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Chevron Environmental Management Company

2013 Additional Site Assessment Report

Chevron Facility 306443

Gate 28, Blk 1, Lot 8, West Ramp
Fairbanks, Alaska

January 6, 2014

ARCADIS

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ADEC File No. 100.26.040

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Acronyms and Abbreviations

ADEC	Alaska Department of Environmental Conservation
ADOT&PF	Alaska Department of Transportation and Public Facilities
ARCADIS	ARCADIS U.S., Inc.
AST	Aboveground storage tank
ARFF	Alaska Recue Fire Fighting
bgs	Below ground surface
Chevron	Chevron Environmental Management Company
CSM	Conceptual site model
BTEX	Benzene, toluene, ethylbenzene, xylenes
CL	cleanup levels
COPCs	Constituents of Potential Concern
DOT	Department of Transportation
DRO	Diesel Range Organics
EPA	Environmental Protection Agency
Era	Era Alaska
Eurofins	Eurofins Lancaster Laboratories
ft	feet
FIA	Fairbanks International Airport
GAC	granulated activated carbon
GCL	groundwater cleanup level
GRO	Gasoline Range Organics

LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LNAPL	Light non-aqueous phase liquid
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NAC	Northern Air Cargo
MS	Matrix spike
msl	above mean sea level
MSD	Matrix spike duplicate
Pace	Pace Analytical
PID	Photoionization detector
PVC	polyvinyl chloride
RPD	relative percent differences
RRO	Residual Range Organics
SCL	Soil Cleanup Level
TOC	Top of casing
UST	Underground Storage Tank
VOC	Volatile organic compounds

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2013 Additional Site Assessment Report

Chevron Facility 306443

1. Introduction

On behalf of Chevron Environmental Management Company (Chevron), ARCADIS U.S., Inc. (ARCADIS) has prepared this additional site assessment report for Chevron Facility 306443 (the site) located at Fairbanks International Airport (FIA), Gate 28, Blk 1, Lot 8, West Ramp in Fairbanks, Alaska, in response to the 2013 Work Plan for Additional Assessment (ARCADIS 2013), following the request of Alaska Department of Environmental Conservation (ADEC) during the site review meeting on April 29, 2013. The additional assessment was conducted to further delineate the downgradient extent of hydrocarbon impacts to soil and groundwater at the site. The work included the installation of three downgradient monitoring wells. The work was conducted in accordance with ADEC document *Monitoring Well Guidance* (September 2013) and under the direction of ARCADIS employees whom meet the criteria for a "qualified person" [18 AAC 75. 990 (100), and 18 AAC 78.995 (118)]. The following sections report activities and results associated with site assessment work performed in September and October 2013.

2. Site Description

The site facility lease includes Parcel A and Parcel B of FIA Block 1, Lot 8, located at 5245 Airport Road. The site is currently owned by the Alaska Department of Transportation and Public Facilities (ADOT&PF) which is leasing Block 1, Lot 8 to Era Alaska (Era). Nearby properties include the ADOT&PF airport maintenance and Alaska Rescue Fire Fighting (ARFF) facility across Brumbaugh Avenue to the northeast, and Northern Air Cargo (NAC) adjacent to the southwest. The site and surrounding features are shown on **Figure 1**.

Unocal formerly subleased a portion (Parcels A and B) of Lot 8 from Trans-Arctic Airlines and operated a fuel distribution facility that provided aviation gasoline and Jet-A fuel to airplanes at FIA. Parcel A was a rectangular piece of land, 100 feet in length and 50 feet in width, running northwest to southeast approximately 20 feet inside the northeastern lot boundary. Parcel B was a circular parcel of land adjacent to the southeasterly property line of Lot 8 and having a diameter of 200 feet.

Parcel A and Parcel B are presently being used only for periodic vehicle storage, with the exception of the northwest corner of Parcel A. Era maintains a 12,000-gallon Jet-A fuel aboveground storage tank (AST) within the asphalt cutout near the northwest corner of Parcel A. It is unclear if the AST is within the boundaries of former Parcel A; however, the AST is on the gravel that was exposed during the removal of Unocal's fuel distribution system. Due to the airport development since the decommissioning of the Unocal facilities, the boundaries of Parcels A and B's boundaries are difficult to define.

In October 1991, Dames & Moore observed and monitored the removal of four 10,000-gallon underground storage tanks (USTs), two pump islands and associated piping, as reported in "Site Assessment Report for Underground Storage Tank Closure, CEM Leasing, Inc., Fairbanks, Alaska," dated December 17, 1991. The UST excavation was approximately 65 feet by 40 feet and averaged 10 feet in depth. Soil analytical data are included on **Table 1**.

GeoEngineers installed nine groundwater monitoring wells in September 2003; GEI-1 through GEI-9 (GeoEngineers 2003). Soil samples were collected from the nine soil borings. One or more soil samples contained concentrations of benzene, gasoline range organics (GRO), and/or diesel range organics (DRO) exceeding their respective ADEC soil cleanup level (SCL) from soil boring GEI-1, GEI-6, and GEI-9. The

laboratory noted that for the GRO detections, the "results reported for the gas ranges are primarily due to overlap from diesel range hydrocarbons." A sample of light non-aqueous phase liquid (LNAPL) was collected from GEI-5 on September 4, 2003 and analyzed for semi-volatile fuel identification. The laboratory reported "the detected hydrocarbon product in this sample appears to be a lighter weight diesel product such as kerosene or jet-fuel range hydrocarbon." Soil analytical data are included on **Table 1**.

In July 2008, ARCADIS installed five monitoring wells (MW-1 through MW-5), one recovery well (RW-1), and advanced twelve soil borings (SB-1 through SB-10, SB-12, and SB-13) onsite. Soil borings SB-1 through SB-5 were advanced in Parcel A in a downgradient direction from the former ASTs. Soil borings SB-6 through SB-10, SB-12, and SB-13 were advanced in Parcel B at locations in cross- and downgradient directions of the former USTs. Monitoring wells MW-1, MW-3, and MW-5 were installed in a downgradient direction relative to Parcels A and B, and MW-2 and MW-4 were installed in an upgradient direction relative to these two parcels. The recovery well RW-1 was installed north of GEI-1. Concentrations of GRO and/or DRO exceeded respective SCLs in soil samples collected from MW-3, SB-1 through SB-3, SB-5, SB-7 through SB-9, SB-12, and RW-1. A benzene concentration was detected above the SCL in the soil sample collected from SB-3. Soil analytical data are included on **Table 1**.

In August 2010, five monitoring wells (MW-6 through MW-10) and two soil borings (SB-14 and SB-15) were installed in order to continue delineation of impacted soil and groundwater. Concentrations of GRO exceeding applicable SCLs were present in the soil samples collected from monitoring well MW-8 and soil borings SB-14 and SB-15. DRO exceeded respective cleanup levels in soil samples collected from monitoring well MW-8 and soil borings SB-14 and SB-15. Polynuclear aromatic hydrocarbons (PAHs) were analyzed, but concentrations did not exceed their respective SCLs. Soil borings SB-14 and SB-15 are located in the source area and were installed to delineate vertical impact. Soil analytical data are included on **Table 1.** PAH soil data are included on **Table 2.**

During the August 2013 annual groundwater monitoring event GEI-5 and GEI-6, were not sampled due to the presence of LNAPL identified in the sampling bailer. The results of the 2013 annual groundwater monitoring event indicated that the downgradient extent of impacts was not defined. Groundwater sampling and monitoring is conducted on an annual basis. Site features such as monitoring well and property lines and roads are shown on the aerial site map included as **Figure 2**.

Groundwater elevations and analytical data are included on **Tables 3** and **4**, respectively.

3. Geology and Hydrogeology

3.1 Regional Geology

The Fairbanks region is typically underlain by 330 to approximately 600 feet of Quaternary fluvial and glaciofluvial sediment (sand and gravel covered by fine sediments and organic matter) based on seismic interpretations originating from the Alaska Range (Natural Resources Conservation Service and U.S. Department of Agriculture 2004).

3.2 Site Geology

Soils logged during site assessment activities ranged from poorly graded sandy gravels to silts. A geotechnical analysis conducted on soil samples in 2008 indicated a soil density of 1.47 grams per cubic centimeter and a specific gravity of 2.742. Porosity results were determined from calculations of specific gravity and density to equal 46.4 percent.

Soils logged during these site assessment activities ranged from poorly graded sandy gravels to silts to 20 feet (ft) below ground surface (bgs). Boring logs are included in **Appendix A**.

3.3 Regional Hydrogeology

According to the U.S. Geological Survey conducted in 1995, the site is located in the floodplain of the Tanana and Chena rivers. The Tanana Lowland consists of a wide, sediment-filled trough in which alluvial fans extending from the Alaska Range to the south have pushed northwest, forcing the Tanana River against the bedrock hills of the Yukon-Tanana Upland (Hawkins 1995). The Fairbanks area has not been subject to glaciations, although glaciers have advanced northward from the Alaska Range to within 80 kilometers of Fairbanks, which resulted in thick layers of silt, sand, and gravel deposited by the sediment-laden rivers (Hawkins 1995).

3.4 Site Hydrogeology

Historically, groundwater levels in the monitoring wells have ranged from approximately 6 feet to 12 feet below top of casing (TOC). Groundwater elevations fluctuate seasonally, higher groundwater elevations in the subsurface are generally observed in

the summer and fall. Following the November 2013 survey events, groundwater elevation measurements ranged from 421.02 feet to 422.34 feet above mean sea level (msl) on October 11, 2013. Based on water levels gauged during the October 2013 sampling event, the site has a relatively flat gradient, however the general direction of the hydraulic gradient is to the west-northwest; this is consistent with the historical groundwater gradient flow direction. Groundwater elevations are included on **Table 3** and **Figure 3**.

4. Constituents of Potential Concern (COPCs)

COPCs for this site and their associated ADEC cleanup levels (CLs) for soil and groundwater are presented in the table below. In addition, the applicable laboratory analysis method and laboratory detection limits are presented below.

Constituents of Potential Concern (COPC)	Soil Cleanup Level (mg/kg)	Groundwater Cleanup Level (mg/L)	Laboratory Method	Detection Limit: Soil (mg/kg)/Water (mg/L)
Gasoline range organics (GRO)	300	2.2	Alaska Method AK 101	0.6 / 0.010
Diesel range organics (DRO)	250	1.5	Alaska Method AK 102	4.4 / 0.05
Residual range organics (RRO)	NA	1.1	Alaska Method AK 103	NA / 0.05
Benzene	0.025	0.005	EPA Method 8021B	0.005 / 0.0005
Ethylbenzene	6.9	NA	EPA Method 8021B	0.005 / NA
Toluene	6.5	NA	EPA Method 8021B	0.005 / NA
Total Xylenes	63	NA	EPA Method 8021B	0.02 / NA
Lead (dissolved for GW)	NA	0.015	EPA Method 6020	NA / 0.0001

mg/kg = milligrams per kilograms
mg/L = milligrams per liter
EPA = Environmental Protection Agency
CL = 18 AAC 75 Oil and Other Hazardous Substances Pollution Control, rev. October 9, 2008; Table B1. Method Two - Soil Cleanup Levels (Migration to Groundwater) & Table C. Groundwater Cleanup Levels
NA = not applicable

5. Monitoring Well Installation

In order to vertically and horizontally delineate the downgradient soil and groundwater impacts at the site, three soil borings were advanced and installed at the site as monitoring wells (MW-11 through MW-13) on September 31 through October 2, 2013. Monitoring wells MW-11 through MW-13 were installed approximately 300 to 500 feet downgradient of monitoring wells MW-7, MW-8, and MW-9, in order to decrease any interruption to Era's operations. Era's office and hanger is located approximately 400 feet downgradient of monitoring well MW-8. The area in between is used for aircraft parking and maintenance. The locations of the monitoring wells in relation to other site features are shown on **Figure 2**.

5.1 Soil Sample Collection Methods

Each boring was cleared to a depth of eight feet bgs using a vacuum truck to assure utility clearance. At two foot intervals the vacuum was stopped and a hand auger was advanced to collect an undisturbed sample for screening using a photoionization detector (PID) and classification using the United Soil Classification System (USCS). The soil borings were then advanced using a Geoprobe® direct push drill rig provided by Discovery Drilling of Anchorage, Alaska. Soil samples were collected continuously using a micro core sleeve to the final depth of the boring. Each soil core was inspected by ARCADIS field staff and analytical samples were collected based on field screening indications.

Four samples per boring were collected for laboratory analysis per boring. One shallow sample was collected at 2 ft bgs. One sample was collected above the groundwater interface at 6 ft bgs. In addition, a sample from the groundwater interface zone was collected between 11 and 13 ft bgs. Finally, one sample was collected from the bottom of the bore hole once the desired depth drilled was reached between 18 and 19 ft bgs. Analytical samples were placed directly into clean, laboratory- supplied containers and preserved specific to the analysis to be performed. The containers, 4-ounce or larger jars with a Teflon-lined septum fused to the lid, were zeroed with a field scale. The soil was immediately preserved by submerging the sample in surrogate methanol in the jars. Soil only came into contact with properly decontaminated or disposable materials and handling of the soils was kept at a minimum to prevent volatilization or possible cross contamination. Samples were collected in accordance with the ADEC Draft Field Sampling Guidance dated May 2010.

Sample containers were labeled to include the date, time, location and depth of the sample collection and immediately stored in an iced cooler and kept at a temperature of 2 to 6 degrees Celsius. The samples were retained at this temperature and accompanied by the chain-of-custody through delivery to the laboratory. Soil sample analysis was conducted by Eurofins Lancaster Laboratories (Eurofins) in Lancaster, Pennsylvania with a standard turnaround time of 10 days. Collected samples were documented on field boring logs, included in **Appendix A**, and in field note documents, included in **Appendix B**.

5.2 Field Screening

Field screening of soil samples was performed continuously during drilling activities using a PID and visual classification using USCS. Soils from each micro core sleeve were placed into a sealable plastic bag and allowed to volatilize for at least 10 minutes but no more than 60 minutes. A PID was then inserted into a small opening of the plastic bag and used to read the level of volatile organic compounds (VOCs) in the bag. The VOC reading was recorded on the boring logs and field sheets used for documentation of drilling activities. Field screening for volatiles also included a visual inspection of soils for the presence of LNAPL, hydrocarbon odor or hydrocarbon sheen on the soils or groundwater. Lithology descriptions and soil classifications were conducted by trained ARCADIS field staff and recorded on boring logs included in **Appendix A**.

5.3 Soil Analytical Results

GRO, DRO, RRO, BTEX, and total lead were not detected at concentrations above their respective ADEC SCLs. RRO was detected above the laboratory method detection limit (MDL) in samples collected from monitoring well MW-11 at 2 feet bgs, 6 feet bgs, and 13 feet bgs; monitoring well MW-12 at 2 feet bgs and 11.5 feet bgs, and monitoring well MW-13 at 2 feet bgs and 6 feet bgs. Toluene was detected above the laboratory MDL in monitoring well MW-11 at 2 feet bgs and monitoring well MW-12 at 2 feet bgs and 19 feet bgs. These soil analytical results detected above the laboratory MDL and less than the limit of quantitation are followed by a J on **Table 1** and **Figure 4**. The J flag represents the estimated value. Based on the soil analytical results from monitoring wells MW-11 through MW-13, PID readings and field visual inspection, delineation of downgradient hydrocarbons impacts has been defined at the site. Soil analytical results are summarized in **Table 1** and are shown on **Figure 4**. Soil analytical laboratory reports are included in **Appendix C**.

5.4 Monitoring Well Construction

Upon completion of borings and soil sample collection, monitoring wells MW-11 through MW-13 were installed in accordance with ADEC's Monitoring Well Guidance document (September 2013). The monitoring wells were constructed of 2.0-inch diameter schedule 40 polyvinyl chloride (PVC) well casing with 0.010-inch factory-slotted screen and 2.0-inch solid schedule 40 PVC riser. The wells were set at 20 feet bgs with a screened interval from 8 to 18 feet bgs in monitoring wells MW-11 and MW-13 and from 7 to 17 feet bgs in monitoring well MW-12. The depth to water onsite is generally 6 ft bgs to 12 ft bgs. During the site investigation the depth to water was 11 to 13 feet bgs. A standard sand pack (#10/20 silica sand) was placed from the bottom of the borehole to approximately one-foot above the screened interval. The sand pack was followed by hydrated bentonite chips, soil cuttings and a bentonite-cement seal. The wells were fitted with sealing and locking well caps and traffic-rated well boxes installed at the surface to provide secure wellheads. Monitoring well constructions are shown on the boring logs included in **Appendix A**.

5.5 Monitoring Well Development

Well development was conducted by ARCADIS on October 3, 2013. Well development was performed by surging the wells over the length of the screen interval using a bailer and then purging the well until the water was relatively free of suspended sediments and/or until approximately 10 well volumes have been removed. Monitoring well development purge water was containerized in Department of Transportation (DOT) approved 55 gallon drums and sampled for disposal. Monitoring well development field notes are included in **Appendix B**

5.6 Surveying

McLane Consulting Inc., a licensed surveyor from Soldotna, Alaska, surveyed the new monitoring well locations on November 13, 2013 relative to existing site features and site boundaries, which were also surveyed, and determined top-of-casing well elevations relative to NAD83 (EPOCH 2003) for horizontal control and NAVD88 OPUS Solution for vertical control to the nearest 0.01 ft. Monitoring wells MW-11, MW-12, and MW-13 were surveyed. Monitoring well MW-11 location was surveyed, but TOC elevation was not surveyed, due to vehicle parked over well. Monitoring well MW-10 was resurveyed in November 2013 due to a well repair in October 2013, which changed the height of the TOC.

6. Groundwater Monitoring MW-11 through MW-13

On October 11, 2013, following the site assessment, site monitoring wells were gauged with a decontaminated oil/water interface probe. The new monitoring wells, MW-11 through MW-13, were sampled by ARCADIS. Sampling procedures were conducted in accordance with ADEC Draft Field Sampling Guidance (ADEC 2010), ARCADIS *Groundwater sampling with Hydrasleeves – Standard Operating Procedure* (ARCADIS 2011), and ARCADIS *Bailer-Grab Groundwater Sampling Procedure* (ARCADIS 2009). Disposable Teflon® bailers and HydraSleeves™ were used to collect the samples. HydraSleeves™ were lowered into the water column and were allowed to sit in the monitoring wells for a minimum of several hours prior to sampling. After the necessary sample bottles were filled using the HydraSleeves™ for analysis of GRO and BTEX, Teflon® disposable bailers were used to fill the remaining sample bottles for analysis of DRO and RRO. Bailers were lowered slowly into the water column to mitigate potential volatilization.

A duplicate sample was collected from monitoring well MW-13 and labeled BD-1. In addition, matrix spike (MS) and matrix spike duplicate (MSD) samples were collected from monitoring well MW-13. The duplicate sample, MS and MSD samples were submitted with the sample set to Pace Analytical (Pace), in Minneapolis, Minnesota, under proper chain-of–custody procedures. Groundwater sample analysis was conducted by Pace with a standard turnaround time of 10 days.

6.1 Groundwater Elevation and Flow

On October 11, 2013, monitoring wells GEI-1 through GEI-9, MW-1 through MW-13 and RW-1 were gauged for groundwater elevations and the presence of LNAPL. Monitoring well MW-3, MW-8, GEI-2, and GEI-3 were not gauged: there was an obstruction at 8.41 below TOC, 10.30 feet below TOC, 8.44 feet below TOC, and 9.60 feet below TOC, respectively. Depth-to-groundwater measured on October 11, 2013, ranged between 9.70 feet below TOC (GEI-4) and 11.83 feet below TOC (MW-5). Groundwater elevations ranged from 421.02 feet above msl in well MW-5 to 422.34 feet above msl in well GEI-8.

Based on the water levels measured during the October 2013 sampling event, the site has a relatively flat gradient, however the historical groundwater flow direction at the site is to the west-northwest. Groundwater elevation data are summarized in **Table 3**. A potentiometric surface map illustrating the groundwater flow direction is included in **Figure 3**. The groundwater monitoring event field notes are presented in **Appendix D**.

6.2 Groundwater Analytical Results

GRO, DRO, RRO, and BTEX were not detected at concentrations above the ADEC groundwater cleanup level (GCL) in the groundwater samples collected from monitoring wells MW-11 through MW-13 during the October 2013 groundwater monitoring event. The downgradient extent of hydrocarbon impacts has been delineated downgradient.

Groundwater analytical results are summarized in **Table 4** and are presented on **Figure 5**. The groundwater analytical laboratory report is included in **Appendix E**.

7. Laboratory Data Quality Assurance Summary

As required by ADEC (Technical Memorandum 06-002, dated March, 2009), ARCADIS completed a laboratory data review checklist for the Eurofins and Pace Laboratory reports from the site assessment (soil) and groundwater sampling of monitoring wells MW-11 through MW-13. The data review checklists are included in **Appendix F**.

7.1 Accuracy

The data meet accuracy objectives by the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for laboratory report number 1424034 and 10245747, with the following exception :

- Laboratory report 1424034: The matrix spike duplicate sample: MSD % Rec at 150 for AK 101 GRO with a % Rec limit of 70-142.

Data quality or usability do not appear to be affected.

7.2 Precision

Based on the LCS/LCSD, matrix spike (MS), and matrix spike duplicate (MSD) relative percent differences (RPD), the data meets precision objectives for laboratory report number 10245747 and 1424034 with the few exceptions noted on the data review checklists included in **Appendix F**. Data quality or usability do not appear to be affected.

Field duplicates were collected for the soil and groundwater samples and submitted blind to the laboratory. Relative percent differences between the duplicate samples and their respective parent samples were below the ADEC recommended RPDs of 30% for water and 50% for soil with the following exceptions:

- Laboratory report 1424034: Lead RPD was outside specification for MS/MSD.;

- Laboratory report 1424034: the RPD is out of specification for the duplicate sample collected from monitoring well MW-11 at 6 feet bgs.

