½ Illinois Street

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day X 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed: **Standard**

Chain of Custody Page 1 of 1

Pace
PEOPLE ADVANCING SCIENCE

12065 Lebanon Rd Mount Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # 164564
1149

Acctnum:
Template:
Prelogin:
PM:
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	123TCP 524LL 40mlAmb-HCL	AK101 40mlAmb HCL	AK102 w/ SGC 100 ml Amb HCL	AK102/103 no SGC 100 ml Amb HCL	EDB 8011 40mlClr-NaThio	PAHs 8270SIM 100 ml Amb-NoPres	Total Lead 6010 250mlHDPE-HNO3	VOCs 8260 40mlAmb-HCL			Remarks	Sample # (lab only)
GEI-7R-W-20230809	G	GW	—	8/9/23	1335	18	X	X	X	X	X	X	X	X				-01
BD-1-W-20230809	↓	↓	—	↓	—	18	↓	↓	↓	↓	↓	↓	↓	↓				-02
TB-1	—	↓	—	—	—	—	↓	↓			↓			↓				-03

* Matrix:
SS - Soil **AIR** - Air **F** - Filter
GW - Groundwater **B** - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:

pH _____ Temp _____
Flow _____ Other _____

Samples returned via:
__ UPS X FedEx __ Courier __ _____

Tracking # 6525 5571 9148

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	8/11/23	1200		4
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received:
				GBAB 4.5+0:4.5
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: Time:
				8/12/23 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Appendix F

ADEC Data Review Checklist

Laboratory Data Review Checklist

Completed By:

Bhagyashree A Fulzele

Title:

Project Chemist

Date:

September 12, 2023

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1636957

Laboratory Report Date:

07/30/2023

CS Site Name:

306456 MW Decom Install Report

ADEC File Number:

102.38.004

Hazard Identification Number:

733

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:

Yes.

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

Yes☐ No☐ N/A☒ Comments:

Not applicable.

2. Chain of Custody (CoC)

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

Yes☒ No☐ N/A☐ Comments:

Yes.

b. Were the correct analyses requested?

Yes☒ No☐ N/A☐ Comments:

Yes.

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☐ Comments:

Yes.

b. Is the sample preservation acceptable – acidified waters, methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes☒ No☐ N/A☐ Comments:

Yes.

c. Is the sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials); canister vacuum/pressure checked and no open valves etc?

Yes☒ No☐ N/A☐ Comments:

Yes.

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:

Yes, no discrepancies.

e. Is the data quality or usability affected?

Comments:

Data quality or usability was not affected.

4. Case Narrative

a. Is the case narrative present and understandable?

Yes☒ No☐ N/A☐ Comments:

Yes.

b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Yes.

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Comments:

Data quality/usability was not affected.

5. Samples Results

a. Are the correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

Yes.

b. Are all applicable holding times met?

Yes☐ No☒ N/A☐ Comments:

Sample Locations	Method	Holding Time	Criteria
GEI-6-W-071223	8270E-SIM	Analysis completed less than two times holding time	14 days from collection to analysis

Sample results associated with sample locations analyzed by analytical method SW-846 8260 were qualified, as specified in the table below. All other holding times were met.

Criteria	Qualification	
	Detected Analytes	Non-detect Analytes
Analysis completed less than two times holding time	J	UJ
Analysis completed greater than two times holding time	J	R

c. Are all soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soil samples were requested for this SDG.

d. Are the reported limit of quantitation (LOQs) or limits of detection (LOD), or reporting limits (RL) less than the Cleanup Level for the project?

Yes☒ No☐ N/A☐ Comments:

Yes.

e. Is the data quality or usability affected?

The holding time exceedance are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. Are all method blank results less than limit of quantitation LOQ (or RL)?

Yes☐ No☒ N/A☐ Comments:

No.

iii. If above LOQ or RL, what samples are affected?

Comments:

Sample Locations	Method	Compounds	Sample Result	Qualification
GEI-6-W-071223	AK102SGT	AK102 DRO C10-C25	Detected sample results <RL and <BAL	"UB" at the RL
	AK102/103			
	8270E-SIM	Fluoranthene		

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

Yes☒ No☐ N/A☐ Comments:

Yes.

v. Data quality or usability affected?

Comments:

The method blank contamination is considered minor and would result in the non-detect of the associated data. The reported data should still consider as usable.

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:

Yes.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

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:

Yes.

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:

Sample locations associated with LCS/LCSD recoveries exhibiting an RPD greater than of the control limit presented in the following table.

Sample Locations	Method	Compounds
GEI-1-W-071423 GEI-5-W-071323 GEI-6-W-071223 GEI-10-W-071323 BD-1-W-071323 EB-1-W-071423 TRIP BLANK-071423	8260D	1,1,2-Trichlorotrifluoroethane

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

Comments:

RPD
Method SW846 8260D: Compound 1,1,2-Trichlorotrifluoroethane result in the sample IDs GEI-1-W-071423, GEI-5-W-071323, GEI-6-W-071223, GEI-10-W-071323, BD-1-W-071323, EB-1-W-071423 and TRIP BLANK-071423 was qualified as estimated (UJ/J).

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

Yes☒ No☐ N/A☐ Comments:

Yes.

vii. Is the data quality or usability affected? (Use comment box to explain.)

Comments:

The LCS/LCSD RPD exceedances are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

The MS/MSD analysis was performed on sample ID GEI-6-W-071223.

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

Yes☒ No☐ N/A☐ Comments:

The MS/MSD analysis was performed on sample ID GEI-6-W-071223.

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:

Yes.

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. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Comments:

None of the samples were affected.

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

Yes☐ No☐ N/A☒ Comments:

Not applicable.

vii. Is the data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality or usability was not affected.

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:

Yes.

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 60-120% R for QC samples ; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Method	Surrogate	Recovery
GEI-6-W-071223	AK102/103	o-Terphenyl	> UL
	AK102 SGT		
EB-1-W-071423	AK102/103	o-Terphenyl	> UL

Notes:

UCL Upper control limit

LL Lower control limit

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	UJ
	Detect	J

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:

Yes.

iv. Is the data quality or usability affected?

Comments:

Surrogate recovery exceedances are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

Trip blank samples was collected as TRIP BLANK-071423.

ii. Are all results less than LOQ or RL?

Yes☐ No☒ N/A☐ Comments:

No.

iii. If above LOQ or RL, what samples are affected?

Comments:

Sample Locations	Method	Compounds	Sample Result	Qualification
GEI-6-W-071223	AK101	TPHGAK C6 to C10	Detected sample results <RL and <BAL	"UB" at the RL

Note:
RL Reporting limit

iv. Is data quality or usability affected?