7.3 Representativeness

The data appear to be representative of the site conditions and are generally consistent with objectives to further delineate the site impacts.

7.4 Comparability

Laboratory results are generally consistent with previous assessment reports. These data are reported using the same units and formats as previous monitoring reports to allow for comparison.

7.5 Completeness

The results presented in laboratory reports 10245747 and 1424034 appear to be valid and usable.

7.6 Sensitivity

The sensitivity of the analyses for soil and groundwater were adequate for the samples as the method blank and trip blank were less than the method reporting limit. Additionally, with the few exceptions noted above in Section 5.6 and in the data review checklists included in **Appendix F**, the sensitivity of the analyses for soil and groundwater were adequate.

8. Management of Investigation-Derived Wastes (IDW)

Development water and decon water generated during the field activities were contained in DOT-approved 30 gallon steel drums and overpacked, to be processed through the granulated activated carbon (GAC) bucket at a later date. The development and decon water were processed through the GAC bucket on November 6, 2013 and disposed of on site, in the ADEC approved area. Soil cuttings generated during the field activities were contained in DOT-approved 55-gallon steel drums. The IDW was appropriately labeled and stored on site pending characterization. Following receipt of laboratory analytical data and ADEC approval, the IDW will be transported offsite. The soil cuttings will be transported to Alaska Soil Recycling for treatment and disposal.

9. Updated Conceptual Site Model (CSM)

The site is currently a leased by ERA and used for airplane parking and a storage area. The site is partially covered by asphalt paving and within the fenced restricted area of the airport. The petroleum impacts appear to have originated from the former USTs and fill station. The environmental impact caused by the release of petroleum hydrocarbons at the site is believed to be limited to the impacts to groundwater and soil.

Surface Soil (0-2 ft bgs) – Surface soil impacts are isolated to the former USTs and Fill station. The former Unocal facility is currently used as a used car lot and is partially covered by asphalt. Based on the property use, partial paving, and restricted access to the site, the exposure pathways of Soil Ingestion and Dermal Contact are potentially complete for current and future receptors which include:

- Commercial/Industrial Workers
- Construction & Excavation Workers

Subsurface Soil – Subsurface soils have been fully assessed. Based on the current and likely future property use, the exposure pathways of Soil Ingestion and Dermal Contact are potentially complete for future receptors which include:

- Construction & Excavation Workers

Groundwater – Groundwater is located at a depth of approximately 8-12 feet bgs. Groundwater is not currently being used as drinking water at the site or at the adjacent properties. Based on current and potential future use, the exposure pathways of Ingestion of Groundwater and Dermal Contact are potentially complete for future receptors which include:

- Commercial/Industrial Workers
- Construction workers

Air – Vapor intrusion has not been assessed at the site. However, a building survey was completed on July 23, 2009, and the summary and inventory of building use is described below:

- The first floor of the building includes offices and an aircraft hangar.

- The second floor is primarily offices and the open upper levels of the aircraft hangar.
- General aircraft maintenance is performed in the hangar including cleaning of aircraft, painting, stripping and other maintenance procedures.
- Chemicals used for aircraft maintenance include methyl ethyl ketone (MEK), paint strippers, paint thinners and other various products.
- Used oil and petroleum products are also stored in the building.

Based on the completed building survey and the observations described above, ARCADIS does not believe additional evaluations or assessment of the vapor intrusion to indoor pathway is necessary. The lack of any current structures over the plume, the pathway (current and future) is considered incomplete (ARCADIS 2010).

Other receptors which were considered and were ruled out include farmers or subsistence harvesters and subsistence consumers. These receptors were excluded because the site is developed and is located in a commercial area of Fairbanks.

Ecological Receptors at this site are considered to be incomplete based on the following reasons:

- The current site use restricts most wildlife from access to the site.
- The site is mostly paved with asphalt and or concrete
- No surface water within approximately 2,000 feet of the site.

ADEC conceptual site model and scoping forms are presented in **Appendix G**.

10. Conclusions

In October 2013, three monitoring wells (MW-11 through MW-13) were installed to continue delineation of downgradient impacted soil and groundwater. The monitoring wells were installed downgradient (west and southwest) of monitoring well MW-8 and west and northwest of monitoring well MW-9. Concentrations of GRO, DRO, RRO, BTEX, and total lead did not exceed their respective SCLs in the soil samples collected from monitoring wells MW-11 through MW-13. On October 11, 2013, site monitoring wells were gauged to determine depth to groundwater and thickness of LNAPL. On November 13, 2013, monitoring wells (MW-10 through MW-13), site features and boundaries were surveyed. The historical groundwater flow direction is west-northwest. Monitoring wells MW-11 through MW-13 were sampled by ARCADIS, following the 2013 site assessment. LNAPL was not measured in the new monitoring wells. Concentrations of GRO, DRO, RRO, and BTEX did not exceed their respective GCLs in samples collected from the new monitoring wells. The installation of monitoring wells MW-11 through MW-13 completed downgradient vertical and horizontal delineation of the site.

11. References

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ARCADIS. 2013. *2013 Work Plan for Additional Assessment*. September 6.

ARCADIS 2011. *Groundwater sampling with HydraSleeves – Standard Operating Procedure*. February.

ARCADIS 2010. ADEC Building Inventory and Indoor Air Sampling Questionnaire, Chevron 306443 (Former Unocal Bulk Plant 0207), Fairbanks, Alaska. February 23.

ARCADIS 2009. *Bailer-Grab Groundwater Sampling*. March 10.

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Tables

Table 1
Soil Analytical Data (GRO, DRO, RRO, BTEX and Lead)

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Location	Sample Depth/ Interval	Sample Date	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
ADEC Soil Cleanup Levels[1]			*300*	*250*	*11,000*	*0.025*	*6.5*	*6.9*	*63*	*800*
FALCON-912-01[2]	--	09/12/91	2	--	--	0.32	0.05	0.07	0.2	--
FALCON-912-02[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-03[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-04[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-05[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-06[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-07[2]	--	09/12/91	<1	--	--	<0.01	0.05	0.04	0.09	--
FALCON-912-08[2]	--	09/12/91	3	--	--	<0.01	0.1	0.03	0.22	--
FALCON-912-09[2]	--	09/12/91	4	--	--	<0.01	0.06	0.04	0.24	--
FALCON-912-10[2]	--	09/12/91	4	<10	--	<0.01	0.05	0.04	0.11	--
FALCON-912-11[2]	--	09/12/91	6	<10	--	<0.01	0.04	0.03	0.09	--
FALCON-912-12[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-13[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-14[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-15[2]	--	09/12/91	703	1,950	--	2.2	6.8	1.6	16	--
FALCON-912-16[2]	--	09/12/91	--	--	--	--	--	--	--	--
FALCON-912-17[2]	--	09/12/91	7	10	--	<0.01	0.04	0.04	0.12	--
FALCON-1010-18[2]	--	10/10/91	6	--	--	<0.01	0.16	0.02	0.11	--
23231-1024-01[2]	--	10/24/91	--	--	--	--	--	--	--	--
23231-1024-02[2]	--	10/24/91	<1	2	--	<0.01	<0.02	<0.01	<0.04	--
23231-1024-03[2]	--	10/24/91	--	--	--	--	--	--	--	--
23231-1024-04[2]	--	10/24/91	--	--	--	--	--	--	--	--
23231-1024-05[2]	--	10/24/91	<1	23	--	<0.01	0.02	<0.01	<0.04	--
23231-1024-06[2]	--	10/24/91	--	--	--	--	--	--	--	--
23231-1024-07[2]	--	10/24/91	<1	3,100	--	<0.01	<0.02	<0.01	29	--
23231-1024-08[2]	--	10/24/91	--	--	--	--	--	--	--	--
23231-1024-09[2]	--	10/24/91	--	--	--	--	--	--	--	--
23231-1024-10[2]	--	10/24/91	<1	5,800	--	<0.01	<0.02	<0.01	27	--
23231-1028-01[2]	--	10/28/91	--	8,900	--	--	--	--	--	--
23231-1028-02[2]	--	10/28/91	--	5,200	--	--	--	--	--	--
23231-1028-03[2]	--	10/28/91	--	--	--	--	--	--	--	--
23231-1028-04[2]	--	10/28/91	--	--	--	--	--	--	--	--
23231-1028-05[2]	--	10/28/91	--	--	--	--	--	--	--	--
23231-1028-06[2]	--	10/28/91	--	11,000	--	--	--	--	--	--
23231-1028-07[2]	--	10/28/91	--	4,000	--	--	--	--	--	--
23231-1028-08[2]	--	10/28/91	--	4,000	--	--	--	--	--	--
23231-1029-09[2]	--	10/29/91	--	--	--	--	--	--	--	--
23231-1029-10[2]	--	10/29/91	1,700	8,100	--	<0.01	12	9.7	44	--
23231-1029-11[2]	--	10/29/91	230	1,100	--	<0.01	0.75	0.33	3.6	--
23231-1029-12[2]	--	10/29/91	240	580	--	<0.01	0.81	<0.01	7.9	--
23231-1029-13[2]	--	10/29/91	690	2,400	--	<0.01	2.4	1.2	21	--
23231-1029-14[2]	--	10/29/91	--	--	--	--	--	--	--	--
23231-1029-15[2]	--	10/29/91	--	--	--	--	--	--	--	--
23231-1029-16[2]	--	10/29/91	<40	570	--	<0.01	<0.02	<0.01	<0.04	--
GEI-1 (6.0-6.5)	6.0-6.5	07/28/03	172	13,300	--	<0.106	<0.265	<0.265	2.28	--
GEI-1 (8.0-8.5)	8.0-8.5	07/28/03	2,200	8,620	--	<0.190	<0.475	5.03	21.7	--
GEI-2 (6.0-6.5)	6.0-6.5	07/28/03	<3.30	6.51	--	<0.0132	<0.0330	<0.0330	<0.0659	--
GEI-3 (6.5-7.0)	6.5-7.0	07/28/03	<3.73	<4.00	--	<0.0149	<0.0373	<0.0373	<0.0746	--
GEI-3 (8.5-9.0)	8.5-9.0	07/28/03	<3.82	<4.00	--	<0.0153	<0.0382	<0.0382	<0.0765	--
Duplicate	--	07/28/03	<3.42	--	--	<0.0137	<0.0342	<0.0342	<0.0683	--
GEI-3 (14.5-15.0)	14.5-15.0	07/28/03	5.26	<4.00	--	<0.0133	<0.0333	<0.0333	<0.0666	--
GEI-4 (6.5-7.0)	6.5-7.0	07/28/03	<3.70	24.9	--	<0.0148	<0.0370	0.0397	<0.0740	--
GEI-5 (6.5-7.0)	6.5-7.0	07/29/03	<3.06	4.74	--	<0.0122	<0.0306	<0.0306	<0.0611	--
GEI-5 (8.5-9.0)	8.5-9.0	07/29/03	72.2	96.8	--	<0.0216	<0.0541	0.216	0.51	--
GEI-6 (6.0-6.5)	6.0-6.5	07/29/03	<2.65	4.08	--	<0.0106	<0.0265	<0.0265	<0.0530	--
GEI-6 (9.0-9.5)	9.0-9.5	07/29/03	370	8.44	--	0.186	<0.0202	1.84	5.55	--
GEI-6 (14.5-15.0)	14.5-15.0	07/29/03	17.4	288	--	0.00757	<0.01686	0.0676	0.208	--
GEI-7 (8.0-8.5)	8.0-8.5	07/29/03	<2.16	<4.00	--	<0.00864	<0.0216	<0.0216	<0.0432	--
GEI-7 (14.5-15.0)	14.5-15.0	07/29/03	<2.05	<4.00	--	<0.00820	<0.0205	<0.0205	<0.0410	--
GEI-8 (6.0-6.5)	6.0-6.5	08/22/03	<2.59	<4.00	--	<0.00104	<0.0259	<0.0259	<0.0518	--
GEI-8 (13.5-14.0)	13.5-14.0	08/22/03	<1.52	<4.00	--	<0.00606	<0.0152	<0.0152	<0.0303	--
GEI-9 (1.5-2.0)	1.5-2.0	08/22/03	1,020	16,500	--	<0.154	<0.385	3.78	12.3	--
GEI-9 (9.0-9.5)	9.0-9.5	08/22/03	4.06	1,020	--	<0.0129	<0.0322	0.0517	0.104	--
Duplicate-8/22/03	--	08/22/03	169	1,160	--	0.0339	<0.0305	0.917	2.10	--

Table 1
Soil Analytical Data (GRO, DRO, RRO, BTEX and Lead)

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Location	Sample Depth/ Interval	Sample Date	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
ADEC Soil Cleanup Levels[1]			*300*	*250*	*11,000*	*0.025*	*6.5*	*6.9*	*63*	*800*
MW-1	9.0	07/17/08	<5.16	<5.56	--	<0.0310	<0.0516	<0.0516	<0.103	--
MW-2	9.0	07/18/08	<3.71	<4.32	--	<0.0222	<0.0371	<0.0371	<0.0741	--
MW-3	9.0	07/18/08	213	406	--	<0.0397	<0.0661	0.486	1.33	--
MW-4	9.0	07/16/08	<4.91	<5.06	--	<0.0294	<0.0491	<0.0491	<0.0981	--
MW-5	8.5	07/18/08	<3.87	<4.58	--	<0.0232	<0.0387	<0.0387	<0.0774	--
MW-6	2.0	08/25/10	<11	<7.6	50	<0.1	<0.1	<0.1	<0.3	8.24
	8.0	08/25/10	<0.8	<0.008	<6.1	<0.008	0.02	<0.008	<0.02	3.86
	18.0-20.0	08/27/10	<0.6	<5.5	<5.5	<0.006	<0.006	<0.006	<0.02	3.88
MW-7	2.0	08/24/10	<0.6	<5.5	19	<0.006	<0.006	<0.006	<0.02	5.22
	8.0-10.0	08/26/10	<0.9	<6.8	20	<0.009	<0.009	<0.009	<0.03	12.9
	18.0-20.0	08/26/10	<0.7	<5.7	11	<0.007	<0.007	<0.007	<0.02	3.93
MW-8	2.0	08/24/10	<0.6	<5.4	9	<0.006	<0.006	<0.006	<0.02	5.02
	2.0[D]	08/24/10	<0.5	<5.4	25	<0.005	<0.005	<0.005	<0.02	5.16
	8.0-10.0	08/26/10	1,200	3,300	<580	<0.3	<0.3	1.5	6.5	4.23
	10.0-12.0	08/26/10	730	980	<260	<0.2	<0.2	0.9	3.7	2.97
	18.0-20.0	08/26/10	1.0	<5.8	35	<0.006	<0.006	<0.006	<0.02	2.58
MW-9	2.0	08/24/10	<0.6	5.8	9.4	<0.006	<0.006	<0.006	<0.02	5.99
	10.0-12.0	08/26/10	0.8	<6.0	30	<0.007	<0.04	0.02	0.07	6.51
	10.0-12.0[D]	08/26/10	<0.7	<6.2	15	<0.007	<0.007	<0.007	<0.02	7.10
	18.0-20.0	08/26/10	<0.6	<5.5	<5.5	<0.006	<0.006	0.009	<0.02	3.58
MW-10	2.0	08/25/10	<6.2	15	80	<0.06	<0.06	<0.06	0.2	7.14
	8.0	08/25/10	<0.8	10	63	<0.008	<0.008	<0.008	0.02	10.7
	8.0-10.0	08/27/10	<0.9	<6.9	42	<0.009	0.02	<0.009	<0.03	8.45
	18.0-20.0	08/27/10	<0.7	<5.7	17	<0.007	<0.007	<0.007	<0.02	3.74
	18.0-20.0[D]	08/27/10	<0.6	<5.8	<5.8	<0.006	<0.006	<0.006	<0.02	2.96
MW-11	**2.0**	**9/30/2013**	**<0.7**	**<5.3**	**6.8 J**	**<0.0065**	**0.014 J**	**<0.0065**	**<0.02**	**4.59**
	6.0	**9/30/2013**	**<0.8**	**<6.2**	**10 J**	**<0.0077**	**<0.0077**	**<0.0077**	**<0.023**	**12.6**
Duplicate	**6.0**	**9/30/2013**	**<0.8**	**<6.2**	**11 J**	**<0.0079**	**<0.0079**	**<0.0079**	**<0.024**	**8.23**
	13.0	**10/2/2013**	**<0.9**	**<6.7**	**12 J**	**<0.0089**	**<0.0089**	**<0.0089**	**<0.027**	**8.14**
	19.0	**10/2/2013**	**<0.7**	**<6.1**	**17**	**<0.0073**	**<0.0073**	**<0.0073**	**<0.022**	**5.56**
MW-12	**2.0**	**9/30/2013**	**<0.60**	**<5.3**	**7.4 J**	**<0.0061**	**0.014 J**	**<0.0061**	**<0.018**	**4.84**
	6.0	**9/30/2013**	**<0.8**	**<6.4**	**22**	**<0.0079**	**<0.0079**	**<0.0079**	**<0.024**	**16.5**
	11.5	**10/2/2013**	**<0.8**	**<6.4**	**7.5 J**	**<0.008**	**<0.008**	**<0.008**	**<0.024**	**7.06**
Duplicate	**11.5**	**10/2/2013**	**<0.8**	**<6.2**	**<6.2**	**<0.008**	**<0.008**	**<0.008**	**<0.024**	**5.21**
	19.0	**10/2/2013**	**<0.7**	**<5.6**	**<5.6**	**<0.0074**	**0.012 J**	**<0.0074**	**<0.022**	**2.74**
MW-13	**2.0**	**10/1/2013**	**<.6**	**<5.4**	**5.9 J**	**<0.0064**	**<0.0064**	**<0.0064**	**<0.019**	**7.31**
Duplicate	**6.0**	**10/1/2013**	**<.6**	**<5.4**	**<5.4**	**<0.0059**	**<0.0059**	**<0.0059**	**<0.018**	**7.27**
	6.0	**10/1/2013**	**<0.9**	**<6.8**	**16 J**	**<0.0090**	**<0.0090**	**<0.0090**	**<0.027**	**9.28**
	13.0	**10/2/2013**	**<0.7**	**<5.8**	**<5.8**	**<0.0067**	**<0.0067**	**<0.0067**	**<0.02**	**2.97**
	18.0	**10/2/2013**	**<0.6**	**<5.3**	**<5.3**	**<0.0057**	**<0.0057**	**<0.0057**	**<0.017**	**4.11**
RW-1	4.0	07/16/08	830	19,900	--	<1.16	<1.94	<1.94	6.96	--
	8.5	07/16/08	470	9,160	--	<0.197	<0.328	<0.328	2.65	--
SB-1	4.0	07/16/08	588	22,000	--	<0.423	<0.705	<0.705	3.97	--
SB-2	4.0	07/16/08	276	13,700	--	<1.22	<2.03	<2.03	<4.05	--
	9.0	07/16/08	82	634	--	<0.234	<0.390	<0.390	0.900	--
SB-3	6.0	07/16/08	1,710	15,200	--	0.355	<0.393	2.65	13.0	--
SB-4	9.0	07/17/08	<4.29	<5.21	--	<0.0258	<0.0429	<0.0429	<0.0859	--
SB-5	6.0	07/16/08	285	1,020	--	<1.48	<2.47	<2.47	<4.94	--
	9.5	07/17/08	244	2,820	--	<0.197	<0.329	2.58	14.1	--
SB-6	8.5	07/17/08	5.66	45.9	--	<0.0186	<0.0310	<0.0310	0.0800	--
SB-7	2.0	07/15/08	864	3,170	--	<0.129	<0.215	0.723	4.35	--
SB-8	4.0	07/15/08	1,630	12,000	--	<0.506	<0.843	1.67	34.3	--
	9.0	07/17/08	<3.31	10.0	--	<0.0199	<0.0331	<0.0331	<0.0662	--

Table 1
Soil Analytical Data (GRO, DRO, RRO, BTEX and Lead)

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Location	Sample Depth/ Interval	Sample Date	GRO	DRO	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	Lead
ADEC Soil Cleanup Levels[1]			***300***	***250***	***11,000***	***0.025***	***6.5***	***6.9***	***63***	***800***
SB-9	4.0	07/15/08	721	6,070	--	<1.62	<2.70	<2.70	10.8	--
	9.0	07/16/08	1,050	15,800	--	<1.56	<2.60	4.58	17.6	--
SB-10	9.5	07/17/08	<7.73	<6.60	--	<0.0464	<0.0773	<0.0773	<0.155	--
SB-12	2.0	07/15/08	1,440	13,800	--	<1.32	<2.19	2.86	29.2	--
	8.5	07/16/08	<5.22	10.6	--	<0.0313	<0.0522	<0.0522	<0.104	--
SB-13	9.5	07/16/08	<5.77	<5.15	--	<0.0346	<0.0577	<0.0577	<0.115	--
SB-14	2.0	08/23/10	1,200	9,300	<670	<0.3	<0.3	6.7	14	10.5
	8.0-10.0	08/25/10	2,300	11,000	<1,100	<0.7	<0.7	3.2	22	3.43
	18.0-20.0	08/25/10	0.9	<5.9	<5.9	<0.007	<0.007	<0.007	<0.02	4.38
SB-15	2.0	08/23/10	650	1,200	<270	<0.02	<0.02	2.0	7.3	5.43
	10.0-12.0	08/25/10	3,000	10,000	<600	<1.5	24	4.8	160	4.48
	18.0-20.0	08/25/10	0.8	<5.4	<8.0	<0.006	0.009	<0.006	<0.02	2.48

Notes:
Gasoline range organics (GRO) was analyzed by AK Method 101.
Diesel range organics (DRO) was analyzed by AK Method 102.
Residual range organics (RRO) was analyzed by AK Method 103.
Benzene, toluene, ethylbenzene, and total xylenes (BTEX) were analyzed by EPA Method 8021B.
[1]ADEC Soil Cleanup Levels (SCLs) per 18 AAC 75.355, Table B1, Register 188, October 2008, & Technical Memorandum 02-006.
ADEC = Alaska Department of Environmental Conservation
All results are reported in milligrams per kilogram (mg/kg).
[2]Gasoline range organics analyzed by EPA Method 8015 and diesel range organics analyzed by EPA 8100.
-- = Not analyzed
Highlighted cell = exceeds soil cleanup level.
< = not detected greater than the laboratory reporting limit indicated.
[D]Duplicate sample of the preceding sample.
Bold type indicates data collected during the 2013 Site Assessment (the most recent assessment).
J = estimated value, the result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

Table 2
Soil PAH Analytical Results

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Location	Sample Depth/ Interval	Date Sampled	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	Naphthalene	Phenanthrene	Pyrene
ADEC Soil Cleanup Levels [1]			***210***	***--***	***4,300***	***6***	***3***	***20***	***--***	***200***	***620***	***6***	***2,100***	***270***	***54***	***43***	***--***	***1,500***
MW-6	2.0	08/25/10	<.0010	0.0010	<.00050	<.0010	<.0010	<.0010	<.0010	<.0010	0.00059	<.0010	<.0010	0.0012	<.0010	0.0023	0.0015	<.0010
	8.0	08/25/10	<.00082	<.00041	<.00041	<.00082	<.00082	<.00082	<.00082	<.00041	<.00041	<.00082	<.00082	<.00082	<.00082	<.00082	<.00082	<.00082
	18.0-20.0	08/27/10	<0.00073	<0.00037	<0.00037	<0.00073	<0.00073	<0.00073	<0.00073	<0.00073	<0.00037	<0.00073	<0.00073	<0.00073	<0.00073	<0.00073	<0.00073	<0.00073
MW-7	2.0	08/24/10	<0.00073	<0.00037	<0.00037	<0.00073	<0.00073	<0.00073	<0.00073	<0.00073	<0.00037	<0.00073	<0.00073	<0.00073	<0.00073	0.00096	<0.00073	<0.00073
	8.0-10.0	08/26/10	<0.00091	<0.00045	<0.00045	<0.00091	<0.00091	<0.00091	<0.00091	<0.00091	<0.00045	<0.00091	<0.00091	<0.00091	<0.00091	<0.00091	<0.00091	<0.00091
	18.0-20.0	08/26/10	<0.00076	<0.00038	<0.00038	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076	<0.00038	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076
MW-8	2.0	08/24/10	<0.00072	<0.00036	<0.00036	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00036	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072
	2.0[D]	08/24/10	<0.00072	<0.00036	<0.00036	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00036	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072
	8.0-10.0	08/26/10	0.37	<0.12	0.027	<0.015	<0.015	<0.015	<0.015	<0.015	<0.0077	<0.015	<0.015	0.38	<0.015	5.9	0.19	<0.015
	10.0-12.0	08/26/10	0.071	<0.059	0.0030	<0.00071	<0.00071	<0.00071	<0.00071	<0.00071	0.00063	<0.00071	0.0011	0.19	<0.00071	2.1	0.072	0.0011
	18.0-20.0	08/26/10	<0.00077	<0.00038	<0.00038	<0.00077	<0.00077	<0.00077	<0.00077	<0.00077	<0.00038	<0.00077	<0.00077	<0.00077	<0.00077	0.0050	<0.00077	<0.00077
MW-9	2.0	08/23/10	0.00075	0.0013	<0.00037	<0.00074	<0.00074	<0.00074	<0.00074	<0.00074	0.00060	<0.00074	0.0012	0.0045	<0.00074	0.0075	0.0024	0.00078
	10.0-12.0	08/26/10	<0.00081	<0.00040	<0.00040	<0.00081	<0.00081	<0.00081	<0.00081	<0.00081	<0.00040	<0.00081	<0.00081	<0.00081	<0.00081	0.016	<0.00081	<0.00081
	10.0-12.0[D]	08/26/10	<0.00082	<0.00041	<0.00041	<0.00082	<0.00082	<0.00082	<0.00082	<0.00082	<0.00041	<0.00082	<0.00082	<0.00082	<0.00082	0.033	<0.00082	<0.00082
	18.0-20.0	08/26/10	<0.00074	<0.00037	<0.00037	<0.00074	<0.00074	<0.00074	<0.00074	<0.00074	<0.00037	<0.00074	<0.00074	<0.00074	<0.00074	0.0073	<0.00074	<0.00074
MW-10	2.0	08/25/10	<0.00074	<0.00037	<0.00037	<0.00074	<0.00074	0.00075	<0.00074	<0.00074	0.00080	<0.00074	<0.00074	<0.00074	<0.00074	0.0028	0.0017	<0.00074
	8.0	08/25/10	<0.00089	<0.00044	<0.00044	<0.00089	0.00091	0.0015	0.0011	<0.00089	0.0013	<0.00089	0.0012	<0.00089	<0.00089	0.0010	0.0012	0.0012
	8.0-10.0	08/27/10	<0.0091	<0.00046	<0.00046	<0.00091	<0.00091	<0.00091	<0.00091	<0.00091	<0.00046	<0.00091	<0.00091	<0.00091	<0.00091	0.0013	0.0010	<0.00091
	18.0-20.0	08/27/10	<0.00076	<0.00038	<0.00038	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076	<0.00038	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076	<0.00076
	18.0-20.0[D]	08/27/10	<0.00077	<0.00038	<0.00038	<0.00077	<0.00077	<0.00077	<0.00077	<0.00077	<0.00038	<0.00077	<0.00077	<0.00077	<0.00077	<0.00077	<0.00077	<0.00077
SB-14	2.0	08/23/10	0.066	0.062	0.0095	<0.18	<0.18	<0.18	<0.18	<0.18	<0.0089	<0.18	<0.18	0.15	<0.18	2.5	0.091	0.00078
	8.0-10.0	08/25/10	0.13	0.18	<0.37	<0.74	<0.74	<0.74	<0.74	<0.74	<0.37	<0.74	<0.74	0.41	<0.74	10	0.18	<0.74
	18.0-20.0	08/25/10	<0.00079	<.00039	<0.00039	<0.00079	<0.00079	<0.00079	<0.00079	<0.00079	<0.00039	<0.00079	<0.00079	<0.00079	<0.00079	<0.00079	<0.00079	<0.00079
SB-15	2.0	08/23/10	0.037	0.037	<0.0071	<0.014	<0.014	<0.014	<0.014	<0.014	<0.0071	<0.014	<0.014	0.081	<0.014	0.44	0.022	<0.14
	10.0-12.0	08/25/10	0.53	0.39	<0.040	<0.080	<0.080	<0.080	<0.080	<0.080	<0.040	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080
	18.0-20.0	08/25/10	<0.00072	<0.00036	<0.00036	<0.00072	<0.00072	<0.00072	<0.00072	<0.00072	<0.00036	<0.00072	<0.00072	<0.00072	<0.00072	0.0020	<0.00072	<0.00072

Notes

PAHs were analyzed by EPA Method 8270 C.

PAH = Polynuclear Aromatic Hydrocarbons

[1] ADEC Soil Cleanup Levels (SCLs) per 18 AAC 75.355, Table B1. Register 188, October 2008, & Technical Memorandum 02-006.

ADEC = Alaska Department of Environmental Conservation

All results reported in milligrams per kilogram (mg/kg)

< = not detected greater than the laboratory reporting limit indicated

[D] Duplicate

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
GEI-1	99.87	09/04/03	6.32	--	--	93.55	--
		04/24/04	Well buried under snow/ice				--
		09/16/04	8.56	--	--	91.31	--
		04/21/05	Well buried under snow/ice				--
		09/30/05	8.17	--	--	91.70	--
		04/19/06	Well buried under snow/ice				--
		09/21/06	9.04	--	--	90.83	--
		04/03/07	11.35	11.08	0.27	88.74	--
		09/29/07	8.60	8.54	0.06	91.32	--
		10/15/07	10.35	9.94	0.41	89.86	--
		11/19/07	10.91	10.78	0.13	89.07	--
		03/29/08	Well buried under snow/ice				--
		06/25/08	9.35	--	Trace	90.52	--
		07/14/08	8.22	--	Trace	91.65	--
		08/06/08	5.83	--	Trace	94.04	--
		09/10/08	8.22	8.20	0.02	91.67	--
		11/24/08	9.88	--	Trace	89.99	--
		12/18/08	10.06	--	Trace	89.81	--
		01/27/09	10.73	10.70	0.03	89.16	--
		02/20/09	11.18	10.98	0.20	88.85	--
		04/21/09	Well buried under snow/ice				--
		10/06/09	10.35	10.33	0.02	89.54	--
		03/18/10	11.96	11.22	0.74	88.52	--
		04/20/10	Unable to remove sock- frozen				--
		05/26/10	11.71	11	0.71	88.74	--
		06/18/10	9.42	9.41	0.01	90.46	--
		07/23/10	7.20	--	Trace	92.67	--
		08/16/10	7.21	--	Trace	92.66	--
	[1] 432.17	09/23/10	8.29	8.25	0.04	423.91	--
		10/25/10	10.67	--	Trace	421.50	--
		11/16/10	11.46	--	Trace	420.71	--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	10.71	--	Trace	421.46	--
		03/23/11	11.39	--	Trace	420.78	--
		04/13/11	11.27	10.84	0.43	421.25	--
		06/09/11	9.40	--	Trace	422.77	--
		08/23/11	7.28	--	Trace	424.89	--
		06/12/12	9.21	--	Trace	422.96	--
		08/06/13	9.88	--	--	424.92	--
		10/11/13	**9.88**	**--**	**--**	**422.29**	

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
GEI-2	99.79	09/04/03	6.19	--	--	93.60	--
		04/24/04		Well buried under snow/ice			--
		09/16/04	8.47	--	--	91.32	--
		04/21/05		Well buried under snow/ice			--
		09/30/05	7.76	--	--	92.03	--
		04/19/06		Well buried under snow/ice			--
		09/21/06	9.01	--	--	90.78	--
		04/03/07		Well Dry			--
		09/29/07	8.57	--	--	91.22	--
		03/29/08	10.22	--	--	89.57	--
		09/10/08	8.18	--	--	91.61	--
		04/21/09		Well under water			--
		10/06/09		Well Dry			--
		06/18/10	9.43	9.42	0.01	90.37	--
		07/23/10	7.29	--	--	92.50	--
		08/16/10	7.21	--	--	92.58	--
	[1] 432.15	09/23/10	8.25	--	--	423.90	--
		10/25/10		Well not measured			--
		11/16/10		Well not measured			--
		12/14/10		Well not measured			--
		01/05/11		Well not measured			--
		02/08/11		Well not measured			--
		03/23/11		Well not measured			--
		04/13/11		Well not measured			--
		06/09/11	9.39	--	--	422.76	--
		08/23/11	7.25	--	--	424.90	--
		06/12/12	9.21	--	--	422.94	--
		08/06/13	7.32	--	--	424.83	--
		10/11/13		**Well obstructed by snow/ice**			--
GEI-3	99.73	09/04/03	6.14	--	--	93.59	--
		04/24/04	9.49	--	--	90.24	--
		09/16/04	8.38	--	--	91.35	--
		04/21/05	9.84	--	--	89.89	--
		09/30/05	7.67	--	--	92.06	--
		04/19/06	11.28	10.75	0.53	88.88	--
		09/21/06	8.91	--	--	90.82	--
		04/03/07	10.80	10.78	0.02	88.95	--
		09/29/07	8.47	--	--	91.26	--
		03/29/08	10.15	--	--	89.58	--
		09/10/08	8.08	--	--	91.65	--
		04/21/09	11.11	10.89	0.22	88.80	--
		10/06/09	10.22	10.20	0.02	89.53	--
		03/18/10	11.41	10.90	0.51	88.74	--
		04/20/10	10.96	10.90	0.06	88.82	--
		05/26/10	11.42	10.90	0.52	88.74	--
		06/18/10	9.37	9.36	0.01	90.37	--
		07/23/10	7.11	--	--	92.62	--
		08/16/10	7.10	--	--	92.63	--
	[1] 432.07	09/23/10	8.16	--	--	423.91	--
		10/25/10	10.55	10.51	0.04	421.55	--
		11/16/10	11.41	11.18	0.23	420.85	--
		12/14/10		Well not measured			--
		01/05/11	10.32	--	--	421.75	--
		02/08/11	10.67	--	--	421.40	--
		03/23/11	11.39	--	--	420.68	--
		04/13/11	10.90	10.87	0.03	421.19	--
		06/09/11	9.35	--	Trace	422.72	--
		08/23/11	7.25	--	Trace	424.82	--
		06/12/12	9.22	--	Trace	422.85	--
		08/06/13	7.29	--	--	424.78	--
		10/11/13		**Well obstructed by snow/ice**			**--**

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
GEI-4	99.66	09/04/03	6.12	--	--	93.54	--
		04/24/04	9.52	--	--	90.14	--
		09/16/04	8.41	--	--	91.25	--
		04/21/05	9.83	--	--	89.83	--
		09/30/05	7.69	--	--	91.97	--
		04/19/06	10.90	--	--	88.76	--
		09/21/06	8.91	--	--	90.75	--
		04/03/07	10.98	--	--	88.68	--
		09/29/07	8.44	--	--	91.22	--
		03/29/08	10.08	--	--	89.58	--
		09/10/08	8.03	--	--	91.63	--
		04/21/09	10.65	--	--	89.01	--
		10/06/09	10.14	--	--	89.52	--
		06/18/10	9.24	--	--	90.42	--
		07/23/10	6.95	--	--	92.71	--
		08/16/10	7.00	6.97	0.03	92.68	--
	[1] 431.97	09/23/10	8.10	8.05	0.05	423.91	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	Well not measured				--
		03/23/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	9.19	--	--	422.78	--
		08/23/11	7.09	--	Trace	424.88	--
		06/12/12	9.00	--	Trace	422.97	--
		08/06/13	7.08	--	--	424.89	--
		10/11/13	**9.78**	**--**	**--**	**422.19**	**--**
GEI-5	99.88	09/04/03	8.28	5.97	2.31	93.49	--
		04/24/04	10.11	9.71	0.40	90.10	--
		09/16/04	10.40	8.21	2.19	91.28	--
		04/21/05	10.49	10.06	0.43	89.74	--
		09/30/05	7.95	--	--	91.93	--
		04/19/06	11.75	11.01	0.74	88.74	--
		09/21/06	10.09	9.01	1.08	90.68	--
		04/03/07	11.70	11.23	0.47	88.57	--
		09/29/07	9.22	8.72	0.50	91.07	--
		03/29/08	10.67	10.45	0.22	89.39	--
		09/10/08	8.71	8.37	0.34	91.45	--
		11/24/08	10.08	--	--	89.80	--
		12/18/08	10.29	--	--	89.59	--
		01/27/09	11.26	10.94	0.32	88.88	--
		02/20/09	11.65	11.21	0.44	88.59	--
		04/21/09	11.44	11.02	0.42	88.78	--
		10/06/09	10.65	10.53	0.12	89.33	--
		03/18/10	11.61	11.6	0.01	88.28	--
		04/20/10	12.45	11.5	0.95	88.21	--
		05/26/10	11.69	11.31	0.38	88.50	--
		06/18/10	9.73	9.72	0.01	90.16	--
		07/23/10	7.76	--	--	92.12	--
		08/16/10	7.98	7.34	0.64	92.42	--
	[1] 432.43	09/23/10	9.51	8.45	1.06	423.79	--
		10/25/10	10.88	--	--	421.55	--
		11/16/10	11.71	11.68	0.03	420.74	--
		12/14/10	Well not measured				--
		01/05/11	10.86	--	--	421.57	--
		02/08/11	10.99	--	--	421.44	--
		03/23/11	11.24	11.23	0.01	421.20	--
		04/13/11	11.51	11.18	0.33	421.19	--
		06/09/11	9.69	--	Trace	422.74	--
		08/23/11	7.84	7.56	0.28	424.82	0.2
		06/12/12	9.55	--	Trace	422.88	--
		08/06/13	8.52	7.43	1.09	424.80	--
		10/11/13	**10.21**	--	--	**422.22**	--

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
GEI-6	99.95	09/04/03	6.47	--	--	93.48	--
		04/24/04	9.95	--	--	90.00	--
		09/16/04	8.83	--	--	91.12	--
		04/21/05	10.28	--	--	89.67	--
		09/30/05	8.24	--	--	91.71	--
		04/19/06	Well buried under snow/ice				--
		09/21/06	9.30	9.30	<0.1	90.65	--
		04/03/07	Well Dry				--
		09/29/07	9.10	8.81	0.29	91.09	--
		10/15/07	10.70	10.26	0.44	89.61	--
		11/19/07	11.04	10.71	0.33	89.18	--
		03/29/08	10.61	10.60	0.01	89.35	--
		06/25/08	9.58	--	--	90.37	--
		07/14/08	8.51	--	--	91.44	--
		08/06/08	6.44	6.08	0.36	93.81	--
		09/10/08	9.25	8.41	0.84	91.39	--
		11/24/08	10.30	10.22	0.08	89.72	--
		12/18/08	10.52	10.38	0.14	89.54	--
		01/27/09	11.10	10.96	0.14	88.96	--
		02/20/09	11.10	--	--	88.85	--
		04/21/09	Well blocked at 11.5' below TOC				--
		10/06/09	10.85	10.68	0.17	89.24	--
		03/18/10	Unable to locate				--
		04/20/10	Well Dry				--
		05/26/10	Well blocked at 11.05' below TOC				--
		06/18/10	9.80	--	Trace	90.15	--
		07/23/10	7.70	7.61	0.09	92.32	--
		08/16/10	8.20	7.41	0.79	92.40	--
	[1] 432.49	09/23/10	9.31	8.52	0.79	423.83	--
		10/25/10	Well blocked at 11.1' below TOC				--
		11/16/10	Well blocked at 11.06' below TOC				--
		12/14/10	Well not measured				--
		01/05/11	Well blocked at 11.12' below TOC				--
		02/08/11	Well blocked at 11.10' below TOC				--
		03/23/11	Well blocked at 11.06' below TOC				--
		04/13/11	Well blocked at 11.10' below TOC				--
		06/09/11	9.80	--	--	422.69	--
		08/23/11	8.59	7.50	1.09	424.79	1.2
		06/12/12	9.75	--	Trace	422.74	--
		08/06/13	8.47	7.55	0.92	424.77	--
		10/11/13	**10.39**	--	--	**422.10**	--

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
GEI-7	99.44	09/04/03	5.92	--	--	93.52	--
		04/24/04	9.49	--	--	89.95	--
		09/16/04	8.36	--	--	91.08	--
		04/21/05	9.95	--	--	89.49	--
		09/30/05	7.74	--	--	91.70	--
		04/19/06	11.04	--	--	88.40	--
		09/21/06	9.06	--	--	90.38	--
		04/03/07	11.21	--	--	88.23	--
		09/29/07	8.59	--	--	90.85	--
		03/29/08	10.28	10.26	0.02	89.18	--
		09/10/08	8.21	--	--	91.23	--
		04/21/09	10.90	10.86	0.04	88.57	--
		10/06/09	10.36	10.34	0.02	89.10	--
		03/18/10		Unable to locate			--
		04/20/10	12.31	11.22	1.09	88.02	--
		05/26/10	11.41	11.08	0.33	88.30	--
		06/18/10	9.48	9.47	0.01	89.97	--
		07/23/10	7.25	--	--	92.19	--
		08/16/10	7.21	--	--	92.23	--
	[1] 432.14	09/23/10	8.30	--	--	423.84	--
		10/25/10	10.76	--	--	421.38	--
		11/16/10	11.26	--	--	420.88	--
		12/14/10	10.38	--	--	421.76	--
		01/05/11	10.36	--	--	421.78	--
		02/08/11	11.23	10.69	0.54	421.35	--
		03/23/11	11.45	10.97	0.48	421.08	--
		04/13/11	11.43	10.95	0.48	421.10	--
		06/09/11	9.71	9.42	0.29	422.67	0.2
		08/23/11	7.33	--	--	424.81	--
		06/12/12	9.42	9.27	0.15	422.84	0.15
		08/06/13	7.21	--	--	424.93	--
		10/11/13	**9.91**	--	--	**422.23**	--

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
GEI-8	100.01	09/04/03	6.48	--	--	93.53	--
		04/24/04	9.94	--	--	90.07	--
		09/16/04	8.84	--	--	91.17	--
		04/21/05	10.31	--	--	89.70	--
		09/30/05	8.18	--	--	91.83	--
		04/19/06	11.47	--	--	88.54	--
		09/21/06	9.48	--	--	90.53	--
		04/03/07	11.63	--	--	88.38	--
		09/29/07	9.08	--	--	90.93	--
		03/29/08	10.77	--	--	89.24	--
		09/10/08	8.72	8.70	0.02	91.31	--
		11/24/08	10.36	--	--	89.65	--
		12/18/08	10.55	--	--	89.46	--
		01/27/09	11.24	--	--	88.77	--
		02/20/09	11.55	--	--	88.46	--
		04/21/09	11.50	--	--	88.51	--
		10/06/09	10.82	--	--	89.19	--
		03/18/10	11.79	--	--	88.22	--
		04/20/10	11.87	--	--	88.14	--
		05/26/10	11.63	--	--	88.38	--
		06/18/10	9.96	--	--	90.05	--
		07/23/10	6.79	--	--	93.22	--
		08/16/10	7.71	--	--	92.30	--
	[1] 432.68	09/23/10	8.80	--	--	423.88	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	Well not measured				--
		03/23/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	9.97	--	--	422.71	--
		08/23/11	7.86	--	--	424.82	--
		06/12/12	Well not measured-obstructed by ice				
		08/06/13	7.60	--	--	425.08	--
		10/11/13	**10.34**	--	--	**422.34**	--
GEI-9	100.02	09/04/03	6.42	--	--	93.60	--
		04/24/04	9.82	--	--	90.20	--
		09/16/04	8.21	--	--	91.81	--
		04/21/05	Well buried under snow/ice				--
		09/30/05	8.14	--	--	91.88	--
		04/19/06	Well buried under snow/ice				--
		09/21/06	9.31	--	--	90.71	--
		04/03/07	11.39	--	--	88.63	--
		09/29/07	8.91	--	--	91.11	--
		03/29/08	10.73	10.65	0.08	89.36	--
		09/10/08	8.63	--	--	91.39	--
		04/21/09	Well buried under snow/ice				--
		10/06/09	10.90	10.87	0.03	89.14	--
		03/18/10	Well obstructed by snow/ice				--
		04/20/10	12.11	11.9	0.21	88.08	--
		05/26/10	11.81	11.71	0.1	88.29	--
		07/23/10	7.82	--	--	92.20	--
		08/16/10	7.84	7.81	0.03	92.20	--
	[1] 432.81	09/23/10	9.00	8.87	0.13	423.92	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	Well not measured				--
		03/23/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	10.27	10.08	0.19	422.70	--
		08/23/11	7.99	--	Trace	424.82	--
		06/12/12	10.07	10.01	0.06	422.79	--
		08/06/13	7.82	--	--	424.99	--
		10/11/13	**10.52**	--	--	**422.29**	--