Comments:

The trip blank contamination is considered minor and would result in the non-detect of the associated data. The reported data should still consider as usable

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. Was the duplicate submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Method	Compounds / Analytes	Sample Result	Duplicate Result	RPD
GEI-10-W-071323 / BD-1-W-071323	AK101	TPHGAK C6 to C10	1860	335	NC
	8260D	Acetone	50	29.5	AC
		Benzene	94.3	1 U	NC
		n-Butylbenzene	1	2.81	AC
		sec-Butylbenzene	1.65	4.23	AC
		tert-Butylbenzene	0.936	0.507	AC
		Carbon disulfide	0.193	1 U	AC
		Ethylbenzene	13.9	0.26	NC
		Isopropylbenzene	2.08	2.5	AC
		p-Isopropyltoluene	3.92	4.03	AC
		2-Butanone (MEK)	6.19	3.11	AC
		4-Methyl-2-pentanone (MIBK)	3.06	10	AC
		Naphthalene	73.2	6.42	NC
		n-Propylbenzene	3.26	6.54	NC
		Toluene	5.15	1 U	NC
		1,2,4-Trimethylbenzene	178	49.4	NC
		1,2,3-Trimethylbenzene	92.2	26.5	111%
		1,3,5-Trimethylbenzene	72.3	20.9	110%

Sample ID / Duplicate ID	Method	Compounds / Analytes	Sample Result	Duplicate Result	RPD
		Xylenes, Total	213	1.81	NC
		o-Xylene	7.02	0.596	NC
		m&p-Xylene	206	1.21	NC
	AK102/103	AK102 DRO C10-C25	3350	3040	AC
		AK103 RRO C25-C36	981	967	AC
	AK102SGT	AK102 DRO C10-C25	975	1500	AC
	8270E-SIM	Acenaphthene	0.432	0.2	NC
		Acenaphthylene	0.05	0.0414	AC
		Fluoranthene	0.0387	0.05	AC
		Fluorene	0.707	0.345	69%
		Naphthalene	20.7	3.1	148%
		Phenanthrene	0.0572	0.05	AC
		Pyrene	0.0429	0.05	AC
		1-Methylnaphthalene	7.8	5.39	37%
		2-Methylnaphthalene	3.49	0.297	NC

Notes:
AC Acceptable

The analyte TPHGAK C6 to C10, benzene, ethylbenzene, naphthalene, n-propylbenzene, toluene, 1,2,4-trimethylbenzene, 1,2,3-trimethylbenzene , 1,3,5-trimethylbenzene , xylenes, total , o-xylene , m&p-xylene , acenaphthene , fluorene , naphthalene , 1-methylnaphthalene and 2-methylnaphthalene associated with sample locations GEI-10-W-071323 / BD-1-W-071323 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

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

Comments:

The field duplicate RPD exceedances are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

g. Decontamination or Equipment Blank

i. Were decontamination or equipment blanks collected?

Yes☐ No☒ N/A☐ Comments:

Equipment blank sample was collected as EB-1-W-071423.

ii. Are all results less than LOQ or RL?

Yes☐ No☒ N/A☐ Comments:

No.

iii. If above LOQ or RL, specify what samples are affected?

Comments:

Sample Locations	Method	Compounds	Sample Result	Qualification
GEI-10-W-071323	8260D	Carbon disulfide	Detected sample results <RL and <BAL	"UB" at the RL
GEI-6-W-071223	AK102SGT	AK102 DRO C10-C25		
GEI-1-W-071423 GEI-5-W-071323 GEI-6-W-071223 GEI-10-W-071323 BD-1-W-071323	AK102/103	AK103 RRO C25-C36		

iv. Are data quality or usability affected?

Comments:

The equipment blank contamination is considered minor and would result in the non-detect of the associated data. The reported data should still consider as usable.

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

a. Are they defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Yes.

All compounds associated with the calibrations were within the specified control limits, with the exception of the compounds presented in the following table.

Sample Locations	Initial/Continuing	Compounds	Recovery
GEI-1-W-071423 GEI-5-W-071323 GEI-6-W-071223	CCV %D	1,2,3-Trichlorobenzene	Low

Sample Locations	Initial/Continuing	Compounds	Recovery
GEI-10-W-071323 BD-1-W-071323 EB-1-W-071423 TRIP BLANK-071423		Naphthalene	Low

Laboratory Data Review Checklist

Completed By:

Bhagyashree A Fulzele

Title:

Project Chemist

Date:

September 12, 2023

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Pace Analytical

Laboratory Report Number:

L1645654

Laboratory Report Date:

08/24/2023

CS Site Name:

306456 MW Decom Install Report

ADEC File Number:

102.38.004

Hazard Identification Number:

733

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:

Yes.

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

Yes☐ No☐ N/A☒ Comments:

Not applicable.

2. Chain of Custody (CoC)

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

Yes☒ No☐ N/A☐ Comments:

Yes.

b. Were the correct analyses requested?

Yes☒ No☐ N/A☐ Comments:

Yes.

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☐ Comments:

Yes.

b. Is the sample preservation acceptable – acidified waters, methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes☒ No☐ N/A☐ Comments:

Yes.

c. Is the sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials); canister vacuum/pressure checked and no open valves etc?

Yes☒ No☐ N/A☐ Comments:

Yes.

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:

Yes, no discrepancies.

e. Is the data quality or usability affected?

Comments:

Data quality or usability was not affected.

4. Case Narrative

a. Is the case narrative present and understandable?

Yes☒ No☐ N/A☐ Comments:

Yes.

b. Are there discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

Yes.

c. Were all corrective actions documented?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

Comments:

Data quality/usability was not affected.

5. Samples Results

a. Are the correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

Yes.

b. Are all applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

Yes.

c. Are all soils reported on a dry weight basis?

Yes☐ No☐ N/A☒ Comments:

No soil samples were requested for this SDG.

d. Are the reported limit of quantitation (LOQs) or limits of detection (LOD), or reporting limits (RL) less than the Cleanup Level for the project?

Yes☒ No☐ N/A☐ Comments:

Yes.

e. Is the data quality or usability affected?

Data quality or usability affected.

6. QC Samples

a. Method Blank

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

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. Are all method blank results less than limit of quantitation LOQ (or RL)?

Yes☒ No☐ N/A☐ Comments:

No.

iii. If above LOQ or RL, what samples are affected?

Comments:

None of the samples were affected.

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

Yes☐ No☐ N/A☒ Comments:

Not applicable.

v. Data quality or usability affected?

Comments:

Data quality or usability affected.

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:

Yes.

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

Yes☒ No☐ N/A☐ Comments:

Yes.

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:

Sample locations associated with the LCS/LCSD exhibiting recoveries outside of the control limits are presented in the following table.

Sample Locations	Method	Compounds	LCS Recovery	LCSD Recovery
GEI-7R-W-20230809 BD-1-W-20230809	AK102/103	AK103 RRO C25-C36	<LL but >10%	<LL but >10%

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:

Yes.

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

Comments:

%Recovery:

Method AK102/103: Compound AK103 RRO C25-C36 result in the sample IDs GEI-7R-W-20230809 and BD-1-W-20230809 was qualified as estimated (UJ/J).

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

Yes☒ No☐ N/A☐ Comments:

Yes.

vii. Is the data quality or usability affected? (Use comment box to explain.)

Comments:

The LCS/LCSD recoveries exceedances are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

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

Note: Leave blank if not required for project

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

Yes☐ No☒ N/A☐ Comments:

The MS/MSD analysis was not performed on any of the samples from this SDG.