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
MW-1	432.51	09/10/08	8.65	--	--	423.86	--
		04/21/09	11.26	--	--	421.25	--
		10/06/09	10.75	--	--	421.76	--
		06/18/10	9.85	9.79	0.06	422.71	--
		07/23/10	7.54	--	--	424.97	--
		08/16/10	7.56	--	--	424.95	--
	[1] 432.50	09/23/10	8.68	--	--	423.82	--
		10/25/10	11.05	--	--	421.45	--
		11/16/10	11.82	--	--	420.68	--
		12/14/10	10.83	--	--	421.67	--
		01/05/11	10.82	--	--	421.68	--
		02/08/11	11.15	--	--	421.35	--
		03/23/11	11.40	10.92	0.48	421.49	--
		04/13/11	11.37	11.36	0.01	421.14	--
		06/09/11	9.84	--	--	422.66	--
		08/23/11	7.69	--	--	424.81	--
		06/12/12	9.68	9.59	0.09	422.89	0.01
		08/06/13	7.68	--	--	424.82	--
		10/11/13	**10.45**	--	--	**422.05**	--
MW-2	431.79	09/10/08	7.75	--	--	424.04	--
		04/21/09	Well under water				--
		10/06/09	9.89	--	--	421.90	--
		06/18/10	9.02	--	--	422.77	--
		07/23/10	6.80	--	--	424.99	--
		08/16/10	6.71	--	--	425.08	--
	[1] 431.77	09/23/10	7.82	--	--	423.95	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/10	Well not measured				--
		03/23/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	8.98	--	--	422.79	--
		08/23/11	6.87	--	--	424.90	--
		06/12/12	8.82	--	--	422.95	--
		08/06/13	6.90	--	--	424.87	--
		10/11/13	**9.58**	--	--	**422.19**	--

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
MW-3	432.89	09/10/08	9.00	--	--	423.89	--
		04/21/09	11.69	--	--	421.20	--
		10/06/09	10.15	--	--	422.74	--
		06/18/10	10.22	--	--	422.67	--
		07/23/10	7.91	--	--	424.98	--
		08/16/10	7.96	--	--	424.93	--
	[1] 432.90	09/23/10	9.08	--	--	423.82	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	Well not measured				--
		03/23/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	10.21	--	--	422.69	--
		08/23/11	8.08	--	--	424.82	--
		06/12/12	10.00	--	--	422.90	--
		08/06/13	8.07	--	--	424.83	--
		10/11/13	**Well obstructed**				--
MW-4	432.29	09/10/08	8.26	--	--	424.03	--
		04/21/09	Well buried under snow/ice				--
		10/06/09	10.57	--	--	421.72	--
		06/18/10	9.49	--	--	422.80	--
		07/23/10	7.24	--	--	425.05	--
		08/16/10	7.26	--	--	425.03	--
	[1] 432.31	09/23/10	8.33	--	--	423.98	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	Well not measured				--
		03/23/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	9.53	--	--	422.78	--
		08/23/11	7.42	--	--	424.89	--
		06/12/12	9.44	--	--	422.87	--
		08/06/13	7.52	--	--	424.79	--
		10/11/13	**10.24**	**--**	**--**	**422.07**	**--**

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
MW-5	432.76	09/10/08	8.81	--	--	423.95	--
		04/21/09	11.51	--	--	421.25	--
		10/06/09	11.03	--	--	421.73	--
		06/18/10	10.10	--	--	422.66	--
		07/23/10	Well not measured				--
		08/16/10	7.88	--	--	424.88	--
	[1] 432.85	09/23/10	8.98	--	--	423.87	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		01/05/11	Well not measured				--
		02/08/11	Well not measured				--
		03/22/11	Well not measured				--
		04/13/11	Well not measured				--
		06/09/11	10.16	--	--	422.69	--
		08/23/11	8.02	--	--	424.83	--
		06/12/12	10.02	--	--	422.83	--
		08/06/13	8.10	--	--	424.75	--
		10/11/13	**11.83**	**--**	**--**	**421.02**	**--**
MW-6	432.58	09/20/10	8.45	--	--	424.13	--
		09/23/10	8.70	--	--	423.88	--
		10/25/10	10.11	--	--	422.47	--
		11/16/10	11.87	--	--	420.71	--
		12/14/10	Well not measured				--
		01/05/11	Well not measured- unable to locate				--
		02/08/11	Well not measured- unable to locate				--
		03/23/11	Well not measured- unable to locate				--
		04/13/11	Well not measured- unable to locate				--
		06/09/11	9.84	--	--	422.74	--
		08/23/11	7.73	--	--	424.85	--
		06/12/12	9.68	--	--	422.90	--
		08/06/13	7.77	--	--	424.81	--
		10/11/13	**10.54**	--	--	**422.04**	--
MW-7	432.78	09/20/10	8.68	--	--	424.10	--
		09/23/10	8.93	--	--	423.85	--
		10/25/10	11.30	--	--	421.48	--
		11/16/10	12.08	--	--	420.70	--
		12/14/10	Well not measured- unable to locate				--
		01/05/11	Well not measured- unable to locate				--
		02/08/11	Well not measured- unable to locate				--
		03/22/11	Well not measured- unable to locate				--
		04/13/11	11.68	--	--	421.10	--
		06/09/11	10.13	--	--	422.65	--
		08/23/11	8.01	--	--	424.77	--
		06/12/12	10.02	--	--	422.76	--
		08/06/13	8.12	--	--	424.66	--
		10/11/13	10.90	**--**	**--**	**421.88**	**--**

Table 3
Groundwater Elevation Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Top of Casing Elevation (feet)	Date	Depth-to-Water (ft BTOC)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Groundwater Elevation (feet)	LNAPL Removed (Gallons)
MW-8	433.11	09/20/10	8.30	--	--	424.81	--
		09/23/10	9.32	--	--	423.79	--
		10/25/10	11.80	--	--	421.31	--
		11/16/10	12.32	--	--	420.79	--
		12/14/10	11.36	--	--	421.75	--
		01/05/11	11.39	--	--	421.72	--
		02/08/11	11.70	--	--	421.41	--
		03/23/11	12.63	11.95	0.68	420.48	--
		04/13/11	12.59	11.94	0.65	420.52	--
		06/09/11	10.45	--	--	422.66	--
		08/23/11	8.35	--	--	424.76	--
		06/12/12	10.29	--	--	422.82	--
		08/06/13	8.38	--	--	424.73	--
		10/11/13	**Obstructed with ice @ 10.30'**				--
MW-9	432.39	09/20/10	8.30	--	--	424.09	--
		09/23/10	8.60	--	--	423.79	--
		10/25/10	10.95	--	--	421.44	--
		11/16/10	11.74	--	--	420.65	--
		12/14/10	Well not measured- unable to locate				--
		01/05/11	Well blocked at 0.8' below grade surface				--
		02/08/11	Well blocked at 0.8' below grade surface				--
		03/23/11	Well blocked at 0.8' below grade surface				--
		04/13/11	Well blocked at 0.8' below grade surface				--
		06/09/11	Obstructed @ 4.45'				--
		08/23/11	7.61	--	--	424.78	--
		06/12/12	9.66	--	--	422.73	--
		08/06/13	7.70	--	--	424.69	--
		10/11/13	**10.47**	--	--	**421.92**	--
MW-10	432.75	09/20/10	8.58	--	--	424.17	--
		09/23/10	8.92	--	--	423.83	--
		10/25/10	10.20	--	--	422.55	--
		11/16/10	11.99	--	--	420.76	--
		12/14/10	Well not measured				--
		01/05/11	11.00	--	--	421.75	--
		02/08/11	11.37	--	--	421.38	--
		03/23/11	11.62	--	--	421.13	--
		04/13/11	11.90	--	--	420.85	--
		06/09/11	10.06	--	--	422.69	--
		08/23/11	7.91	--	--	424.84	--
		06/12/12	10.91	--	--	421.84	--
		08/06/13	8.02	--	--	424.73	--
	[1] **432.86**	**10/11/13**	**10.61**	--	--	**422.25**	--
MW-11	**NE**	**10/11/13**	**10.61**	**--**	**--**	**--**	--
MW-12	**433.00**	**10/11/13**	**11.10**	**--**	**--**	**421.90**	--
MW-13	**433.50**	**10/11/13**	**11.59**	**--**	**--**	**421.91**	--
RW-1	432.30	09/10/08	8.30	--	--	424.00	--
		04/21/09	Well obstructed by snow/ice				--
		10/06/09	10.45	--	--	421.85	--
		06/18/10	9.54	--	--	423.21	--
		08/16/10	7.31	--	--	424.99	--
		09/23/10	8.39	--	--	423.91	--
		10/25/10	Well not measured				--
		11/16/10	Well not measured				--
		12/14/10	Well not measured				--
		1/5/11	Well not measured				--
		2/8/11	Well not measured				--
		3/23/11	Well not measured				--
		4/13/11	Well not measured				--
		06/09/11	9.54	--	--	422.76	--
		08/23/11	7.45	--	Trace	424.85	--
		06/12/12	9.37	--	Trace	422.93	--
		08/06/13	7.42	--	--	424.88	--
		10/11/13	**10.19**	**--**	**--**	**422.11**	**--**

Notes:
ft BTOC = feet below top of casing
LNAPL = Light non-aqeous phase liquid
Groundwater elevations were corrected due to the presence of LNAPL in well. Specific gravity of 0.82 was used for the LNAPL (Jet-A Fuel).
"--" = Not applicable.
Bold text indicates most recent sampling event.
[1] = Updated survey data
NE = Not established, vehicle parked over well during 2013 surveying.

Table 4
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	DRO with SGC	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead	1,2 Dibromo-ethane
ADEC Groundwater Cleanup Levels [1]		*2,200*	*1,500*	*1,500*	*1,100*	*5*	*1,000*	*700*	*10,000*	*470*	*15*	*0.05*
GEI-1	04/24/04	Well buried by snow/ice										
	09/16/04	1,760	151,000	--	--	7.05	1.83	47.9	251	--	--	--
	09/16/04[D]	--	--	--	--	5.40	2.02	42.2	233	--	--	--
	04/21/05	Well buried by snow/ice										
	09/30/05	2,270	327,000	--	<3,970	5.52	0.945	36.6	208	--	--	--
	04/19/06	Well buried by snow/ice										
	09/21/06	1,300	690,000	--	<9,800	10.0	0.8	22	140	--	--	--
	04/03/07	LNAPL Present - Well not sampled										
	09/29/07	LNAPL Present - Well not sampled										
	03/29/08	Well buried by snow/ice										
	09/10/08	LNAPL Present - Well not sampled										
	04/22/09	Well buried under snow/ice										
	10/06/09	LNAPL Present - Well not sampled										
	06/18/10	LNAPL Present - Well not sampled										
	09/23/10	LNAPL Present - Well not sampled										
	06/10/11	LNAPL Globules Present - Well not sampled										
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Globules Present - Well not sampled										
	08/07/13	970	49,800	43,600	<1,100	6.6	<1.0	16.9	125	<1.0	--	--
Duplicate	08/07/13	1,280	90,700	--	<1,000	6.7	<1.0	17.5	130	<1.0	--	--
GEI-2	04/24/04	Well buried by snow/ice										
	09/16/04	76.6	1,430	--	--	2.53	0.547	<0.500	1.81	--	--	--
	04/21/05	Well buried by snow/ice										
	09/30/05	65.6	885	--	<391	<0.500	<0.500	<0.500	<1.50	--	--	--
	04/19/06	Well buried by snow/ice										
	09/21/06	56.0	1,500	--	430	<0.5	<0.500	<0.500	<1.50	--	--	--
	04/03/07	Well dry - Not sampled										
	09/29/07	30	--	--	--	<1.00	<1.00	<1.00	<2.00	--	--	--
	03/29/08	<50.0	--[2]	--	--[2]	<0.500	<0.500	<0.500	<1.00	--	--	--
	09/10/08	52 [3]	5,300 [4]	--	<743	0.225	<0.500	1.16	<1.00	--	<1.00	--
	04/22/09	Well under water										
	10/06/09	Well dry - Not sampled										
	06/18/10	LNAPL Present - Well not sampled										
	09/23/10	<10	2,500	--	210	<0.5	<0.5	<0.5	<1.5	--	<0.052	--
	06/10/11	13	6,100	--	930	<0.5	<0.5	<0.5	<1.00	--	--	--
	08/25/11	<10	1,100	--	840	<0.5	<0.5	<0.5	<1.50	--	--	--
Duplicate	08/25/11	<10	--	--	--	<0.5	<0.5	<0.5	<1.50	--	--	--
	06/13/12	<10	320	79	980	<0.5	<0.5	<0.5	<1.5	--	--	--
Duplicate	06/13/12	<10	190	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/07/13	<100	960	<420	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
GEI-3	04/24/04	1,330	21,000	--	--	<5.00	<5.00	13.9	59.8	--	--	--
	09/16/04	310	18,300	--	--	1.26	<0.500	8.27	14.9	--	--	--
	04/21/05	464	22,900	--	--	<0.500	<0.500	6.24	14.6	--	--	--
	09/30/05	450	33,300	--	625	<0.500	<0.500	3.45	10.6	--	--	--
	04/19/06	LNAPL Present - Well not sampled										
	09/21/06	500	29,000	--	<480	<0.600	<0.500	7.7	25.0	--	--	--
	04/03/07	LNAPL Present - Well not sampled										
	09/29/07	700	65,000	--	<2,100	<5.00	<5.00	<5.00	<20	--	--	--
	03/29/08	492	47,100 [5]	--	863	<0.500	<0.500	5.01	16.0	--	--	--
	09/10/08	374 [3]	22,400 [6]	--	<3,750	<1.00	<2.50	7.06	13.7	--	<1.00	--
	04/22/09	LNAPL Present - Well not sampled										
	10/06/09	LNAPL Present - Well not sampled										
	06/18/10	LNAPL Present - Well not sampled										
	09/23/10	450	2,400	--	<140	<0.5	<0.5	2.2	8.6	--	<0.052	--
	06/10/11	LNAPL Globules Present - Well not sampled										
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Globules Present - Well not sampled										
	08/07/13	529	25,800	23,000	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
GEI-4	04/24/04	1,270	43,600	--	--	<5.00	<5.00	14.6	57.2	--	--	--
	09/16/04	638	36,200	--	--	15.0	0.675	21.8	35.7	--	--	--
	04/21/05	570	37,500	--	--	35.4	1.27	17.7	40.1	--	--	--
	09/30/05	1,030	122,000	--	<4,100	7.47	4.88	25.1	58.7	--	--	--
	04/19/06	879	17,800	--	<391	7.58	<0.500	21.8	27.9	--	<1.00	--
	09/21/06	630	12,000	--	<480	24.0	0.5	25	43	--	--	--
	04/03/07	300	2,000	--	<40	5.0	<1.00	9	8.0	--	--	--
	09/29/07	1,400	43,000	--	<2,000	20	1.00	20	40	--	--	--
	03/29/08	255 [7]	11,300 [5]	--	<735	2.17	<0.500	4.16	9.20	--	--	--
	09/10/08	889 [3]	32,300 [4]	--	<3,750	53.2	2.42	37.9	71.0	--	<1.00	--
	04/22/09	229 [7]	2,840 [4]	--	<721	2.90	<0.500	4.50	7.64	--	<1.00 [8]	<0.01
	10/06/09	305	5,820	--	787	15.7	<1.00	17.3	33.77	--	<1.00	<0.0100
	06/18/10	Well Not Sampled										
	09/23/10	LNAPL Present - Well not sampled										
	06/10/11	3,900	270,000	--	<14,000	<2.5	<10	<2.5	8.2	--		
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Globules Present - Well not sampled										
	08/08/13	473	344,000	323,000	6,300	4.3	<1.0	1.2	4.4	<1.0	--	--

Table 4
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	DRO with SGC	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead	1,2 Dibromo-ethane
ADEC Groundwater Cleanup Levels [1]		*2,200*	*1,500*	*1,500*	*1,100*	*5*	*1,000*	*700*	*10,000*	*470*	*15*	*0.05*
GEI-5	04/24/04	LNAPL Present - Well not sampled										
	09/16/04	LNAPL Present - Well not sampled										
	04/21/05	LNAPL Present - Well not sampled										
	09/30/05	2,530	671,000	--	<8,700	12.4	<0.500	107	326		--	--
	04/19/06	LNAPL Present - Well not sampled										
	09/21/06	LNAPL Present - Well not sampled										
	04/03/07	LNAPL Present - Well not sampled										
	09/29/07	LNAPL Present - Well not sampled										
	03/29/08	68.1	1,860 [5]	--	<708	<0.500	<0.500	<0.500	1.78			--
	09/10/08	LNAPL Present - Well not sampled										
	04/22/09	LNAPL Present - Well not sampled										
	10/06/09	LNAPL Present - Well not sampled										
	06/18/10	LNAPL Present - Well not sampled										
	09/23/10	LNAPL Present - Well not sampled										
	06/10/11	LNAPL Globules Present - Well not sampled										
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Present - Well not sampled										
	08/07/13	LNAPL Present - Well not sampled										
GEI-6	04/24/04	2,930	168,000	--	--	8.17	<5.00	59.6	145		--	--
	09/16/04	1,880	39,600	--	--	7.80	1.57	23.8	75.0		--	--
	04/21/05	1,290	25,300	--	--	15.7	<0.500	57.1	134		--	--
	09/30/05	2,220	120,000	--	<4,770	14.8	<0.500	20.8	107		--	--
	04/19/06	Well buried by snow/ice										
	09/21/06	LNAPL Present - Well not sampled										
	04/03/07	Well Dry - Not sampled										
	09/29/07	LNAPL Present - Well not sampled										
	03/29/08	1,170 [1]	334,000 [5]	--	904	8.41	<2.50	33.8	128		58.8	--
	09/10/08	LNAPL Present - Well not sampled										
	04/22/09	Well blocked at 11.5' below TOC										
	10/06/09	LNAPL Present - Well not sampled										
	06/18/10	LNAPL Present - Well not sampled										
	09/23/10	LNAPL Present - Well not sampled										
	06/10/11	1,300	170,000	--	<8,400	2.9	<0.5	19	61			
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Present - Well not sampled										
	08/07/13	LNAPL Present - Well not sampled										
GEI-7	04/24/04	2,440	43,200	--	--	6.97	<5.00	7.58	20.0		--	--
	09/16/04	363	5,660	--	--	<0.500	1.34	8.89	14.2		--	--
	04/21/05	1,080	13,600	--	--	32.6	2.52	64.6	92.0		--	--
	09/30/05	226	6,700	--	<397	<0.500	<0.500	3.68	4.72		--	--
	04/19/06	934	25,200	--	<856	37.9	4.11	77.8	103		<1.00	--
	09/21/06	470	4,100	--	<98	1.2	<0.5	14	15		--	--
	04/03/07	2,200	12,000	--	<980	50	4	90	200		--	--
	04/03/07 [D]	2,200	12,000	--	<980	40	4	90	200		--	--
	09/29/07	1,500	130,000	--	<2,000	<5	<5	<10	<20		27.9	--
	09/29/07 [D]	900	92,000	--	<2,000	<5	<5	<10	<20		--	--
	03/29/08	1,630 [7]	44,200	--	1,320	31.1	<5.00	90.5	147		--	--
	03/29/08 [D]	1,630	51,400	--	1,470	26.8	<5.00	85.2	131		--	--
	09/10/08	352 [3]	15,200 [4]	--	<833	<1.00	<2.50	10.7	8.02		<1.00	--
	04/22/09	LNAPL Present - Well not sampled										
	10/06/09	LNAPL Present - Well not sampled										
	06/18/10	LNAPL Present - Well not sampled										
	09/24/10	570	1,900	--	200	<2.0	<2.0	9.7	11		<0.052	--
	06/10/11	LNAPL Present - Well not sampled										
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Present - Well not sampled										
	08/08/13	561	37,200	34,000	<1,200	<1.0	<1.0	12.2	14.7	<1.0	--	--