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

Yes☐ No☒ N/A☐ Comments:

The MS/MSD analysis was not performed on any of the samples from this SDG.

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:

Not applicable.

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. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

Not applicable.

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

Comments:

None of the samples were affected.

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

Yes☐ No☐ N/A☒ Comments:

Not applicable.

vii. Is the data quality or usability affected? (Use comment box to explain.)

Comments:

Data quality or usability was not affected.

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:

Yes.

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 60-120% R for QC samples ; all other analyses see the laboratory report pages)

Yes☐ No☒ N/A☐ Comments:

Sample locations associated with surrogates exhibiting recoveries outside of the control limits presented in the following table.

Sample Locations	Method	Surrogate	Recovery
GEI-7R-W-20230809	AK102/103	n-Triacontane d62	< 10%
BD-1-W-20230809		Triacontane d62	< LL but > 10%

Notes:

UCL Upper control limit

LL Lower control limit

The criteria used to evaluate the surrogate recoveries are presented in the following table. In the case of a surrogate deviation, the sample results are qualified as documented in the table below.

Control Limit	Sample Result	Qualification
> UL	Non-detect	No Action
	Detect	J
< LL but > 10%	Non-detect	UJ
	Detect	J
< 10%	Non-detect	R
	Detect	J
Surrogates diluted below the calibration curve due to the high concentration of a target compounds	Non-detect	UJ
	Detect	J

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:

Yes.

iv. Is the data quality or usability affected?

Comments:

Surrogate recovery exceedances are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

e. Trip Blanks

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

Yes☒ No☐ N/A☐ Comments:

Trip blank samples was collected as TB-1.

ii. Are all results less than LOQ or RL?

Yes☐ No☒ N/A☐ Comments:

No.

iii. If above LOQ or RL, what samples are affected?

Comments:

None of the samples were affected.

iv. Is data quality or usability affected?

Comments:

Data quality or usability was not affected.

f. Field Duplicate

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

Yes☒ No☐ N/A☐ Comments:

Yes.

ii. Was the duplicate submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

Yes.

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☐ No☒ N/A☐ Comments:

Results for duplicate samples are summarized in the following table.

Sample ID / Duplicate ID	Method	Compounds / Analytes	Sample Result	Duplicate Result	RPD
GEI-7R-W-20230809 / BD-1-W-20230809	6010	Lead	6.55	7.09	AC
	AK101	TPHGAK C6 to C10	676	6730	AC
	8260D	p-Isopropyltoluene	12.5	50	AC
		1,2,4-Trimethylbenzene	81.9	82.1	AC
		1,2,3-Trimethylbenzene	98.7	105	AC
		1,3,5-Trimethylbenzene	64.6	62.7	AC
		Xylenes, Total	74.8	66.1	AC
		m&p-Xylene	74.8	66.1	AC
	AK102/103	AK102 DRO C10-C25	14000	9670	37%
		AK103 RRO C25-C36	1010	668	AC
	AK102SGT	AK102 DRO C10-C25	2900	3830	AC
	8270E-SIM	Anthracene	0.0657	0.05	AC
		Acenaphthene	0.346	0.386	11%
		Benzo(a)anthracene	0.137	0.05	AC
		Benzo(a)pyrene	0.121	0.05	AC
		Benzo(b)fluoranthene	0.101	0.05	AC
		Benzo(g,h,i)perylene	0.174	0.05	AC

Sample ID / Duplicate ID	Method	Compounds / Analytes	Sample Result	Duplicate Result	RPD
		Benzo(k)fluoranthene	0.193	0.25	AC
		Chrysene	0.247	0.05	AC
		Dibenz(a,h)anthracene	0.255	0.05	AC
		Fluorene	0.464	0.489	5%
		Indeno(1,2,3-cd)pyrene	0.171	0.05	AC
		Naphthalene	4.41	2.6	52%
		Phenanthrene	0.0255	0.05	AC
		1-Methylnaphthalene	3.28	1.86	NC
		2-Methylnaphthalene	0.318	0.112	AC

Notes:
AC Acceptable

The analyte AK102 DRO C10-C25, Naphthalene and 1-Methylnaphthalene associated with sample locations GEI-7R-W-20230809 / BD-1-W-20230809 exhibited a field duplicate RPD greater than the control limit. The associated sample results from sample locations for the listed analyte were qualified as estimated.

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

Comments:

The field duplicate RPD exceedances are considered minor and would result in the estimation of associated data. The reported data should still consider as usable.

g. Decontamination or Equipment Blank

i. Were decontamination or equipment blanks collected?

Yes☐ No☒ N/A☐ Comments:

Equipment blank sample was not collected from this SDG.

ii. Are all results less than LOQ or RL?

Yes☐ No☐ N/A☒ Comments:

Not applicable.

iii. If above LOQ or RL, specify what samples are affected?

Comments:

None of the samples were affected.

iv. Are data quality or usability affected?

Comments:

Data quality or usability was not affected.

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

a. Are they defined and appropriate?

Yes☒ No☐ N/A☐ Comments:

Yes.

Appendix G

Waste Sampling Laboratory Analytical Reports

ANALYTICAL REPORT

August 29, 2023

Arcadis - Chevron - AK

Sample Delivery Group:	L1646381
Samples Received:	08/15/2023
Project Number:	30064226 19.45
Description:	306456
Site:	328.5 ILLINOIS ST FAIRBANKS AK
Report To:	Nick Wood/Erika Midkiff 880 H St. Anchorage, AK 99501

Entire Report Reviewed By:

Brian Ford

Project Manager

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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WS-W-20230811 L1646381-01 GW

Collected by: Gantt Jeffers
Collected date/time: 08/11/23 17:22
Received date/time: 08/15/23 09:00

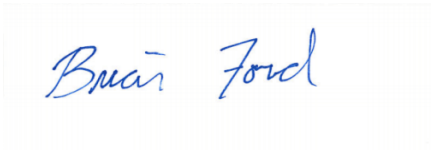
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9040C	WG2117922	1	08/23/23 10:18	08/23/23 10:18	ARD	Mt. Juliet, TN
Wet Chemistry by Method D93/1010A	WG2115149	1	08/16/23 16:15	08/16/23 16:15	CAH	Mt. Juliet, TN
Volatile Organic Compounds (GC) by Method AK101	WG2121101	10	08/26/23 06:22	08/26/23 06:22	ACG	Mt. Juliet, TN
Semi-Volatile Organic Compounds (GC) by Method AK102/103	WG2118454	1	08/23/23 13:24	08/24/23 09:55	TJD	Mt. Juliet, TN

WS-W-20230811 L1646381-02 Waste

Collected by: Gantt Jeffers
Collected date/time: 08/11/23 17:22
Received date/time: 08/15/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Preparation by Method 1311	WG2116075	1	08/17/23 14:09	08/17/23 14:09	JWS	Mt. Juliet, TN
Preparation by Method 1311	WG2116492	1	08/18/23 10:58	08/18/23 10:58	BTP	Mt. Juliet, TN
Mercury by Method 7470A	WG2116163	1	08/19/23 08:14	08/20/23 22:10	AKB	Mt. Juliet, TN
Metals (ICP) by Method 6010D	WG2117107	1	08/20/23 13:49	08/23/23 01:12	ZSA	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260D	WG2116792	1	08/19/23 17:52	08/19/23 17:52	ADM	Mt. Juliet, TN
Semi Volatile Organic Compounds (GC/MS) by Method 8270E	WG2116768	1	08/19/23 13:34	08/20/23 14:05	DSH	Mt. Juliet, TN

Unless qualified or notated within the narrative below, all sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Brian Ford
Project Manager

Sample Delivery Group (SDG) Narrative

The following samples were prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2117922	9040C	L1646381-01

Sample was prepared and/or analyzed past recommended holding time. Concentrations should be considered minimum values.