Table 4
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	DRO with SGC	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead	1,2 Dibromo-ethane
ADEC Groundwater Cleanup Levels [1]		*2,200*	*1,500*	*1,500*	*1,100*	*5*	*1,000*	*700*	*10,000*	*470*	*15*	*0.05*
GEI-8	04/24/04	<500	7,390	--	--	<5.00	<5.00	11.7	30.4	--	--	--
	09/16/04	82	8,690	--	--	<0.500	<0.500	0.520	1.12	--	--	--
	04/21/05	54.3	1,460	--	--	<0.500	<0.500	<0.500	<1.50	--	--	--
	04/21/05[D]	<50	--	--	--	<0.500	<0.500	<0.500	<1.50	--	--	--
	09/30/05	<50	4,970	--	<397	<0.500	<0.500	<0.500	<1.50	--	--	--
	04/19/06	<50	1,480	--	<400	<0.500	<0.500	<0.500	<1.50	--	--	--
	04/19/06[D]	78.0	--	--	--	<0.500	<0.500	<0.500	<1.50	--	<1.00	--
	09/21/06	40.0	1,800	--	<160	<0.5	<0.5	<0.5	<1.5	--	--	--
	04/03/07	60	910	--	360	<1.0	<1.0	<1.0	<2.0	--	--	--
	09/29/07	80	4,400	--	<200	<1.0	<1.0	<1.0	<2.0	--	--	--
	03/29/08	62.0 [7]	2,830 [5]	--	<758	<0.500	<0.500	<0.500	1.94	--	--	--
	09/10/08	LNAPL Present - Well not sampled										
	04/22/09	66.6 [7]	1,810 [9]	--	818 [9]	<0.200	<0.500	<0.500	<1.00	--	<1.00 [8]	<0.01
	10/06/09	50.9	942	--	<391	<0.200	<1.00	<1.00	<3.00	--	<1.00	<0.0100
	10/06/09	50.9	942	--	<391	<0.200	<1.00	<1.00	<3.00	--	<1.00	<0.0100
	06/18/10	Obstruction - Well not sampled										
	09/23/10	11	530	--	220	<0.5	<0.5	<0.5	<1.5	--	<0.052	--
	06/10/11	1,300	26,000	--	<3,400	<2.5	<2.5	<2.5	<7.5	--	--	--
	08/25/11	20	99,000	--	<3,500	<0.5	<0.5	<0.5	<1.5	--	--	--
Duplicate	08/25/11	32	--	--	--	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/13/12	Obstruction - Well not sampled										
	08/08/13	<100	4,200	3,500	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
Duplicate	08/08/13	<100	3,000	--	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
GEI-9	04/24/04	8,370	33,700	--	--	9.53	<5.00	113	321	--	--	--
	09/16/04	1,350	77,400	--	--	17.3	<0.500	58.3	57.5	--	--	--
	04/21/05	Well buried by snow/ice										
	09/30/05	838	50,900	--	<443	16.2	<0.500	55.4	82.3	--	--	--
	04/19/06	Well buried by snow/ice										
	09/21/06	1,200	95,000	--	<1,900	23.0	<0.5	52	80	--	36.5	--
	09/21/06[D]	1,300	43,000	--	<980	22.0	<0.5	50	75	--	--	--
	04/03/07	1,600	9,700	--	<400	6.0	<1.0	40	80	--	0.62	--
	09/29/07	1,800	680,000	--	<20,000	10.0	<5.00	40	70	--	29.8	--
	03/29/08	1,690 [7]	111,000 [5]	--	839	7.23	<5.00	25.1	85.5	--	89.4	--
	09/10/08	1,510 [3]	118,000 [6]	--	<8,330	9.04	<5.00	29.3	63.1	--	<1.00	--
	9/10/08 [D]	1,150 [3]	191,000 [4]	--	<7,500	9.18	<5.00	25.0	56.1	--	<1.00	--
	04/22/09	Well buried under snow/ice										
	10/06/09	LNAPL Present - Well not sampled										
	06/18/10	Well not sampled										
	09/23/10	LNAPL Present - Well not sampled										
	06/10/11	LNAPL Present - Well not sampled										
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Present - Well not sampled										
	08/07/13	512	29,800	25,200	<1,000	8.2	<1.0	12.8	39	<1.0	--	--
MW-1	09/10/08	2,000 [3]	10,900 [4]	--	<743	27.4	<0.500	99.8	163	--	<1.00	--
	04/22/09	2,260 [7]	20,700 [4]	--	1,190 [10]	42.2	0.566	84.3	236	--	<1.00 [8]	<0.01
	10/07/09	1,040	8,070	--	642	25.4	<10.0	81.8	171.9	--	<1.00	<0.0100
	06/18/10	LNAPL Present - Well not sampled										
	09/24/10	1,800	12,000	--	<1,500	21	<0.5	55	130	--	--	--
	09/24/10	1,800	--	--	--	22	<0.5	56	130	--	--	--
	06/10/11	1,200	210,000	--	<8,500	29	<2.5	56	160	--	--	--
Duplicate	06/10/11	1,200	--	--	--	25	<0.5	54	160	--	--	--
	08/25/11	2,600	82,000	--	<3,400	32.0	9.1	45	130	--	--	--
	06/13/12	LNAPL Present - Well not sampled										
	08/08/13	678	8,300	5,000	<1,000	13.7	<1.0	51.7	97.2	<1.0	--	--

Table 4
Groundwater Analytical Data

Former Chevron Facility 306443
Gate 28, West Ramp, Fairbanks International Airport
Fairbanks, Alaska

Monitoring Well	Date Sampled	GRO	DRO	DRO with SGC	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead	1,2 Dibromo-ethane
ADEC Groundwater Cleanup Levels [1]		*2,200*	*1,500*	*1,500*	*1,100*	*5*	*1,000*	*700*	*10,000*	*470*	*15*	*0.05*
MW-2	09/10/08	<50.0	208 [6]	--	<743	<0.20	<0.500	<0.50	<1.00	--	<1.00	--
	04/22/09	Well buried under snow/ice										
	10/06/09	<50.0	<410	--	<410	<0.200	<1.00	<1.00	<3.00	--	<1.00	<0.0100
	06/18/10	11	530	--	290	<0.5	<0.5	<0.5	<1.5	--	<0.05	--
	09/23/10	<10	100	--	150	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/10/11	<10	85	--	200	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/25/11	<10	1,000	--	790	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/13/12	<10	170	<50	170	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/07/13	<100	<420	<420	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
MW-3	09/10/08	144 [3]	2,800 [4]	--	<743	0.263	<0.500	0.687	1.56	--	<1.00	--
	04/22/09	96.4 [7]	1,600 [4]	--	<728	0.210	<0.500	1.09	1.81	--	<1.00 [8]	<0.01
	10/07/09	205	1,350	--	<391	<0.400	<2.00	10.5	10.02	--	<1.00	<0.0100
	06/18/10	220	17,000	--	< 3.4	<0.5	<2	<0.5	< 5	--	<0.05	--
Duplicate	06/18/10	64	17,000	--	<3.5	<0.5	<0.5	<0.5	<1.5	--	--	--
	09/24/10	27	510	--	91	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/10/11	<50	21,000	--	<1,700	<2.5	<2.5	<2.5	<7.5	--	--	--
Duplicate	06/10/11	460	--	--	--	<0.5	<0.5	0.6	3.3	--	--	--
	08/25/11	71	10,000	--	<690	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/13/12	LNAPL Globules Present - Well not sampled										
	08/08/13	<100	15,100	14,200	<1,100	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
MW-4	09/10/08	<50.0	150 [6]	--	<743	<0.20	<0.500	<0.50	<1.00	--	<1.00	--
	04/22/09	Well buried under snow/ice										
	10/06/09	<50.0	<391	--	<391	<0.200	<1.00	<1.00	<3.00	--	<1.00	<0.0100
	10/06/09 [D]	<50.0	<403	--	<403	<0.200	<1.00	<1.00	<3.00	--	<1.00	<0.0100
	06/18/10	Well not sampled										
	09/24/10	<10	56	--	75	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/10/11	<10	<50	--	<71	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/25/11	20	62	--	77	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/13/12	<10	120	<50	<71	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/07/13	<100	<450	<450	<1,100	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
MW-5	09/10/08	89.1 [3]	2,240 [4]	--	<743	0.378	<0.500	2.42	3.28	--	<1.00	--
	04/22/09	254 [7]	4,230 [4]	--	<728	0.590	<0.500	6.95	5.14	--	<1.00 [8]	<0.01
	04/2209 [D]	248 [7]	4,150 [4]	--	<721	0.593	<0.500	6.82	4.90	--	<1.00 [8]	<0.01
	10/07/09	<50.0	1,040	--	<391	<0.200	<1.00	1.35	<3.00	--	<1.00	<0.0100
	06/18/10	540	1,500	--	<1.7	<0.5	<.5	2	<5	--	--	--
	09/24/10	230	6,500	--	<690	<0.5	<0.5	4.3	7.8	--	--	--
Duplicate	09/24/10	240	--	--	--	<0.5	<0.5	4.6	8.0	--	--	--
	06/10/11	3,800	63,000	--	<6,900	<0.5	<0.5	5.2	23	--	--	--
	08/25/11	210	2,700	--	<140	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/13/12	130	7,000	10,000	<720	<0.5	<0.5	0.6	2.8	--	--	--
	08/08/13	<100	3,600	2,900	<1,100	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
MW-6	09/24/10	81	560	--	86	<0.5	<0.5	2.3	3.9	--	--	--
	06/10/11	86	730	--	1,600	<0.5	<0.5	0.6	<5	--	--	--
	08/25/11	58	770	--	430	<0.5	<0.5	1.1	2	--	--	--
	06/13/12	41	460	160	150	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/07/13	<100	450	<420	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
MW-7	09/24/10	<10	200	--	92	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/10/11	<10	650	--	2,000	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/25/11	<10	150	--	190	<0.5	<0.5	<0.5	<1.5	--	--	--
	06/13/12	<10	360	<52	770	<0.5	<0.5	<0.5	<1.5	--	--	--
	08/08/13	<100	<420	<420	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--
MW-8	09/24/10	1,000	4,500	--	<360	1.3	<0.5	38	69		--	--
	06/10/11	LNAPL Globules Present - Well not sampled										
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Globules Present - Well not sampled										
	08/08/13	313	7,800	4,500	<1,100	<1.0	<1.0	<1.0	3.4	<1.0	--	--
MW-9	09/24/10	890	6,000	--	<730	7.3	<0.5	50	55		--	--
	06/10/11	Obstruction - Well not sampled										
	08/25/11	460	260	--	350	5.9	<2.5	35	42		--	--
	06/13/12	Obstruction - Well not sampled										
	08/08/13	304	3,200	1,500	<1,000	2.9	<1.0	32.2	23.5	<1.0	--	--
MW-10	09/24/10	<10	850	--	520	<0.5	<0.5	<0.5	<1.5		--	--
	06/10/11	<10	700	--	480	<0.5	<0.5	<0.5	<1.5		--	--
	08/25/11	<10	960	--	530	<0.5	<0.5	<0.5	<1.5		--	--
	06/13/12	<10	630	<50	240	<0.5	<0.5	<0.5	<1.5		--	--
	08/08/13	<100	900	<420	<1,000	<1.0	<1.0	<1.0	<3.0	<1.0	--	--

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Monitoring Well	Date Sampled	GRO	DRO	DRO with SGC	RRO	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Lead	1,2 Dibromo-ethane
ADEC Groundwater Cleanup Levels [1]		***2,200***	***1,500***	***1,500***	***1,100***	***5***	***1,000***	***700***	***10,000***	***470***	***15***	***0.05***
MW-11	**10/11/13**	**<100**	**<420**	**--**	**<420**	**<1.0**	**<1.0**	**<1.0**	**<3.0**	**--**	**--**	**--**
MW-12	**10/11/13**	**<100**	**<420**	**--**	**<420**	**<1.0**	**<1.0**	**<1.0**	**<3.0**	**--**	**--**	**--**
MW-13	**10/11/13**	**<100**	**<390**	**--**	**<390**	**<1.0**	**<1.0**	**<1.0**	**<3.0**	**--**	**--**	**--**
Duplicate	**10/11/13**	**<100**	**<430**	**--**	**<430**	**<1.0**	**<1.0**	**<1.0**	**<3.0**	**--**	**--**	**--**
RW-1	10/06/09	172	4,260	--	512	<0.200	<1.00	1.04	2.25	--	<1.00	<0.0100
	06/18/10	260	1,500	--	80	<0.5	<2.00	0.7	8.6	--	--	--
	09/24/10	330	4,100	--	<350	<0.5	<2.0	1.3	8.6	--	--	--
	06/10/11	3,500	140,000	--	<6,800	<2.5	<10	4	39	--	--	--
	08/25/11	LNAPL Globules Present - Well not sampled										
	06/13/12	LNAPL Globules Present - Well not sampled										
	08/07/13	317	3,900	2,600	<1,100	<1.0	<1.0	1.5	8.1	<1.0	--	--

Notes:
GRO = Gasoline range organics by AK method 101
DRO = Diesel range organics by AK method 102
SGC = Silica gel cleanup
RRO = Residual range organics by AK method 103
BTEX and 1,2-Dibromoethane by EPA method 8021B
MTBE = Methyl-tert-butyl ether by EPA method 8260B
Lead by EPA method 6020
[1] ADEC Groundwater Cleanup Levels (GCL) per 18 AAC 75.345, Table C, Register 188, October 9, 2008.
ADEC = Alaska Department of Environmental Conservation
All results are reported in micrograms per liter (ug/l).
Highlighted cell= exceeds GCL.
-- = sample was not analyzed for this compound.
< = result did not exceed indicated method reporting limit; an elevated reporting limit indicates sample was diluted.
[D] - duplicate of preceding sample.

LNAPL = light non-aqueous phase liquid
Bold Type indicates most recent sampling event.
[2] Insufficient water to collect sample.
[3] Does not match typical pattern.
[4] Detected hydrocarbons in the diesel range do not have a distinct diesel pattern and may be due to heavily weathered diesel.
[5] Hydrocarbon pattern most closely resembles kerosene.
[6] The chromatographic pattern is not consistent with diesel fuel.
[7] Detected hydrocarbons in the gasoline range appear to be due to overlap of diesel range hydrocarbons.
[8] Sample filtered in lab.
[9] Hydrocarbon pattern most closely resembles a blend of Weathered Diesel and Transformer Oil.
[10] The heavy oil range organics present are due to hydrocarbons eluting primarily in the diesel range.

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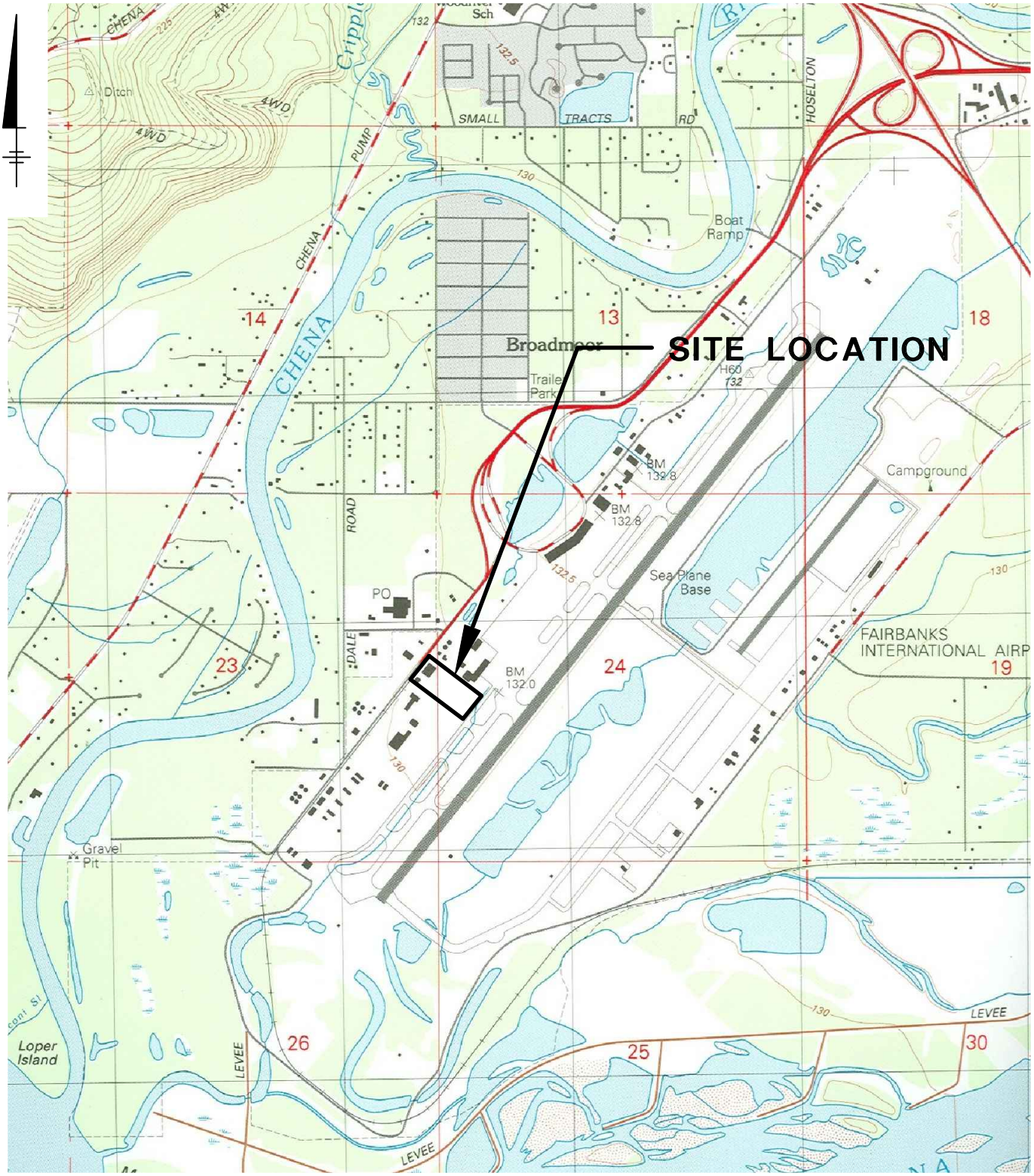
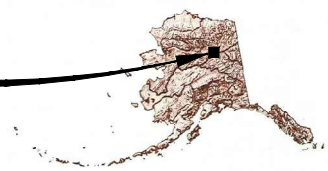
Figures



SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE: FAIRBANKS (D-2) SW, AK., 1992, FAIRBANKS NORTH STAR BOROUGH, SECTION: 24, TOWNSHIP: 1S, RANGE: 2W



0 2000' 4000'

APPROXIMATE GRAPHIC SCALE

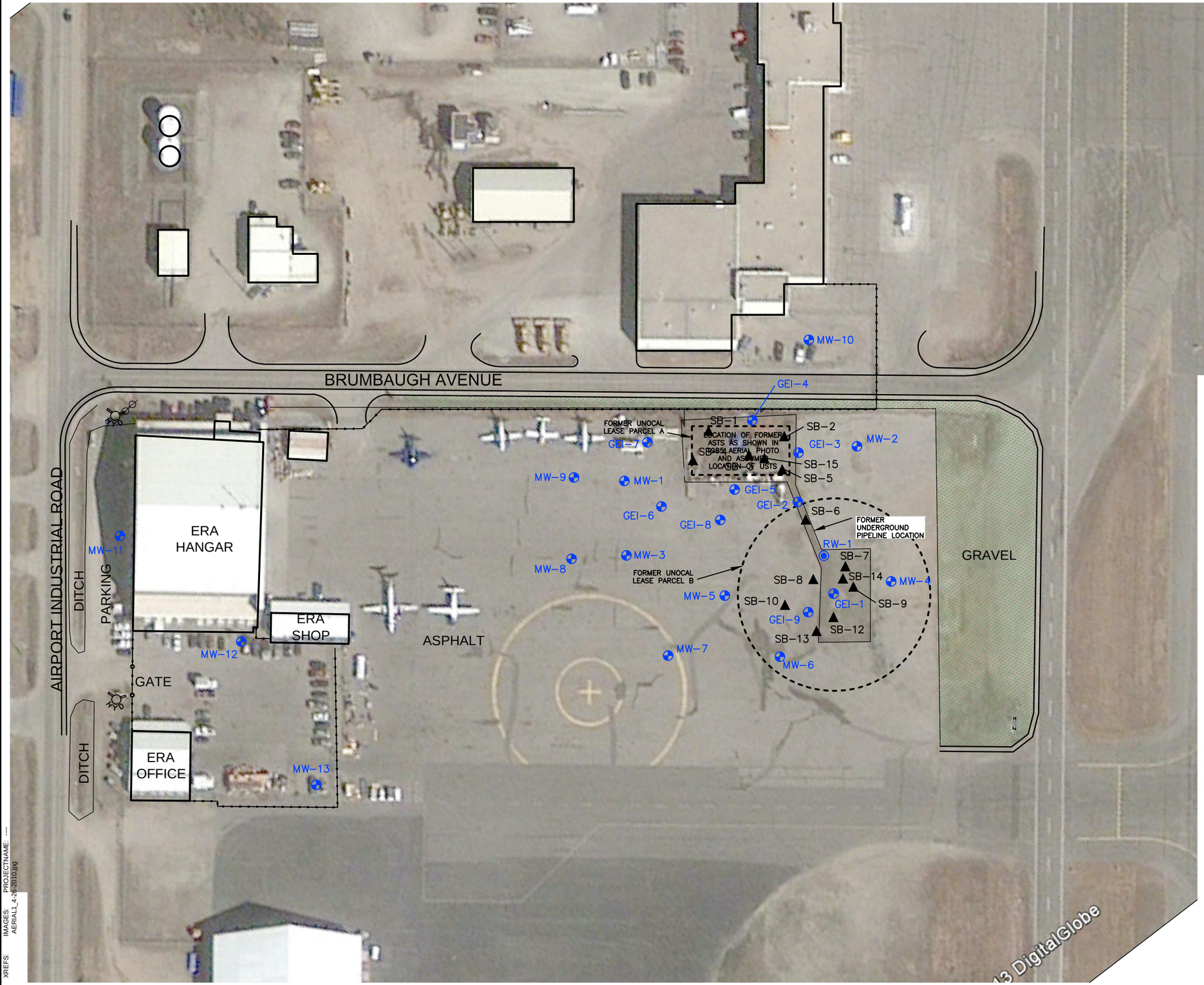
CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
2013 ADDITIONAL SITE ASSESSMENT REPORT

SITE LOCATION MAP

ARCADIS

FIGURE
1

CITY:TMAPA,FL DIV/GROUP:85 DB:JAR LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\TAMPA\ACTIChevron\USA\Chevron 306443\B0045507\0009.000051\2013 ASAR\B0045507N01.dwg LAYOUT: 1 SAVED: 1/3/2014 1:43 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/16/2014 8:52 AM BY: RICHARDS, JIM
XREFS: IMAGES: PROJECTNAME: ----
ALASKA.jpg
Fairbanks-SW airport.jpg



SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08 and 10/28/10.