Batch	Method	Lab Sample ID
WG2121101	AK101	L1646381-01

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

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2116792	(LCSD) R3963753-2, L1646381-02	2-Butanone (MEK)

The sample matrix interfered with the ability to make any accurate determination; spike value is high.

Batch	Lab Sample ID	Analytes
WG2116792	(MS) R3963753-4, (MSD) R3963753-5	2-Butanone (MEK)

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Surrogate recovery limits have been exceeded; values are outside lower control limits.

Batch	Analyte	Lab Sample ID
WG2118454	n-Triacontane d62	(BLANK) R3965197-1, L1646381-01

Surrogate recovery limits have been exceeded; values are outside upper control limits.

Batch	Analyte	Lab Sample ID
WG2118454	o-Terphenyl	(LCS) R3965197-2, (LCSD) R3965197-3

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2118454	(LCSD) R3965197-3, L1646381-01	AK102 DRO C10-C25

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Batch	Lab Sample ID	Analytes
WG2116768	(MS) R3963355-3	Pyridine

The associated batch QC was outside the established quality control range for precision.

Batch	Lab Sample ID	Analytes
WG2116768	(MSD) R3963355-4	Pyridine

Wet Chemistry by Method 9040C

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	su			date / time	
pH	7.36	T8	1	08/23/2023 10:18	WG2117922

Sample Narrative:

L1646381-01 WG2117922: 7.36 at 22.8C

Wet Chemistry by Method D93/1010A

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	deg F			date / time	
Flashpoint	DNF at 200		1	08/16/2023 16:15	WG2115149

Volatile Organic Compounds (GC) by Method AK101

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
TPHGAK C6 to C10	433	J Q	287	1000	10	08/26/2023 06:22	WG2121101
(S) a,a,a-Trifluorotoluene(FID)	*71.4*			*50.0-150*		*08/26/2023 06:22*	WG2121101

Sample Narrative:

L1646381-01 WG2121101: Dilution due to foam. In-hold data not reportable due to carryover.

Semi-Volatile Organic Compounds (GC) by Method AK102/103

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
AK102 DRO C10-C25	9380	J3	170	800	1	08/24/2023 09:55	WG2118454
AK103 RRO C25-C36	488	J	460	800	1	08/24/2023 09:55	WG2118454
(S) o-Terphenyl	*61.9*			*50.0-150*		*08/24/2023 09:55*	WG2118454
(S) n-Triacontane d62	*25.8*	J2		*50.0-150*		*08/24/2023 09:55*	WG2118454

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
TCLP Extraction	-		8/17/2023 2:09:03 PM	WG2116075
TCLP ZHE Extraction	-		8/18/2023 10:58:14 AM	WG2116492
Initial pH	N/A		8/17/2023 2:09:03 PM	WG2116075
Final pH	N/A		8/17/2023 2:09:03 PM	WG2116075

Mercury by Method 7470A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.0100	0.20	1	08/20/2023 22:10	WG2116163

Metals (ICP) by Method 6010D

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	08/23/2023 01:12	WG2117107
Barium	0.103		0.100	100	1	08/23/2023 01:12	WG2117107
Cadmium	ND		0.100	1	1	08/23/2023 01:12	WG2117107
Chromium	ND		0.100	5	1	08/23/2023 01:12	WG2117107
Lead	ND		0.100	5	1	08/23/2023 01:12	WG2117107
Selenium	ND		0.100	1	1	08/23/2023 01:12	WG2117107
Silver	ND		0.100	5	1	08/23/2023 01:12	WG2117107

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

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Benzene	ND		0.0500	0.50	1	08/19/2023 17:52	WG2116792
Carbon tetrachloride	ND		0.0500	0.50	1	08/19/2023 17:52	WG2116792
Chlorobenzene	ND		0.0500	100	1	08/19/2023 17:52	WG2116792
Chloroform	ND		0.250	6	1	08/19/2023 17:52	WG2116792
1,4-Dichlorobenzene	ND		0.0500	7.50	1	08/19/2023 17:52	WG2116792
1,2-Dichloroethane	ND		0.0500	0.50	1	08/19/2023 17:52	WG2116792
1,1-Dichloroethene	ND		0.0500	0.70	1	08/19/2023 17:52	WG2116792
2-Butanone (MEK)	ND	J3	0.500	200	1	08/19/2023 17:52	WG2116792
Tetrachloroethene	ND		0.0500	0.70	1	08/19/2023 17:52	WG2116792
Trichloroethene	ND		0.0500	0.50	1	08/19/2023 17:52	WG2116792
Vinyl chloride	ND		0.0500	0.20	1	08/19/2023 17:52	WG2116792
(S) Toluene-d8	*120*		*80.0-120*			*08/19/2023 17:52*	WG2116792
(S) 4-Bromofluorobenzene	*113*		*77.0-126*			*08/19/2023 17:52*	WG2116792
(S) 1,2-Dichloroethane-d4	*98.5*		*70.0-130*			*08/19/2023 17:52*	WG2116792

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.100	7.50	1	08/20/2023 14:05	WG2116768
2,4-Dinitrotoluene	ND		0.100	0.13	1	08/20/2023 14:05	WG2116768
Hexachlorobenzene	ND		0.100	0.13	1	08/20/2023 14:05	WG2116768
Hexachloro-1,3-butadiene	ND		0.100	0.50	1	08/20/2023 14:05	WG2116768
Hexachloroethane	ND		0.100	3	1	08/20/2023 14:05	WG2116768
Nitrobenzene	ND		0.100	2	1	08/20/2023 14:05	WG2116768
Pyridine	ND		0.100	5	1	08/20/2023 14:05	WG2116768
3&4-Methyl Phenol	ND		0.100	400	1	08/20/2023 14:05	WG2116768
2-Methylphenol	ND		0.100	200	1	08/20/2023 14:05	WG2116768
Pentachlorophenol	ND		0.100	100	1	08/20/2023 14:05	WG2116768
2,4,5-Trichlorophenol	ND		0.100	400	1	08/20/2023 14:05	WG2116768
2,4,6-Trichlorophenol	ND		0.100	2	1	08/20/2023 14:05	WG2116768

Semi Volatile Organic Compounds (GC/MS) by Method 8270E

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
(S) 2-Fluorophenol	*23.2*		*10.0-120*			*08/20/2023 14:05*	WG2116768
(S) Phenol-d5	*16.5*		*10.0-120*			*08/20/2023 14:05*	WG2116768
(S) Nitrobenzene-d5	*97.3*		*10.0-127*			*08/20/2023 14:05*	WG2116768
(S) 2-Fluorobiphenyl	*70.4*		*10.0-130*			*08/20/2023 14:05*	WG2116768
(S) 2,4,6-Tribromophenol	*95.0*		*10.0-155*			*08/20/2023 14:05*	WG2116768
(S) p-Terphenyl-d14	*72.4*		*10.0-128*			*08/20/2023 14:05*	WG2116768

L1645479-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1645479-05 08/23/23 10:18 • (DUP) R3964331-2 08/23/23 10:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	7.66	7.66	1	0.000		1

Sample Narrative:

OS: 7.66 at 22.9C

DUP: 7.66 at 22.7C

L1647596-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1647596-03 08/23/23 10:18 • (DUP) R3964331-3 08/23/23 10:18

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	su	su		%		%
pH	6.61	6.60	1	0.151		1

Sample Narrative:

OS: 6.61 at 23.6C

DUP: 6.6 at 23.3C

Laboratory Control Sample (LCS)

(LCS) R3964331-1 08/23/23 10:18

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	su	su	%	%	
pH	10.0	10.0	100	99.0-101	

Sample Narrative:

LCS: 10 at 24C

L1645707-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1645707-02 08/16/23 16:15 • (DUP) R3961551-3 08/16/23 16:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

L1646484-05 Original Sample (OS) • Duplicate (DUP)

(OS) L1646484-05 08/16/23 16:15 • (DUP) R3961551-4 08/16/23 16:15

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	deg F	deg F		%		%
Flashpoint	DNF at 170	DNF at 170	1	0.000		10

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3961551-1 08/16/23 16:15 • (LCSD) R3961551-2 08/16/23 16:15

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	deg F	deg F	deg F	%	%	%			%	%
Flashpoint	126	127	129	101	102	96.0-104			1.57	10

Method Blank (MB)

(MB) R3963091-1 08/20/23 13:58

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Mercury	U		0.00330	0.0100

Laboratory Control Sample (LCS)

(LCS) R3963091-2 08/20/23 14:00

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.0300	0.0275	91.8	80.0-120	

L1646350-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1646350-02 08/20/23 14:02 • (MS) R3963091-3 08/20/23 14:04 • (MSD) R3963091-4 08/20/23 14:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.0300	ND	0.0274	0.0263	91.2	87.7	1	75.0-125			3.86	20

Method Blank (MB)

(MB) R3964175-1 08/23/23 00:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	0.125		0.0333	0.100
Barium	U		0.0333	0.100
Cadmium	U		0.0333	0.100
Chromium	U		0.0333	0.100
Lead	U		0.0333	0.100
Selenium	U		0.0333	0.100
Silver	U		0.0333	0.100

Laboratory Control Sample (LCS)

(LCS) R3964175-2 08/23/23 00:16

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	10.0	10.0	100	80.0-120	
Barium	10.0	9.97	99.7	80.0-120	
Cadmium	10.0	10.0	100	80.0-120	
Chromium	10.0	9.75	97.5	80.0-120	
Lead	10.0	9.96	99.6	80.0-120	
Selenium	10.0	10.1	101	80.0-120	
Silver	2.00	1.95	97.5	80.0-120	

L1645631-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645631-01 08/23/23 00:19 • (MS) R3964175-4 08/23/23 00:25 • (MSD) R3964175-5 08/23/23 00:28

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	10.0	ND	9.69	10.1	96.9	101	1	75.0-125			4.23	20
Barium	10.0	0.205	10.1	10.5	99.1	103	1	75.0-125			3.61	20
Cadmium	10.0	ND	9.77	10.1	97.7	101	1	75.0-125			3.11	20
Chromium	10.0	ND	9.78	9.99	97.8	99.9	1	75.0-125			2.20	20
Lead	10.0	ND	9.72	10.0	97.2	100	1	75.0-125			3.26	20
Selenium	10.0	ND	9.53	9.82	94.7	97.5	1	75.0-125			2.94	20
Silver	2.00	ND	1.94	1.98	97.0	99.2	1	75.0-125			2.23	20

Method Blank (MB)

(MB) R3966165-4 08/26/23 02:56

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
TPHGAK C6 to C10	U		28.7	100
(S) a,a,a-Trifluorotoluene(FID)	*68.7*			*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3966165-1 08/26/23 00:30 • (LCSD) R3966165-3 08/26/23 02:02

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
TPHGAK C6 to C10	5000	3940	4050	78.8	81.0	60.0-120			2.75	20
(S) a,a,a-Trifluorotoluene(FID)				*80.3*	*81.7*	*60.0-120*				

Method Blank (MB)

(MB) R3963753-3 08/19/23 13:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Benzene	U		0.0167	0.0500
Carbon tetrachloride	U		0.0167	0.0500
Chlorobenzene	U		0.0167	0.0500
Chloroform	U		0.0833	0.250
1,4-Dichlorobenzene	U		0.0167	0.0500
1,2-Dichloroethane	U		0.0167	0.0500
1,1-Dichloroethene	U		0.0167	0.0500
2-Butanone (MEK)	U		0.167	0.500
Tetrachloroethene	U		0.0167	0.0500
Trichloroethene	U		0.0167	0.0500
Vinyl chloride	U		0.0167	0.0500
(S) Toluene-d8	*119*			*80.0-120*
(S) 4-Bromofluorobenzene	*116*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*99.9*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3963753-1 08/19/23 09:37 • (LCSD) R3963753-2 08/19/23 09:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Benzene	0.250	0.243	0.215	97.2	86.0	70.0-123			12.2	20
Carbon tetrachloride	0.250	0.223	0.190	89.2	76.0	68.0-126			16.0	20
Chlorobenzene	0.250	0.250	0.223	100	89.2	80.0-121			11.4	20
Chloroform	0.250	0.243	0.210	97.2	84.0	73.0-120			14.6	20
1,4-Dichlorobenzene	0.250	0.235	0.211	94.0	84.4	79.0-120			10.8	20
1,2-Dichloroethane	0.250	0.219	0.193	87.6	77.2	70.0-128			12.6	20
1,1-Dichloroethene	0.250	0.243	0.206	97.2	82.4	71.0-124			16.5	20
2-Butanone (MEK)	1.25	1.10	0.899	88.0	71.9	44.0-160		J3	20.1	20
Tetrachloroethene	0.250	0.247	0.217	98.8	86.8	72.0-132			12.9	20
Trichloroethene	0.250	0.240	0.203	96.0	81.2	78.0-124			16.7	20
Vinyl chloride	0.250	0.229	0.197	91.6	78.8	67.0-131			15.0	20
(S) Toluene-d8				*115*	*114*	*80.0-120*				
(S) 4-Bromofluorobenzene				*114*	*111*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*97.9*	*97.8*	*70.0-130*				