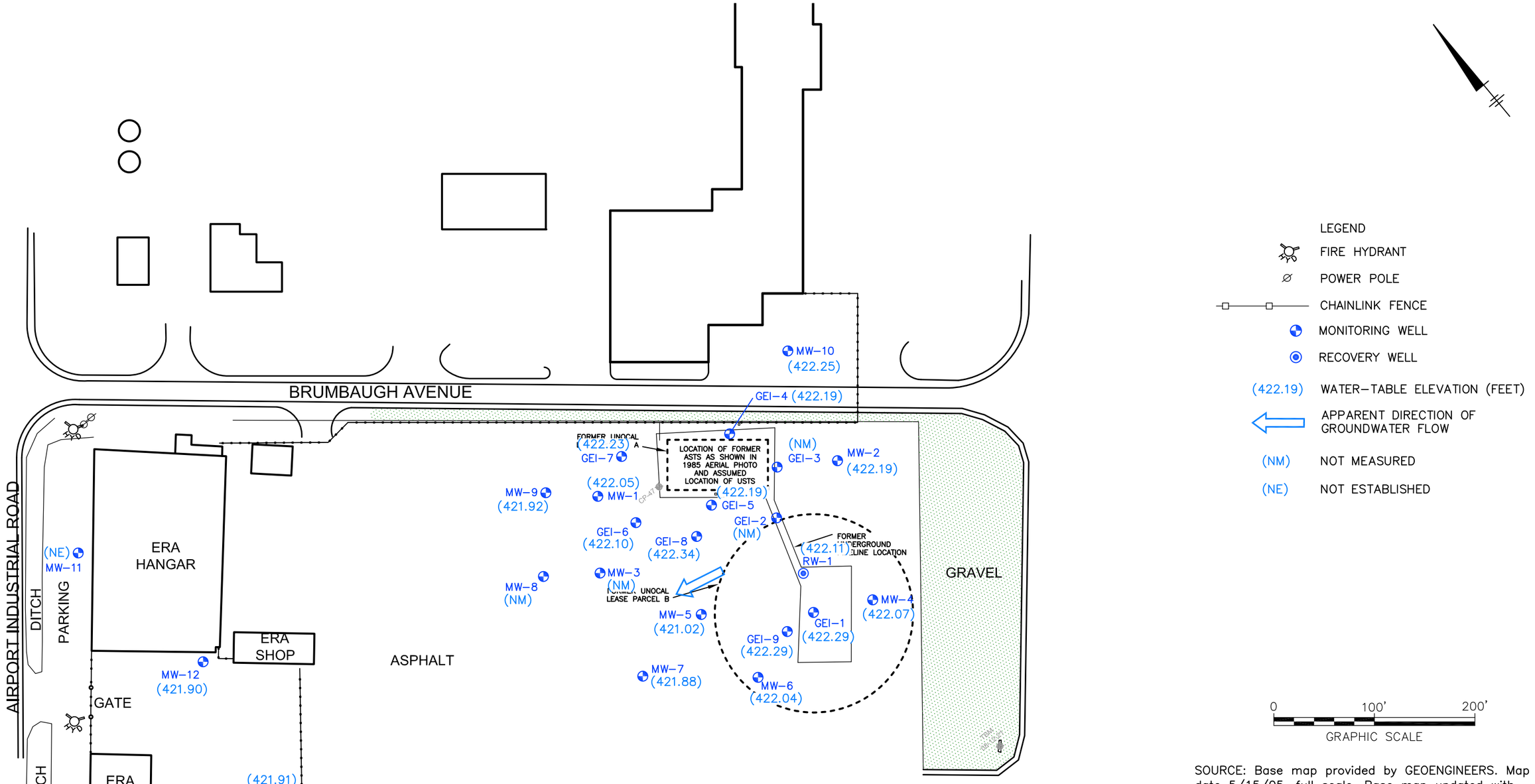
CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
2013 ADDITIONAL SITE ASSESSMENT REPORT

SITE MAP

ARCADIS

FIGURE
2

CITY:TMA-FL DIVGROUP:85 DB:R PETRIE LD:J RICHARDS PIC:(Opt) PM:(Req'd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\TAMPA\ACTIVChevron\USA\Chevron 306443\B0045507\0009.000052013 ASAR\B0045507B01.dwg LAYOUT: 2 SAVED: 1/3/2014 2:00 PM
XREFS: IMAGES: PROJECTNAME: ---
AERIAL1_4-25-2010.jpg
14 2:00 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/16/2014 8:47 AM BY: RICHARDS, JIM



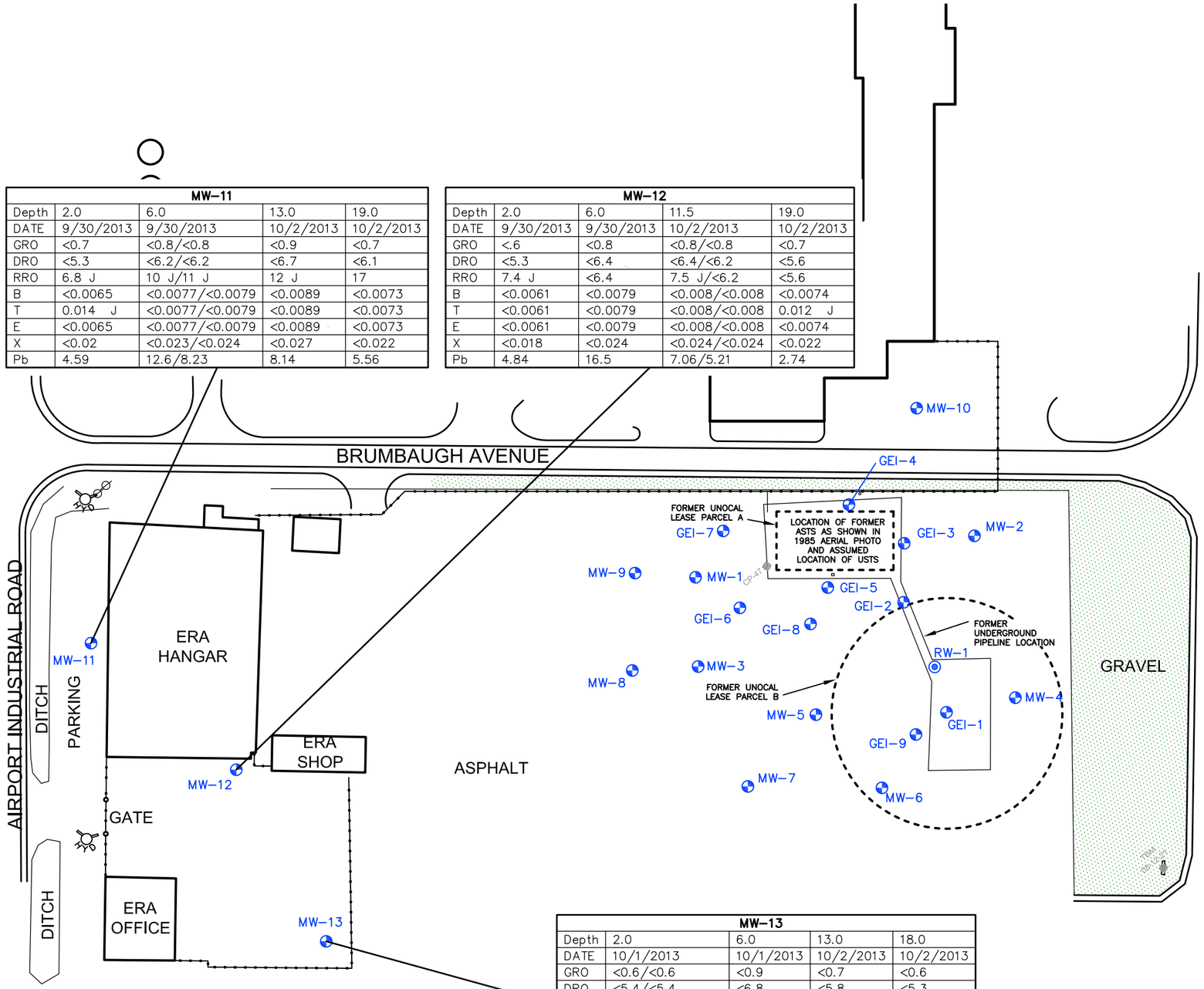
SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08 and 10/28/10.

CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
2013 ADDITIONAL SITE ASSESSMENT REPORT

GROUNDWATER ELEVATION CONTOUR MAP - OCTOBER 11, 2013

ARCADIS

FIGURE 3



MW-11				
Depth	2.0	6.0	13.0	19.0
DATE	9/30/2013	9/30/2013	10/2/2013	10/2/2013
GRO	<0.7	<0.8/<0.8	<0.9	<0.7
DRO	<5.3	<6.2/<6.2	<6.7	<6.1
RRO	6.8 J	10 J/11 J	12 J	17
B	<0.0065	<0.0077/<0.0079	<0.0089	<0.0073
T	0.014 J	<0.0077/<0.0079	<0.0089	<0.0073
E	<0.0065	<0.0077/<0.0079	<0.0089	<0.0073
X	<0.02	<0.023/<0.024	<0.027	<0.022
Pb	4.59	12.6/8.23	8.14	5.56

MW-12				
Depth	2.0	6.0	11.5	19.0
DATE	9/30/2013	9/30/2013	10/2/2013	10/2/2013
GRO	<.6	<0.8	<0.8/<0.8	<0.7
DRO	<5.3	<6.4	<6.4/<6.2	<5.6
RRO	7.4 J	<6.4	7.5 J/<6.2	<5.6
B	<0.0061	<0.0079	<0.008/<0.008	<0.0074
T	<0.0061	<0.0079	<0.008/<0.008	0.012 J
E	<0.0061	<0.0079	<0.008/<0.008	<0.0074
X	<0.018	<0.024	<0.024/<0.024	<0.022
Pb	4.84	16.5	7.06/5.21	2.74

MW-13				
Depth	2.0	6.0	13.0	18.0
DATE	10/1/2013	10/1/2013	10/2/2013	10/2/2013
GRO	<0.6/<0.6	<0.9	<0.7	<0.6
DRO	<5.4/<5.4	<6.8	<5.8	<5.3
RRO	5.9 J/<5.4	16 J	<5.8	<5.3
B	<0.0064/<0.0059	<0.0090	<0.0067	<0.0057
T	<0.0064/<0.0059	<0.0090	<0.0067	<0.0057
E	<0.0064/<0.0059	<0.0090	<0.0067	<0.0057
X	<0.019/<0.018	<0.027	<0.02	<0.017
Pb	7.31/7.27	9.28	2.97	4.11

LEGEND

- FIRE HYDRANT
- POWER POLE
- CHAINLINK FENCE
- MONITORING WELL
- RECOVERY WELL

SAMPLE LOCATION		
DATE	SAMPLE DATE	ADEC
DEPTH	SAMPLE DEPTH(FEET)	SCL (mg/kg)
DRO	DIESEL RANGE ORGANICS	250
GRO	GASOLINE RANGE ORGANICS	300
RRO	RESIDUAL RANGE ORGANICS	11,000
B	BENZENE	0.25
T	TOLUENE	6.5
E	ETHYLBENZENE	6.9
X	TOTAL XYLENES	6.3
Pb	LEAD	800

RESULTS REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

<0.8/<0.8 = DUPLICATE SAMPLE COLLECTED

<0.5 = RESULT IS BELOW LABORATORY DETECTION LIMIT

J = ESTIMATED VALUE; THE RESULT IS GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL) AND IS LESS THAN THE QUANTITATION LIMIT (LOQ).

ADEC = ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SCL = SOIL CLEANUP LEVEL

0 100' 200'

GRAPHIC SCALE

SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08 and 10/28/10.

CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
2013 ADDITIONAL SITE ASSESSMENT REPORT

SOIL ANALYTICAL DATA SEPTEMBER 30 THROUGH OCTOBER 2, 2013

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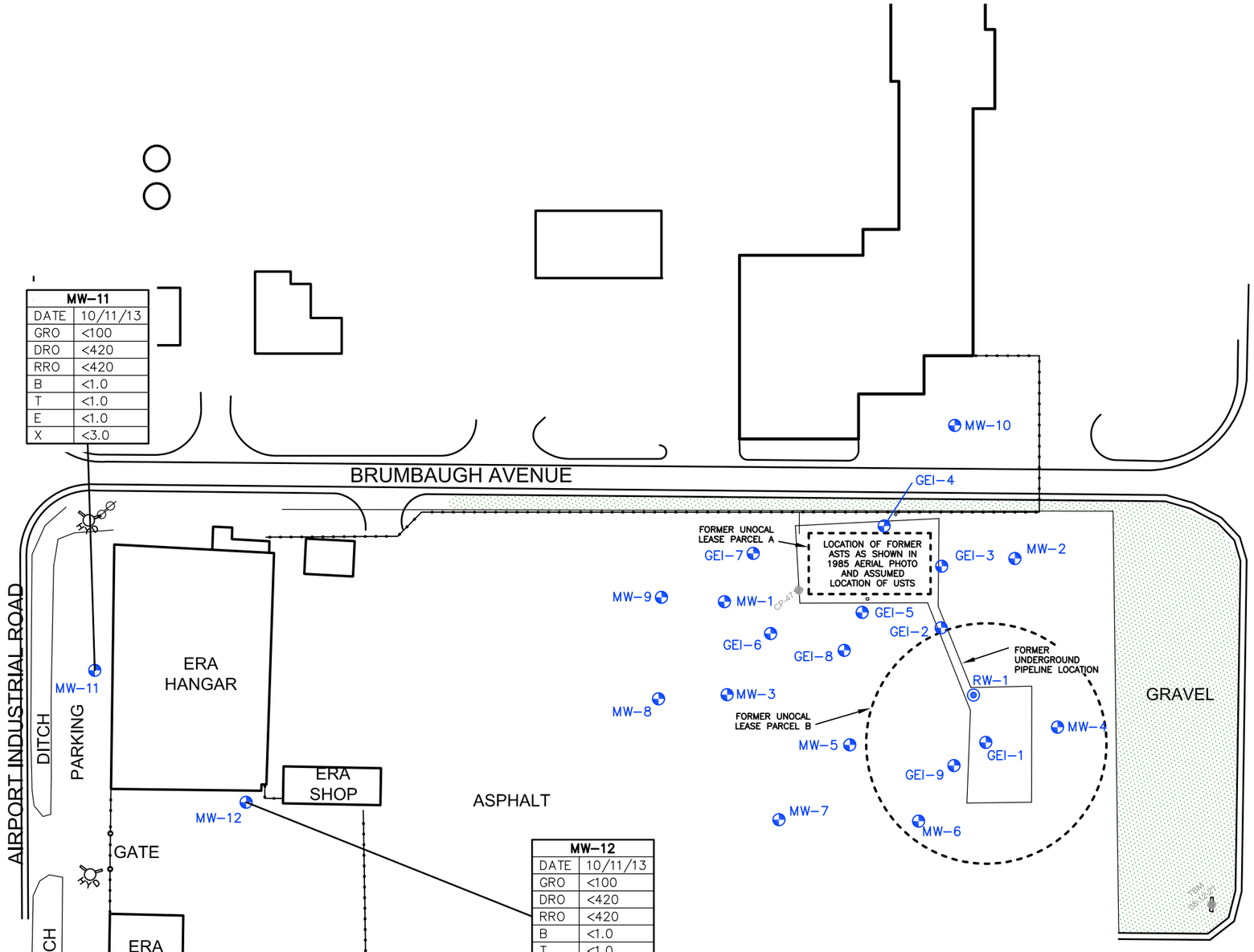
FIGURE **4**



MW-11	
DATE	10/11/13
GRO	<100
DRO	<420
RRO	<420
B	<1.0
T	<1.0
E	<1.0
X	<3.0

MW-12	
DATE	10/11/13
GRO	<100
DRO	<420
RRO	<420
B	<1.0
T	<1.0
E	<1.0
X	<3.0

MW-13	
DATE	10/11/13
GRO	<100/<100
DRO	<390/<430
RRO	<390/<430
B	<1.0/<1.0
T	<1.0/<1.0
E	<1.0/<1.0
X	<3.0/<3.0

LEGEND

- FIRE HYDRANT
- POWER POLE
- CHAINLINK FENCE
- MONITORING WELL
- RECOVERY WELL

SAMPLE LOCATION		
DATE	SAMPLE DATE	ADEC GCL (µg/L)
DRO	DIESEL RANGE ORGANICS	1,500
GRO	GASOLINE RANGE ORGANICS	2,200
RRO	RESIDUAL RANGE ORGANICS	1,100
B	BENZENE	5
T	TOLUENE	1,000
E	ETHYLBENZENE	700
X	TOTAL XYLENES	10,000

RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L)

<1.0/<1.0 = DUPLICATE SAMPLE COLLECTED

ADEC = ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GCL = GROUNDWATER CLEANUP LEVEL

0 100' 200'

GRAPHIC SCALE

SOURCE: Base map provided by GEOENGINEERS. Map date 5/15/05, full scale. Base map updated with survey information by "McLane Consulting, Inc.", Date 8/31/08 and 10/28/10.

CHEVRON #306443 (FORMER UNOCAL BULK PLANT)
GATE 28, WEST RAMP, FAIRBANKS AIRPORT, FAIRBANKS, AK.
2013 ADDITIONAL SITE ASSESSMENT REPORT

GROUNDWATER ANALYTICAL DATA OCTOBER 11, 2013

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FIGURE 5

CITY:TMA-A, FL DIV/GROUP:85 DB:R PETRIE LD:J RICHARDS PIC:(Opt) PM:(Read) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF*
G:\ENVCAD\TAMPA\ACT\Chevron\USA\Chevron 306443\B0045507\0009.000005\2013 ASAR\B0045507B01.dwg LAYOUT: 5 SAVED: 1/3/2014 2:00 PM ACADVER: 18.1S (LMS TECH) PAGESETUP: --- PLOTSTYLETABLE: PLTFULL.CTB PLOTTED: 1/16/2014 8:42 AM BY: RICHARDS, JIM
XREFS: IMAGES: PROJECTNAME: ---
AERIAL-1_4-26-2010.jpg

ARCADIS

Appendix A

Boring Logs

Date Start/Finish: 9/29/2013-10/2/2013
Drilling Company: Discovery Drilling, Alaska Pipeliner
Driller's Name: DJ Wardwell
Drilling Method: Hand Auger / Direct Push
Sampling Method: Hand Auger/ Macrocore
Rig Type: Geoprobe 6712 DT

Northing: NM
Easting: NM
Casing Elevation: NM

Borehole Depth: 20 ft
Surface Elevation: NM

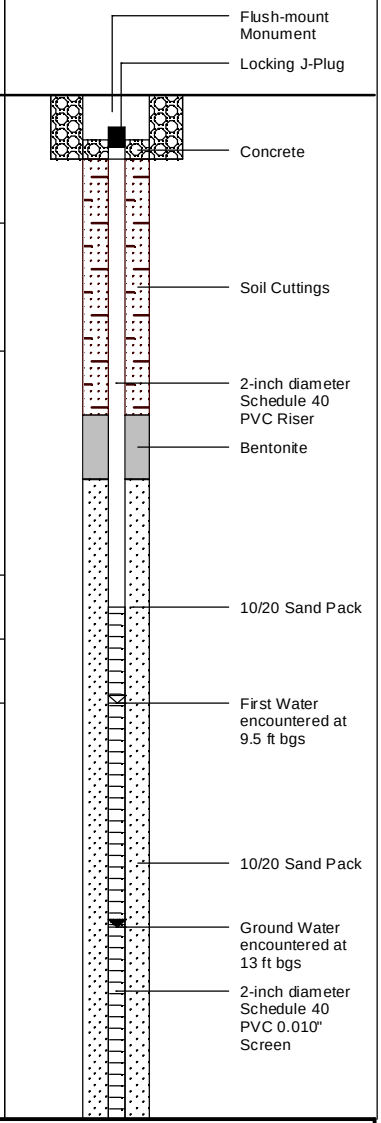
Descriptions By: David Beaudoin

Well/Boring ID: MW-11

Client: Chevron EMC

Location: Chevron Facility No. 306443
Gate 28, Blk. 1, Lot 8, West Ramp
Fairbanks, Alaska

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description
0	0	1	0-8		0.0		GM		0'-2': SAND, GRAVEL and SILT (dense graded aggregate), moist, brown.
					0.0				
					0.0	X	SM		2'-4': SAND, fine grained, trace Silt, moist, medium brown.
					0.0		ML		4'-7.5': SILT with trace fine grained SAND, moist, medium brown.
5	-5				0.0	X			
					0.0				
		2	8-10	5	0.0				7.5'-8.5': Organic rich SILT, Organics (root fragments, wood debris), trace to some Silt, dark gray to dark brown.
					0.0		PT		8.5'-9.5': ORGANICS (wood debris), moist to wet, decomposing organic odor.
							ML		9.5'-16.5': SILT with trace to some fine Sand, wet, dark grayish brown.
10	-10	3	10-15	5	0.0				
					0.4				
					0.0	X			
					0.0				
					14				
15	-15	4	15-20	5	0.0				



Well/Boring Construction

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Remarks: bgs = Below Ground Surface; NA = Not Available; PID = Photoionization Detector; NM = Not Measured; ppm = Parts Per Million; PVC = Polyvinyl Chloride
Alaska Pipeliner cleared bore hole to 8 ft bgs using a vacuum truck. Discovery Drilling completed drilling using a direct-push probe to total depth.