L1646337-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1646337-02 08/19/23 16:04 • (MS) R3963753-4 08/19/23 20:22 • (MSD) R3963753-5 08/19/23 20:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Benzene	0.125	ND	0.121	0.101	96.8	80.8	1	17.0-158			18.0	27
Carbon tetrachloride	0.125	ND	0.0711	0.0570	56.9	45.6	1	23.0-159			22.0	28
Chlorobenzene	0.125	ND	0.123	0.0971	98.4	77.7	1	33.0-152			23.5	27
Chloroform	0.125	ND	ND	ND	106	88.8	1	29.0-154			18.0	28
1,4-Dichlorobenzene	0.125	ND	0.103	0.0829	82.4	66.3	1	35.0-142			21.6	27
1,2-Dichloroethane	0.125	ND	0.169	0.160	135	128	1	29.0-151			5.47	27
1,1-Dichloroethene	0.125	ND	0.0732	0.0604	58.6	48.3	1	11.0-160			19.2	29
2-Butanone (MEK)	0.625	ND	1.23	1.18	197	189	1	10.0-160	J5	J5	4.15	32
Tetrachloroethene	0.125	ND	0.0734	0.0581	58.7	46.5	1	10.0-160			23.3	27
Trichloroethene	0.125	ND	0.118	0.101	94.4	80.8	1	10.0-160			15.5	25
Vinyl chloride	0.125	ND	0.0800	0.0650	64.0	52.0	1	10.0-160			20.7	27
(S) Toluene-d8					*117*	*115*		*80.0-120*				
(S) 4-Bromofluorobenzene					*114*	*111*		*77.0-126*				
(S) 1,2-Dichloroethane-d4					*101*	*99.6*		*70.0-130*				

Method Blank (MB)

(MB) R3965197-1 08/23/23 21:55

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
AK102 DRO C10-C25	U		170	800
AK103 RRO C25-C36	U		460	800
(S) o-Terphenyl	*100*			*60.0-120*
(S) n-Triacontane d62	*49.2*	J2		*60.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3965197-2 08/23/23 22:21 • (LCSD) R3965197-3 08/23/23 22:46

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
AK102 DRO C10-C25	6000	5580	7030	93.0	117	75.0-125		J3	23.0	20
(S) o-Terphenyl				*124*	*127*	*60.0-120*	J1	J1		

Method Blank (MB)

(MB) R3963355-2 08/20/23 10:07

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0333	0.100
2,4-Dinitrotoluene	U		0.0333	0.100
Hexachlorobenzene	U		0.0333	0.100
Hexachloro-1,3-butadiene	U		0.0333	0.100
Hexachloroethane	U		0.0333	0.100
Nitrobenzene	U		0.0333	0.100
Pyridine	U		0.0333	0.100
3&4-Methyl Phenol	U		0.0333	0.100
2-Methylphenol	U		0.0333	0.100
Pentachlorophenol	U		0.0333	0.100
2,4,5-Trichlorophenol	U		0.0333	0.100
2,4,6-Trichlorophenol	U		0.0333	0.100
(S) 2-Fluorophenol	*20.9*			*10.0-120*
(S) Phenol-d5	*14.1*			*10.0-120*
(S) Nitrobenzene-d5	*76.1*			*10.0-127*
(S) 2-Fluorobiphenyl	*60.6*			*10.0-130*
(S) 2,4,6-Tribromophenol	*85.5*			*10.0-155*
(S) p-Terphenyl-d14	*64.7*			*10.0-128*

Laboratory Control Sample (LCS)

(LCS) R3963355-1 08/20/23 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.281	56.2	18.0-120	
2,4-Dinitrotoluene	0.500	0.417	83.4	49.0-124	
Hexachlorobenzene	0.500	0.458	91.6	44.0-120	
Hexachloro-1,3-butadiene	0.500	0.540	108	19.0-120	
Hexachloroethane	0.500	0.268	53.6	15.0-120	
Nitrobenzene	0.500	0.391	78.2	27.0-120	
Pyridine	0.500	0.0989	19.8	10.0-120	
3&4-Methyl Phenol	0.500	0.168	33.6	31.0-120	
2-Methylphenol	0.500	0.156	31.2	28.0-120	
Pentachlorophenol	0.500	0.391	78.2	23.0-120	
2,4,5-Trichlorophenol	0.500	0.367	73.4	44.0-120	
2,4,6-Trichlorophenol	0.500	0.379	75.8	42.0-120	
(S) 2-Fluorophenol			*24.7*	*10.0-120*	
(S) Phenol-d5			*18.2*	*10.0-120*	
(S) Nitrobenzene-d5			*79.0*	*10.0-127*	

Laboratory Control Sample (LCS)

(LCS) R3963355-1 08/20/23 09:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2-Fluorobiphenyl			*73.7*	*10.0-130*	
(S) 2,4,6-Tribromophenol			*90.5*	*10.0-155*	
(S) p-Terphenyl-d14			*64.9*	*10.0-128*	

L1645874-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1645874-01 08/20/23 15:32 • (MS) R3963355-3 08/20/23 15:53 • (MSD) R3963355-4 08/20/23 16:15

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.284	0.269	56.8	53.8	1	17.0-120			5.42	40
2,4-Dinitrotoluene	0.500	ND	0.457	0.418	91.4	83.6	1	39.0-125			8.91	25
Hexachlorobenzene	0.500	ND	0.499	0.441	99.8	88.2	1	35.0-122			12.3	24
Hexachloro-1,3-butadiene	0.500	ND	0.552	0.529	110	106	1	12.0-120			4.26	34
Hexachloroethane	0.500	ND	0.275	0.272	55.0	54.4	1	10.0-120			1.10	40
Nitrobenzene	0.500	ND	0.388	0.381	77.6	76.2	1	12.0-120			1.82	30
Pyridine	0.500	ND	ND	ND	0.000	11.6	1	10.0-120	J6	J3	200	37
3&4-Methyl Phenol	0.500	ND	0.281	0.235	56.2	47.0	1	10.0-120			17.8	36
2-Methylphenol	0.500	ND	0.251	0.222	50.2	44.4	1	10.0-120			12.3	30
Pentachlorophenol	0.500	ND	0.457	0.413	91.4	82.6	1	10.0-128			10.1	37
2,4,5-Trichlorophenol	0.500	ND	0.483	0.453	96.6	90.6	1	33.0-120			6.41	31
2,4,6-Trichlorophenol	0.500	ND	0.457	0.450	91.4	90.0	1	26.0-120			1.54	31
(S) 2-Fluorophenol					*41.9*	*38.9*		*10.0-120*				
(S) Phenol-d5					*30.5*	*25.0*		*10.0-120*				
(S) Nitrobenzene-d5					*70.7*	*70.8*		*10.0-127*				
(S) 2-Fluorobiphenyl					*76.5*	*75.5*		*10.0-130*				
(S) 2,4,6-Tribromophenol					*107*	*99.5*		*10.0-155*				
(S) p-Terphenyl-d14					*66.5*	*59.3*		*10.0-128*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.
T8	Sample(s) received past/too close to holding time expiration.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address: **Arcadis - Chevron - AK** 880 H St. Anchorage, AK 99501	Billing Information: Attn: Acounts Payable 630 Plaza Dr Ste 600 Highlands Ranch, CO 80129	Pres Chk	Chain of Custody Page 1 of 1 Pace PEOPLE ADVANCING SCIENCE MT JULIET, TN 12065 Lebanon Rd Mount Juliet, TN 37122 Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf
Report to: Nick Wood/Erika Midkiff/Sydney Clark	Email To: Alaura.Gonzalez@arcadis.com;environmentDM-		

Project Description: 306456	City/State Collected: Fairbanks AK	Please Circle: PT MT CT ET (AK)	
Phone: 907-276-8095	Client Project # 30064226 19.45	Lab Project # CHEVARCAK-306456	SDG # L1646381 F201
Collected by (print): Grant Jeffers	Site/Facility ID # 328.5 ILLINOIS ST FAIRBANKS	P.O. #	Acctnum: CHEVARCAK Template: T232911 Prelogin: P1008183 PM: 110 - Brian Ford PB: CJ 6/28/23
Collected by (signature): [signature] Immediately Packed on Ice N___ Y X	*Rush?* (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day X 10 Day (Rad Only) ___ Three Day	Quote # Date Results Needed Standard	Shipped Via: FedEX 2nd Day

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	AK101 40mlAmb HCl	AK102/103 100ml Amb HCl	FLASH 200 250mlAmb-No Pres	TCLP VOC/SVOC/Metals 1L-Clr-NoPres	pH 125mlHDPE-NoPres	Remarks	Sample # (lab only)
WS-W-20230811	Comp	GW	–	8/11/23	1722	8	X	X	X	X	X		-01/02
		SS											

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks:

pH ______ Temp ______
Flow ______ Other ______

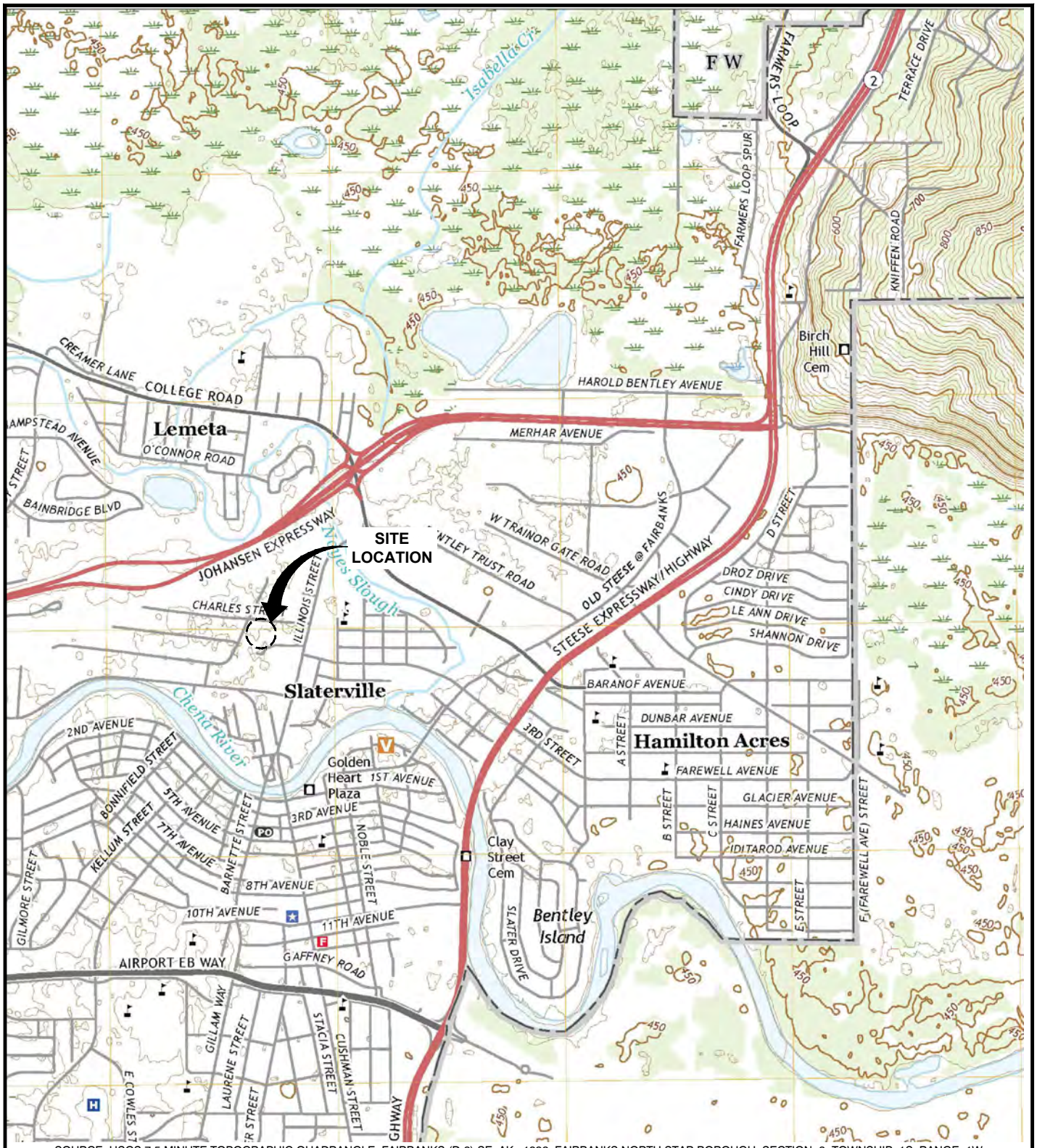
Samples returned via: ___ UPS X FedEx ___ Courier ________

Tracking # 6525 5572 6713

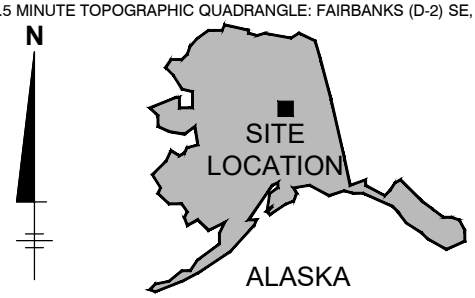
Sample Receipt Checklist

COC Seal Present/Intact: ___NP	(Y) ___N
COC Signed/Accurate:	Y ___N
Bottles arrive intact:	Y ___N
Correct bottles used:	Y ___N
Sufficient volume sent:	Y ___N
If Applicable	
VOA Zero Headspace:	Y ___N
Preservation Correct/Checked:	___Y ___N
RAD Screen <0.5 mR/hr:	(Y) ___N

Relinquished by : (Signature) [signature]	Date: 8/14/23	Time: 1200	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C (O)BA8 Bottles Received: 4.7+0=4.7	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 8/15/23 Time: 9:00	Hold: Condition: NCF / (OK)



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE: FAIRBANKS (D-2) SE, AK., 1992, FAIRBANKS NORTH STAR BOROUGH, SECTION: 3, TOWNSHIP: 1S, RANGE: 1W