Client: Chevron EMC

Well/Boring ID: MW-11

Borehole Depth: 20 ft

Site Location:
Chevron Facility No. 306443
Gate 28, Blk. 1, Lot 8, West Ramp
Fairbanks, Alaska

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
					0.7				16.5'-17': SILT, interbedded fine Sand and Clay, wet, grayish brown.	
					0.5		SM		17'-18.2': SAND, fine grained, trace Silt and Organics.	
					0.9					
					0.3				18.2'-19': SAND, fine grained, some Silt, wet, no odor, dark gray.	10/20 Sand Pack
							OL		19'-19.8': SILT and SAND, Organics, wet, no odor, dark gray to black.	
					0.4		SW		19.8'-20': GRAVEL and SAND, wet, dark gray.	
20	-20								End of boring at 20 ft bgs.	
25	-25									
30	-30									
35	-35									

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Remarks: bgs = Below Ground Surface; NA = Not Available; PID = Photoionization Detector; NM = Not Measured; ppm = Parts Per Million; PVC = Polyvinyl Chloride
Alaska Pipeliner cleared bore hole to 8 ft bgs using a vacuum truck. Discovery Drilling completed drilling using a direct-push probe to total depth.

Date Start/Finish: 9/29/2013-10/2/2013
Drilling Company: Discovery Drilling, Alaska Pipeliner
Driller's Name: DJ Wardwell
Drilling Method: Hand Auger / Direct Push
Sampling Method: Hand Auger/ Macrocore
Rig Type: Geoprobe 6712 DT

Northing: NM
Easting: NM
Casing Elevation: NM

Borehole Depth: 20 ft
Surface Elevation: NM

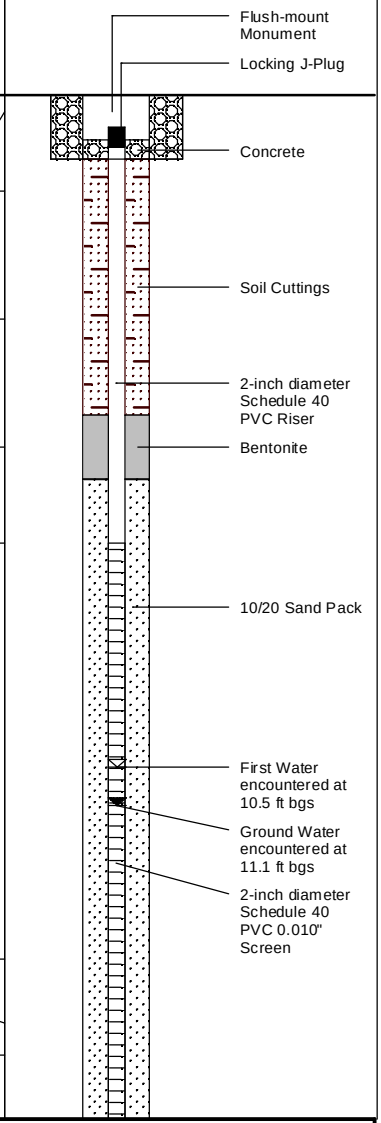
Descriptions By: David Beaudoin

Well/Boring ID: MW-12

Client: Chevron EMC

Location: Chevron Facility No. 306443
Gate 28, Blk. 1, Lot 8, West Ramp
Fairbanks, Alaska

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Stratigraphic Description
0	0	1	0-8				GM	0'-0.25': Asphalt.
								0.25'-1.5': SAND, SILT and GRAVEL (dense graded aggregate), moist, medium brown.
					0.0		SM	1.5'-3.5': SAND, fine to medium grained, trace Silt and fine Gravel, moist, medium brown.
					0.0			3.5'-5.5': SAND, fine grained, trace Silt, moist, medium brown.
5	-5						ML	5.5'-7': SILT with trace fine Sand, moist, medium brown.
					0.4			
								7'-13.5': SILT, Sand at 8', moist, medium brown.
		2	8-10	5	0.0			
					1.3			
10	-10	3	10-15	5				
					0.0			
					1.1			
							GP	13.5'-15': Gravelly SAND, fine to coarse grained Sand, fine subangular to rounded Gravel, wet, medium brown.
					1.8			
								14.5'-15': No Recovery.
15	-15	4	15-20	5			GP	15'-20': Gravelly SAND, fine to coarse grained Sand, fine subangular to rounded Gravel, wet, medium brown.



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Remarks: bgs = Below Ground Surface; NA = Not Available; PID = Photoionization Detector; NM = Not Measured; ppm = Parts Per Million; PVC = Polyvinyl Chloride
Alaska Pipeliner cleared bore hole to 8 ft bgs using a vacuum truck. Discovery Drilling drilled from 8'bgs to total depth using a direct-push probe.

Client: Chevron EMC

Well/Boring ID: MW-12

Borehole Depth: 20 ft

Site Location:
Chevron Facility No. 306443
Gate 28, Blk. 1, Lot 8, West Ramp
Fairbanks, Alaska

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
					0.4					10/20 Sand Pack
					0.7					
20	-20								End of boring at 20 ft bgs.	
25	-25									
30	-30									
35	-35									

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Remarks: bgs = Below Ground Surface; NA = Not Available; PID = Photoionization Detector; NM = Not Measured; ppm = Parts Per Million; PVC = Polyvinyl Chloride
Alaska Pipeliner cleared bore hole to 8 ft bgs using a vacuum truck. Discovery Drilling drilled from 8'bgs to total depth using a direct-push probe.

Date Start/Finish: 9/29/2013-10/2/2013
Drilling Company: Discovery Drilling, Alaska Pipeliner
Driller's Name: DJ Wardwell
Drilling Method: Hand Auger / Direct Push
Sampling Method: Hand Auger/ Macrocore
Rig Type: Geoprobe 6712 DT

Northing: NM
Easting: NM
Casing Elevation: NM

Borehole Depth: 20 ft
Surface Elevation: NM

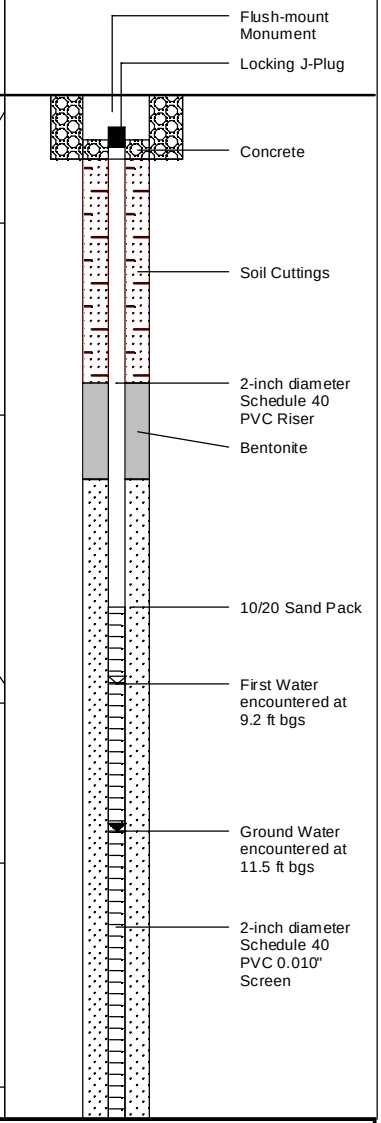
Descriptions By: David Beaudoin

Well/Boring ID: MW-13

Client: Chevron EMC

Location: Chevron Facility No. 306443
Gate 28, Blk. 1, Lot 8, West Ramp
Fairbanks, Alaska

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Stratigraphic Description
0	0	1	0-8		0.0		SW	Asphalt.
					0.0			SAND, fine grained, some fine to medium Gravel, trace Silt, moist, medium brown.
					0.0		SM	SAND, fine to medium grained, trace Silt and fine Gravel, moist, medium brown.
					0.0			
5	-5						ML	SILT with trace to some fine Sand, moist, medium brown.
					0.0			
		2	8-13	5	0.0			
							SP	SAND, fine to medium grained, moist, medium brown.
10	-10				0.6		GP	Gravelly SAND, fine to coarse grained Sand, fine to medium subangular to rounded Gravel, trace Silt, moist, medium brown.
					0.2			
							SP	SAND, fine grained, trace Silt and Gravel, wet.
		3	13-18	4.5				
					1.0			
15	-15						GW	GRAVEL, fine to medium, some fine to coarse Sand, trace Silt, wet.



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Remarks: bgs = Below Ground Surface; NA = Not Available; PID = Photoionization Detector; NM = Not Measured; ppm = Parts Per Million; PVC = Polyvinyl Chloride
Alaska Pipeliner cleared bore hole to 8 ft bgs using a vacuum truck. Discovery Drilling drilled from 8'bgs to total depth using a direct-push probe.

Client: Chevron EMC

Well/Boring ID: MW-13

Borehole Depth: 20 ft

Site Location:
Chevron Facility No. 306443
Gate 28, Blk. 1, Lot 8, West Ramp
Fairbanks, Alaska

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	USCS Code	Geologic Column	Stratigraphic Description	Well/Boring Construction
					0.8					
		4	18-20	2		X				
					0.2					10/20 Sand Pack
20	-20								End of boring at 20 ft bgs.	
25	-25									
30	-30									
35	-35									

ARCADIS
Infrastructure · Water · Environment · Buildings

Remarks: bgs = Below Ground Surface; NA = Not Available; PID = Photoionization Detector; NM = Not Measured; ppm = Parts Per Million; PVC = Polyvinyl Chloride
Alaska Pipeliner cleared bore hole to 8 ft bgs using a vacuum truck. Discovery Drilling drilled from 8'bgs to total depth using a direct-push probe.

ARCADIS

Appendix B

Site Assessment Field Notes

Location: Sec 28, Block 1, Lot 8 Wiley Date 9-30-13

Project / Client: 306443 / Chevron

Zone: Additional Assessment / Well Install

7:45 Begin Loading Equipment and Sample bottles into Field Vehicle
8:00 Complete Vehicle Inspection
8:00 Complete Bottle Inventory check
8:30 Complete PID Inspection
8:45 Arrive @ Site (Access sheet)
Personnel: D. Beaudoin, T. Parise
Activity: Vector Borehole Clearance
Weather: 36°F, Cloudy, light wind
9:00 Complete Alaska Pipeline Vendor Inspection - mobilize to set up @ MW-11 proposed location
9:15 Greg Montgomery and Don Carrier on site
Alaska Pipeline Personnel: Greg & Keith
9:15 Begin H_2S tailgate meeting
Review Scope, Away Campaign, O&E Tools, Stop Work, HASP, JSA, Emergency Procedures, assembly points, No FODK, PPE Check/Inspection
11:00 Begin Clearance @ MW-11 location.

Location Gate 28, Lot 8, Block 1 Date 9-30-13

Project / Client 306443 / Chevron

2013 Additional Assessment / Well Installs

11:00 MW-11 clearance w/ Vactor Co.

Soil Samples Collected @

0.3 to 0.5' bgs		PID
1 - 1.5' bgs		0.0 ppm
2' bgs		0.0 ppm
4' bgs		0.0 ppm
6' bgs		0.0 ppm
8' bgs		0.0 ppm

11:20 MW-11 - S - 2' - 093013 collected

11:30 MW-11 - S - 6' - 093013 collected

BD-1-S-093013 collected from the 6' sample

12:00 Dan Carrier Complete H2S meeting Feedback - Dan & Greg offsite for lunch

12:15 Keith & Greg offsite for lunch

13:00 Keith & Greg back on site Covered MW-11 location

13:30 Set up on MW-12 location

13:55 Complete Mid-day H2S meeting.

1400 Begin Saw Cutting MW-12 location

14:10 Complete Saw cutting

14:30 Stop Work - Romex electrical line encountered @ 1.5' bgs

Location Gate 28, Lot 8, Block 1 Date 9-30-13

Project / Client 306443 / Chevron

2013 Additional Site Assessment / Well Install

14:30 Photographed & text Greg Montgomery

14:35 Greg Called Back - discussed event

14:40 Greg Called Dan Carrier to report the electrical line discovery. Given go ahead to offset

14:45 Begin Saw Cutting MW-12 offset location

15:00 Begin clearing w/ Vac truck

Sample Depth	PID	Sample Time
1' bgs	0.0 ppm	
2' bgs	0.0 ppm	15:10
4' bgs	0.0 ppm	
6' bgs	0.4 ppm	15:20
8' bgs	0.0 ppm	

MW-12 location Covered w/ steel Lids/Plates Exclusion Zone Maintained Uncovered Soils Drummed & Labeled.

15:50 Dan Carrier & Greg Montgomery on site.

Location 5245 Airport Industrial / Date 10-01-13

Project / Client 306443 FIA Unocal / CEMC

2013 Site Assessment / Well Install Clear.

8:30 D. Beaudoin on site
DB called Discovery Drilling to check Drill Crews progress getting to Fairbanks, AK - From Anchorage

8:45 Check w/ Eva Personnel regarding the MW-13 work area near the gate - okay from Eva to Proceed

8:50 ARCADIS Field staff - Tommy Parise on site

9:00 CEMC PM Dan Carrier and ARCADIS PM Greg Montgomery onsite

9:05 - 10:05 Conduct H&S meeting
DB & Keith Created Saw Cut JSA

10:15 Start Saw Cutting
1 Dan Carrier stopped work - Greg Nelson was NOT wearing face shield properly

10:20 Start Cutting again
1 Dan Carrier stopped work again - discussed body positioning

10:25 Complete MW-13 location Saw cutting

10:25 - 11:00 Dan Carrier's Observation

Location 5245 Airport Industrial Date 10-01-13

Project / Client 306443 FIA Unocal / CEMC

2013 Site Assessment / Well Location Clearance

10:25 - 11:00 Dan Carrier Feed back from Saw cutting observation

11:00 Begin Hand Clearance @ MW-13 location

Sample	Depth	PID	Time
	6" bgs	0.0	
	2' bgs	0.0	11:15
	4' bgs	0.0	
	6' bgs	0.2 ppm	11:30
	8' bgs	0.0	

MW-13-2'-100113 @ 11:15
MW-13-6'-100113 @ 11:30
BD-2-5-100113 collected from MW-13-5-2'
All Samples to be analyzed for
GRO AK 101
BTEX 8021B
DRO AK 102
Moisture

12:00 Dan & Greg off site
12:10 Keith & Greg Nelson off site to get drums
13:00 Secure site, complete Notes, Permits
Move off site to Aurora Max & Storage Unit

Location 5245 Airport Industrial Date 10.02.13

Project / Client 306443 / FIA Naval / CEMC

2013 Assessment - MW Installations

8:30	Arrive Onsite
9:00	Begin H&S meeting
	ARCADIS Personnel: David Beaudoin, Tanny Pan
	Discovery Drilling Personnel: DJ & Donny Pick
10:00	Complete H&S Tailgate meeting and drill Rig (Geoprobe 6712DT) Transi
10:35	Set up on MW-13 location
11:00	Robert Burgess (ADEC Regulator) shows up on site to observe.
11:20	Complete Soil Sampling @ MW-13 location to 20' bgs. Samples Collected via Macro Core Direct Push 8-13', 13'-18', 18-20' bgs

Location MW-13	Depth	PID (ppm)	SI	
	8-9.2'	0.6		
	9.2-9.5	0.2		
	9.5-12	1.0		
MW-13-S-13-100213	12-13	0.8		10:50
MW-13-S-18-160213	18.5-18	0.2		11:10

12:10	Hydraulic oil leak identified by Robert Burgess (ADEC Regulator) - Stopped Work
12:12	Dave Beaudoin Called ARCADIS PM - Greg Montgomery - left messages on Cell & Office phone

Location 5245 Airport Intermbard Date 10.02.13

Project / Client 306443 / FIA Naval / CEMC

2013 Assessment / MW Installation

:16	D. Beaudoin received text from G. Montg saying he will call in a few minutes
	D. Beaudoin took pictures of leak coming out of the GeoProbe 6712 high pressure hydraulic cylinder and associated leak. D. Beaudoin texted Pictures and explained the situation to Greg. The nut on the end of the cylinder came loose and hydraulic fluid (~ 500 ml) leaked onto the probe track and onto the asphalt West of the MW-13 location.
12:30	Greg Montgomery called back and we went over the details of the incident
12:25 - 12:50	Discovery Drilling Personnel DJ Wardwell and Donny Pick Completed an additional Inspection of all of the Geo Probe lines, fittings, Cylinder seals.
	Discovery started work again, completed install at MW-13 - 2" sch 40 PVC casing w/ 0.010 slot 10' sch 40 PVC well screen set 8'-10' bgs MW-13 completed w/ flushmount well cover cemented in place.

Location 5245 Airport Industrial Date 10.02.13

Project / Client 306443 / FIA Unocal / CEMC

2013 Site Assessment / MW Installations

14:15 Discovery Drilling Mobilize to MW-12 location - GeoProbe was set up on visqueen.

MW-12	Soil Dept	PID
location	8-10'	1.3 ppm
	10-11.5	0.0 ppm
	11.5-13.5	1.1 ppm
	13.5-15	1.8 ppm
	15-17	0.4 ppm
	17-20	0.7 ppm

MW-12-S-11.5'-100213 @ 14:52

MW-12-S-19'-100213 @ 15:05

BD-3-S-100213 - From 11.5'

MW-12 well set w/ 2" sch 40 PVC casing & 2" Sch 40 0.010 slot well screen set 7-17' bgs. MW-12 completed w/a flushmount protective well cover set in concrete. Discovery patched the initial boring location where the electrical wire was found w/ pea gravel and concrete MW-12 Location was secured and Discovery Mobilized to the MW-11 location

Location 5245 Airport Industrial Date 10.02.13

Project / Client 306443 / FIA Unocal / CEMC

2013 Site Assessment / MW Installations

15:10 Discovery set up @ the MW-11 drilling location. The GeoProbe was set up on visqueen.

MW-11	depth	Soil PID (ppm)
	8-8.5 bgs	0.0
	8.5-9.5 bgs	0.0
	9.5-10 bgs	0.0
	10-11.5 bgs	0.4
	11.5-13.5 bgs	0.0
	13.5-15 bgs	0.3
	15-16.5 bgs	0.7
	16.5-17 bgs	0.5
	17-18 bgs	0.9
	18-19 bgs	0.3
	19-20' bgs	0.4

MW-11-S-13-100213 @ 15:22

MW-11-S-19-100213 @ 15:25

MW-11 well set w/ 2" sch 40 PVC casing, 10' x 2" x 0.010 slot sch 40 PVC well screen set 8-18' bgs

GW @ 13' bgs

Well filter pack bentonite chips seal installed - finished w/ flushmount protection well cover

Location Gate 28, Block 1, Lot 8 W Ramp Date 10-02-13

Project / Client 306443 / FIA Unocal / CEMC

2013 Assessment / MW-10 well box replacement

19:00 Secured MW-11 location and Mobilized to the MW-10 location to replace the well box

20:00 Well Box replacement completed

20:15 Secured site AUS & Discuss Mobilize off Site

DGB

Location Gate 28, Block 1, Lot 8, W Ramp Date 10-3-2013

Project / Client 306443 / FIA Unocal / CEMC

2013 Assessment / MW Development

945 D. Beaudoin, T. Marise arrive on site Check in with ERA, don PPE Conduct tailgate meeting, review SW, review hazards and complete MW. Open & Gauge Monitoring Well.

Well ID	DTW	DTB	Comments
MW-13	11.13'	18.25'	14 gallons purged
MW-12	10.66'	17.12'	14 g
MW-11	10.15'	17.35'	15 g

Below top of casing

1300 complete well development, close MWs, set up caution tape around drum locations

1315 Collect Comp-W-1-100313 to be analyzed for GRO, RRO, DRO, and BTEX.

1400 load vehicles, secure load, and depart.