0 2,000' 4,000'

APPROXIMATE GRAPHIC SCALE

FORMER UNOCAL BULK TERMINAL 306456
328.5 ILLINOIS ST., FAIRBANKS, AK 99707
2023 GROUNDWATER ANALYTE REDUCTION REQUEST AND WELL REPAIR WORK PLAN

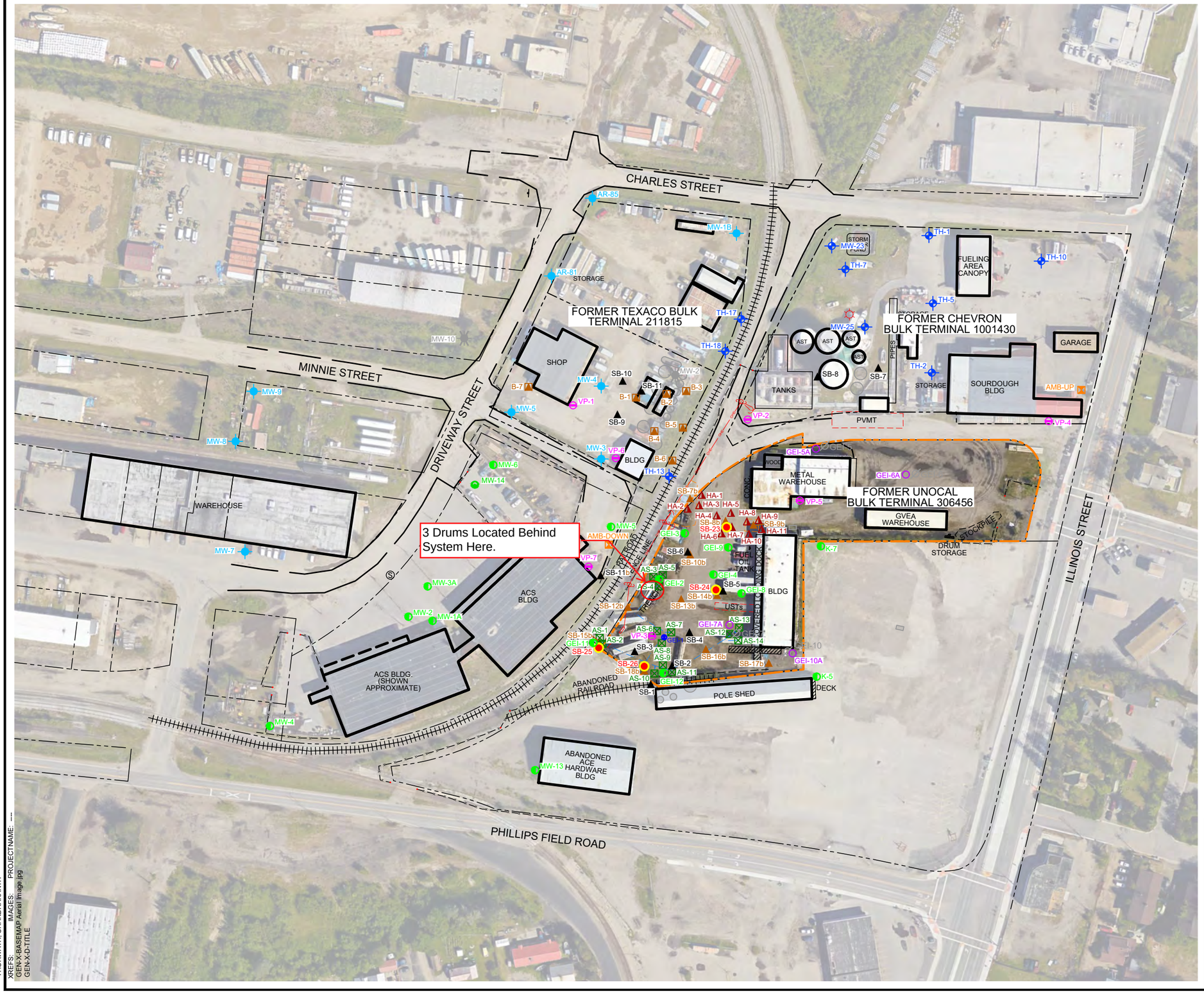
SITE LOCATION MAP

ARCADIS

FIGURE 1

C:\Users\cm5224\ACCDocs\Arcadis\AUS-CHEVRON-306456-FAIRBANKS Alaska\Project Files\2023\01-In Progress\01-DWG\GEN-F01-SITE LOCATION.dwg LAYOUT: 1 SAVED: 7/29/2021 2:11 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 2/21/2023 10:47 AM BY: C. MUNRAJU

XREFS: IMAGES: PROJECTNAME: ---
LOCATION MAP 1.jpg



LEGEND:

- FORMER UNOCAL PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- FENCE
- RAILROAD TRACK
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- LIGHT POLE
- TRENCH
- EXCAVATION LIMITS
- FORMER ASTs / USTs / TANKS
- CHEVRON MONITORING WELL ADEC FILE NO. 101.38.006
- TEXACO MONITORING WELL ADEC FILE NO. 102.38.005
- WELLS PROPOSED FOR ANALYTICAL SAMPLING REDUCTION
- WELLS THAT ARE TO BE REPAIRED
- VAULTS THAT ARE TO BE ABANDONED AND REPLACED
- REFLECT WELLS TO BE REDEVELOPED
- ABANDONED OR DESTROYED GROUNDWATER MONITORING WELL
- AMBIENT AIR SAMPLE LOCATION
- VAPOR PROBE
- SOIL BORING (SECOR 2004)
- SOIL BORING (2007)
- SOIL BORING (2011)
- HAND AUGER (2012)
- AIR SPARGE WELL
- SOIL VAPOR EXTRACTION WELL
- PROPOSED SOIL BORING

N

NOTES:

1. BASE MAP AND MONITORING WELL LOCATIONS SURVEYED BY MCLANE CONSULTING INC. OCTOBER 2014.
2. HORIZONTAL DATUM: NAD83 ALASKA STATE PLANE ZONE 3, FEET.
3. ALL OTHER FEATURES AND LOCATIONS ARE APPROXIMATE.

0 150' 300'

GRAPHIC SCALE

FORMER UNOCAL BULK TERMINAL 306456
328.5 ILLINOIS ST., FAIRBANKS, AK 99707

2023 GROUNDWATER ANALYTE REDUCTION REQUEST AND WELL REPAIR WORK PLAN

SITE PLAN

ARCADIS

FIGURE 2

C:\Users\ctl01012\ACCDocs\Arcadis\AUS-CHEVRON-306456-FAIRBANKS Alaska\Project Files\2023\01-In Progress\01-DWG\GEN-F02-SPMOC.dwg LAYOUT: 2 SAVED: 3/22/2023 1:16 PM ACADVER: 24.2S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: --- PLOTTED: 3/23/2023 12:49 PM BY: THORWATH, CHANDRAKANTH

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GEN-X-BASEMAP Aerial Image.jpg
GEN-X-D-TITLE


NON-
HAZARDOUS
WASTE