Drums soil - 6
water - 1

DGB

ARCADIS

Appendix C

Soil Analytical Laboratory Reports

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

November 05, 2013

Project: 306443

Submittal Date: 10/04/2013
Group Number: 1424034
SDG: LSU55
PO Number: 0015136010
Release Number: SHRILL HOPKINS
State of Sample Origin: AK

Client Sample Description	Lancaster Labs (LL) #
MW-11-S-2'-093013 Grab Soil	7225449
MW-11-S-6'-093013 Grab Soil	7225450
MW-12-S-2'-093013 Grab Soil	7225451
MW-12-S-6'-093013 Grab Soil	7225452
BD-1-S-093013 Grab Soil	7225453
MW-13-S-2'-100113 Grab Soil	7225454
MW-13-S-6'-100113 Grab Soil	7225455
BD-2-S-100113 Grab Soil	7225456
MW-13-S-13-100213 Grab Soil	7225457
MW-13-S-18-100213 Grab Soil	7225458
MW-12-S-11.5-100213 Grab Soil	7225459
MW-12-S-19-100213 Grab Soil	7225460
BD-3-S-100213 Grab Soil	7225461
MW-11-S-13'-100213 Grab Soil	7225462
MW-11-S-19'-100213 Grab Soil	7225463
Trip Blank Methanol	7225464

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Arcadis	Attn: David Beaudoin
ELECTRONIC COPY TO	ARCADIS	Attn: Michael MacDaniel
ELECTRONIC COPY TO	Arcadis	Attn: Greg Montgomery
ELECTRONIC	Arcadis	Attn: Tammy Parise

COPY TO

Respectfully Submitted,

Natalie R. Luciano
Senior Specialist

(717) 556-7258

Sample Description: MW-11-S-2'-093013 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225449
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 09/30/2013 11:20 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FI112 SDG#: LSU55-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		mg/kg		mg/kg	mg/kg	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.7	6.5	30.91
GC Volatiles	**SW-846 8021B**		mg/kg		mg/kg	mg/kg	
08179	Benzene	71-43-2	N.D.		0.0065	0.026	30.91
08179	Ethylbenzene	100-41-4	N.D.		0.0065	0.026	30.91
08179	Toluene	108-88-3	0.014	J	0.0065	0.026	30.91
08179	Total Xylenes	1330-20-7	N.D.		0.020	0.065	30.91
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		mg/kg		mg/kg	mg/kg	
01738	C10-<C25 DRO	n.a.	N.D.		5.3	13	1
01738	C25-C36 RRO	n.a.	6.8	J	5.3	13	1
Metals	**SW-846 6020**		mg/kg		mg/kg	mg/kg	
06135	Lead	7439-92-1	4.59		0.0169	0.212	2
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	5.6		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 02:39	Laura M Krieger	30.91
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 02:39	Laura M Krieger	30.91
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	09/30/2013 11:20	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 03:01	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:35	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006A	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-11-S-6'-093013 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225450
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 09/30/2013 11:30 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FI116 SDG#: LSU55-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		mg/kg		mg/kg	mg/kg	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.8	7.7	30.98
GC Volatiles	**SW-846 8021B**		mg/kg		mg/kg	mg/kg	
08179	Benzene	71-43-2	N.D.		0.0077	0.031	30.98
08179	Ethylbenzene	100-41-4	N.D.		0.0077	0.031	30.98
08179	Toluene	108-88-3	N.D.		0.0077	0.031	30.98
08179	Total Xylenes	1330-20-7	N.D.		0.023	0.077	30.98
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		mg/kg		mg/kg	mg/kg	
01738	C10-<C25 DRO	n.a.	N.D.		6.2	15	1
01738	C25-C36 RRO	n.a.	10	J	6.2	15	1
Metals	**SW-846 6020**		mg/kg		mg/kg	mg/kg	
06135	Lead	7439-92-1	12.6		0.0194	0.243	2
Wet Chemistry	**SM 2540 G-1997**		%		%	%	
00111	Moisture	n.a.	19.2		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 03:15	Laura M Krieger	30.98
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 03:15	Laura M Krieger	30.98
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	09/30/2013 11:30	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 04:27	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:47	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006A	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-12-S-2'-093013 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225451
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 09/30/2013 15:10 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FI122 SDG#: LSU55-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**		**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.6	6.1	28.91
GC Volatiles	**SW-846 8021B**		**mg/kg**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.		0.0061	0.025	28.91
08179	Ethylbenzene	100-41-4	N.D.		0.0061	0.025	28.91
08179	Toluene	108-88-3	0.014	J	0.0061	0.025	28.91
08179	Total Xylenes	1330-20-7	N.D.		0.018	0.061	28.91
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**		**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.		5.3	13	1
01738	C25-C36 RRO	n.a.	7.4	J	5.3	13	1
Metals	**SW-846 6020**		**mg/kg**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	4.84		0.0168	0.210	2
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	5.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/10/2013 23:01	Laura M Krieger	28.91
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/10/2013 23:01	Laura M Krieger	28.91
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	09/30/2013 15:10	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 04:56	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:13	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006A	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-12-S-6'-093013 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225452
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 09/30/2013 15:20 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FI126 SDG#: LSU55-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.8	7.9	31.06
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0079	0.032	31.06
08179	Ethylbenzene	100-41-4	N.D.	0.0079	0.032	31.06
08179	Toluene	108-88-3	N.D.	0.0079	0.032	31.06
08179	Total Xylenes	1330-20-7	N.D.	0.024	0.079	31.06
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	6.4	15	1
01738	C25-C36 RRO	n.a.	22	6.4	15	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	16.5	0.0198	0.248	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	21.6	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/10/2013 23:38	Laura M Krieger	31.06
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/10/2013 23:38	Laura M Krieger	31.06
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	09/30/2013 15:20	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 05:24	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:52	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006A	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: BD-1-S-093013 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225453
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 09/30/2013 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FIBD1 SDG#: LSU55-05FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**		**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.8	7.9	31.53
GC Volatiles	**SW-846 8021B**		**mg/kg**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.		0.0079	0.031	31.53
08179	Ethylbenzene	100-41-4	N.D.		0.0079	0.031	31.53
08179	Toluene	108-88-3	N.D.		0.0079	0.031	31.53
08179	Total Xylenes	1330-20-7	N.D.		0.024	0.079	31.53
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**		**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.		6.2	15	1
01738	C25-C36 RRO	n.a.	11	J	6.2	15	1
Metals	**SW-846 6020**		**mg/kg**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	8.23		0.0200	0.249	2
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	19.8		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 00:14	Laura M Krieger	31.53
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 00:14	Laura M Krieger	31.53
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	09/30/2013 00:00	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 05:53	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:54	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006A	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-13-S-2'-100113 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225454
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/01/2013 11:15 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FI132 SDG#: LSU55-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**		**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.6	6.4	29.76
GC Volatiles	**SW-846 8021B**		**mg/kg**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.		0.0064	0.026	29.76
08179	Ethylbenzene	100-41-4	N.D.		0.0064	0.026	29.76
08179	Toluene	108-88-3	N.D.		0.0064	0.026	29.76
08179	Total Xylenes	1330-20-7	N.D.		0.019	0.064	29.76
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**		**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.		5.4	13	1
01738	C25-C36 RRO	n.a.	5.9	J	5.4	13	1
Metals	**SW-846 6020**		**mg/kg**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	7.31		0.0171	0.214	2
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	7.5		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 00:50	Laura M Krieger	29.76
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 00:50	Laura M Krieger	29.76
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/01/2013 11:15	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 06:22	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:56	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006A	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-13-S-6'-100113 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225455
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/01/2013 11:30 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FI136 SDG#: LSU55-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**		**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.9	9.0	33.25
GC Volatiles	**SW-846 8021B**		**mg/kg**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.		0.0090	0.036	33.25
08179	Ethylbenzene	100-41-4	N.D.		0.0090	0.036	33.25
08179	Toluene	108-88-3	N.D.		0.0090	0.036	33.25
08179	Total Xylenes	1330-20-7	N.D.		0.027	0.090	33.25
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**		**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.		6.8	16	1
01738	C25-C36 RRO	n.a.	16	J	6.8	16	1
Metals	**SW-846 6020**		**mg/kg**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	9.28		0.0215	0.269	2
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	26.4		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 03:51	Laura M Krieger	33.25
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 03:51	Laura M Krieger	33.25
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/01/2013 11:30	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 06:50	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:58	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: BD-2-S-100113 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225456
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/01/2013 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FIBD2 SDG#: LSU55-08FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.6	5.9	27.33
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0059	0.024	27.33
08179	Ethylbenzene	100-41-4	N.D.	0.0059	0.024	27.33
08179	Toluene	108-88-3	N.D.	0.0059	0.024	27.33
08179	Total Xylenes	1330-20-7	N.D.	0.018	0.059	27.33
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	5.4	13	1
01738	C25-C36 RRO	n.a.	N.D.	5.4	13	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	7.27	0.0170	0.212	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	7.6	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 04:27	Laura M Krieger	27.33
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 04:27	Laura M Krieger	27.33
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/01/2013 00:00	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 07:19	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 15:59	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-13-S-13-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225457
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 10:50 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

F1313 SDG#: LSU55-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.7	6.7	29.04
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0067	0.027	29.04
08179	Ethylbenzene	100-41-4	N.D.	0.0067	0.027	29.04
08179	Toluene	108-88-3	N.D.	0.0067	0.027	29.04
08179	Total Xylenes	1330-20-7	N.D.	0.020	0.067	29.04
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	5.8	14	1
01738	C25-C36 RRO	n.a.	N.D.	5.8	14	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	2.97	0.0184	0.230	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	13.2	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 05:04	Laura M Krieger	29.04
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 05:04	Laura M Krieger	29.04
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 10:50	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 07:47	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:01	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-13-S-18-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225458
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 11:10 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

F1318 SDG#: LSU55-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.6	5.7	26.77
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0057	0.023	26.77
08179	Ethylbenzene	100-41-4	N.D.	0.0057	0.023	26.77
08179	Toluene	108-88-3	N.D.	0.0057	0.023	26.77
08179	Total Xylenes	1330-20-7	N.D.	0.017	0.057	26.77
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	5.3	13	1
01738	C25-C36 RRO	n.a.	N.D.	5.3	13	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	4.11	0.0169	0.211	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	5.4	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/10/2013 21:49	Laura M Krieger	26.77
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/10/2013 21:49	Laura M Krieger	26.77
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 11:10	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 08:16	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:03	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-12-S-11.5-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225459
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 14:52 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

F1211 SDG#: LSU55-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**		**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.8	8.0	31.31
GC Volatiles	**SW-846 8021B**		**mg/kg**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.		0.0080	0.032	31.31
08179	Ethylbenzene	100-41-4	N.D.		0.0080	0.032	31.31
08179	Toluene	108-88-3	N.D.		0.0080	0.032	31.31
08179	Total Xylenes	1330-20-7	N.D.		0.024	0.080	31.31
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**		**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.		6.4	15	1
01738	C25-C36 RRO	n.a.	7.5	J	6.4	15	1
Metals	**SW-846 6020**		**mg/kg**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	7.06		0.0199	0.249	2
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	21.3		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/10/2013 22:25	Laura M Krieger	31.31
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/10/2013 22:25	Laura M Krieger	31.31
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 14:52	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 08:44	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:05	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-12-S-19-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225460
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 15:05 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

F1219 SDG#: LSU55-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.7	7.4	32.63
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0074	0.029	32.63
08179	Ethylbenzene	100-41-4	N.D.	0.0074	0.029	32.63
08179	Toluene	108-88-3	0.012 J	0.0074	0.029	32.63
08179	Total Xylenes	1330-20-7	N.D.	0.022	0.074	32.63
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	5.6	14	1
01738	C25-C36 RRO	n.a.	N.D.	5.6	14	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	2.74	0.0177	0.221	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	11.3	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 05:40	Laura M Krieger	32.63
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 05:40	Laura M Krieger	32.63
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 15:05	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 09:13	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:06	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: BD-3-S-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225461
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FIBD3 SDG#: LSU55-13FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.8	8.0	32.49
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0080	0.032	32.49
08179	Ethylbenzene	100-41-4	N.D.	0.0080	0.032	32.49
08179	Toluene	108-88-3	N.D.	0.0080	0.032	32.49
08179	Total Xylenes	1330-20-7	N.D.	0.024	0.080	32.49
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	6.2	15	1
01738	C25-C36 RRO	n.a.	N.D.	6.2	15	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	5.21	0.0195	0.244	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	18.7	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 06:16	Laura M Krieger	32.49
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 06:16	Laura M Krieger	32.49
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 00:00	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 09:41	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:08	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-11-S-13'-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225462
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 15:22 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

F1113 SDG#: LSU55-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**		**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.		0.9	8.9	33.48
GC Volatiles	**SW-846 8021B**		**mg/kg**		**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.		0.0089	0.036	33.48
08179	Ethylbenzene	100-41-4	N.D.		0.0089	0.036	33.48
08179	Toluene	108-88-3	N.D.		0.0089	0.036	33.48
08179	Total Xylenes	1330-20-7	N.D.		0.027	0.089	33.48
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**		**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.		6.7	16	1
01738	C25-C36 RRO	n.a.	12	J	6.7	16	1
Metals	**SW-846 6020**		**mg/kg**		**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	8.14		0.0214	0.267	2
Wet Chemistry	**SM 2540 G-1997**		**%**		**%**	**%**	
00111	Moisture	n.a.	25.1		0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 06:53	Laura M Krieger	33.48
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 06:53	Laura M Krieger	33.48
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 15:22	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 10:09	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:15	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: MW-11-S-19'-100213 Grab Soil
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # SW 7225463
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 10/02/2013 15:25 by DB

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

F1119 SDG#: LSU55-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit*	Dry Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.7	7.3	29.97
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0073	0.029	29.97
08179	Ethylbenzene	100-41-4	N.D.	0.0073	0.029	29.97
08179	Toluene	108-88-3	N.D.	0.0073	0.029	29.97
08179	Total Xylenes	1330-20-7	N.D.	0.022	0.073	29.97
GC Petroleum Hydrocarbons	**AK 102/AK 103 04/08/02**		**mg/kg**	**mg/kg**	**mg/kg**	
01738	C10-<C25 DRO	n.a.	N.D.	6.1	15	1
01738	C25-C36 RRO	n.a.	17	6.1	15	1
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	**mg/kg**	
06135	Lead	7439-92-1	5.56	0.0188	0.235	2
Wet Chemistry	**SM 2540 G-1997**		**%**	**%**	**%**	
00111	Moisture	n.a.	17.4	0.50	0.50	1

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/11/2013 07:29	Laura M Krieger	29.97
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/11/2013 07:29	Laura M Krieger	29.97
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	10/02/2013 15:25	Client Supplied	1
01738	TPH-DRO/RRO (AK)	AK 102/AK 103 04/08/02	1	132780012A	10/09/2013 10:38	Tyler O Griffin	1
11223	AK DRO/ORO Soils Extraction	AK 102/AK 103 04/08/02	1	132780012A	10/07/2013 10:00	David S Schrum	1
06135	Lead	SW-846 6020	1	132775708004A	10/11/2013 16:17	Choon Y Tian	2
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	132775708004	10/07/2013 09:15	Denise K Conners	1
00111	Moisture	SM 2540 G-1997	1	13282820006B	10/09/2013 20:55	Scott W Freisher	1

*=This limit was used in the evaluation of the final result

Sample Description: Trip Blank Methanol
Facility# 306443
Gate 28, Block 1, Lot 8, West Ramp - Fairbanks, AK

LL Sample # G5 7225464
LL Group # 1424034
Account # 11964

Project Name: 306443

Collected: 09/30/2013

Submitted: 10/04/2013 09:25
Reported: 11/05/2013 17:38

Chevron
L4310
6001 Bollinger Canyon Road
San Ramon CA 94583

FITRB SDG#: LSU55-16TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit*	As Received Limit of Quantitation	Dilution Factor
GC Volatiles	**AK 101**		**mg/kg**	**mg/kg**	**mg/kg**	
01451	TPH-GRO AK soil C6-C10	n.a.	N.D.	0.5	5.0	25
GC Volatiles	**SW-846 8021B**		**mg/kg**	**mg/kg**	**mg/kg**	
08179	Benzene	71-43-2	N.D.	0.0050	0.020	25
08179	Ethylbenzene	100-41-4	N.D.	0.0050	0.020	25
08179	Toluene	108-88-3	N.D.	0.0050	0.020	25
08179	Total Xylenes	1330-20-7	N.D.	0.015	0.050	25

General Sample Comments

State of Alaska Lab Certification No. UST-061

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01451	TPH-GRO AK soil C6-C10	AK 101	1	13283A31A	10/10/2013 21:12	Laura M Krieger	25
08179	BTEX by 8021	SW-846 8021B	1	13283A31A	10/10/2013 21:12	Laura M Krieger	25
06119	GC - Field Preserved (AK-101)	AK 101	1	201327732661	09/30/2013 00:00	Client Supplied	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: Chevron Group Number: 1424034
Reported: 11/05/13 at 05:38 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 13283A31A	Sample number(s): 7225449-7225464								
Benzene	N.D.	0.0020	0.0050	mg/kg	100	101	80-120	1	30
Ethylbenzene	N.D.	0.0020	0.0050	mg/kg	101	100	80-120	1	30
Toluene	N.D.	0.0020	0.0050	mg/kg	98	98	80-120	0	30
TPH-GRO AK soil C6-C10	N.D.	0.5	5.0	mg/kg	99	93	60-120	6	20
Total Xylenes	N.D.	0.0050	0.015	mg/kg	101	100	80-120	1	30
Batch number: 132780012A	Sample number(s): 7225449-7225463								
C10-<C25 DRO	N.D.	5.0	12	mg/kg	84	82	75-125	2	50
C25-C36 RRO	N.D.	5.0	12	mg/kg	104	97	75-125	7	50
Batch number: 132775708004A	Sample number(s): 7225449-7225463								
Lead	N.D.	0.0160	0.200	mg/kg	100		80-120		
Batch number: 13282820006A	Sample number(s): 7225449-7225454								
Moisture					100		99-101		
Batch number: 13282820006B	Sample number(s): 7225455-7225463								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 132780012A	Sample number(s): 7225449-7225463 UNSPK: 7225449								
C10-<C25 DRO	82	85	60-140	4	50				
C25-C36 RRO	87	93	60-140	6	50				
Batch number: 132775708004A	Sample number(s): 7225449-7225463 UNSPK: 7225449 BKG: 7225449								
Lead	99	157*	75-125	21*	20	4.33	4.46	3	20
Batch number: 13282820006A	Sample number(s): 7225449-7225454 BKG: 7225450								
Moisture						19.2	19.5	2	5
Batch number: 13282820006B	Sample number(s): 7225455-7225463 BKG: 7225455								
Moisture						26.4	25.6	3	5

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: Chevron Group Number: 1424034
Reported: 11/05/13 at 05:38 PM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TPH-GRO AK soil C6-C10
Batch number: 13283A31A

	Trifluorotoluene-F	Trifluorotoluene-P
7225449	97	103
7225450	85	91
7225451	92	100
7225452	82	86
7225453	82	87
7225454	92	98
7225455	78	83
7225456	93	102
7225457	90	93
7225458	88	95
7225459	76	80
7225460	82	86
7225461	81	87
7225462	76	82
7225463	82	86
7225464	106	110
Blank	98	105
LCS	97	91
LCSD	91	89
Limits:	60-120	50-139

Analysis Name: TPH-DRO/RRO (AK)
Batch number: 132780012A

	Orthoterphenyl	n-Triacontane-d62
7225449	93	90
7225450	89	85
7225451	96	94
7225452	94	89
7225453	93	90
7225454	93	90
7225455	88	83
7225456	91	90
7225457	104	102
7225458	88	89
7225459	94	90
7225460	96	94
7225461	86	90
7225462	88	91
7225463	91	102
Blank	94	92
LCS	83	85
LCSD	82	83
MS	81	70
MSD	84	90

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Quality Control Summary

Client Name: Chevron Group Number: 1424034
Reported: 11/05/13 at 05:38 PM

Surrogate Quality Control

Limits:	50-150	50-150

*- Outside of specification
**-This limit was used in the evaluation of the final result for the blank
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 11964 Group # 1424034 For Lancaster Laboratories use only Sample # 7225449-64
Instructions on reverse side correspond with circled numbers.

SCR #: 145692

① Client Information

Facility # 306443 WBS

Site Address: Gate 28, Block 1, Lot 8, W. Ramp, Fairbanks, AK

Chevron PM: Dan Carrier Lead Consultant: ARCADIS

Consultant/Office: 1100 Olive Way Suite 800, Seattle, WA 98101

Consultant Project Mgr.: Greg Montgomery

Consultant Phone #: (206) 726-4742

Sampler: David Brandain

④ Matrix: ☒ Soil; ☐ Sediment; Water: ☐ Ground ☐ Surface ☐ Potable ☐ NPDES; ☐ Oil ☐ Air

⑤ Analyses Requested: BTEX + MTBE (crossed out) 8021 ☒ 8260 ☐ Naphth ☐; 8260 full scan; AK103 (Oxygenates crossed out) TPHRRO; AK101 TPHGRO; AK102 TPHDRO (Silica Gel Cleanup crossed out); Lead Total ☐ Diss. ☐ Method; VPH/EPH Method; Moisture; Lead USEPA 200.8

② Sample Identification	Date Collected	Time Collected	③ Grab	Composite	Soil	Water	Oil	Total Number of Containers	BTEX + MTBE 8021	8260 full scan	AK103 TPHRRO	AK101 TPHGRO	AK102 TPHDRO	Lead	VPH/EPH Method	Moisture	Lead USEPA 200.8
MW-11-S-2'-093013	9-30-13	1120	X		X			3	X		X	X	X			X	X
MW-11-S-6'-093013	9-30-13	1130	X		X			3	X		X	X	X			X	X
MW-12-S-2'-093013	9-30-13	1510	X		X			3	X		X	X	X			X	X
MW-12-S-6'-093013	9-30-13	1620	X		X			3	X		X	X	X			X	X
BD-1-S-093013	9-30-13	—	X		X			3	X		X	X	X			X	X
MW-13-S-2'-100113	10-1-13	1115	X		X			3	X		X	X	X			X	X
MW-13-S-6'-100113	10-1-13	1130	X		X			3	X		X	X	X			X	X
BD-2-S-100113	10-1-13	—	X		X			3	X		X	X	X			X	X
MW-13-S-13-100213	10-2-13	1050	X		X			3	X		X	X	X			X	X
MW-13-S-18-100213	10-2-13	1110	X		X			3	X		X	X	X			X	X
MW-12-S-11.5-100213	10-2-13	1452	X		X			3	X		X	X	X			X	X
MW-12-S-19-100213	10-2-13	1505	X		X			3	X		X	X	X			X	X
BD-3-S-100213	10-2-13	—	X		X			3	X		X	X	X			X	X

⑥ Remarks

☐ Results in Dry Weight
☐ J value reporting needed
☐ Must meet lowest detection limits possible for 8260 compounds
☐ 8021 MTBE Confirmation
☐ Confirm MTBE + Naphthalene
☐ Confirm highest hit by 8260
☐ Confirm all hits by 8260
☐ Run ____ oxy's on highest hit
☐ Run ____ oxy's on all hits

⑦ Turnaround Time Requested (TAT) (please circle)

(Standard) 5 day 4 day
72 hour 48 hour 24 hour

⑧ Data Package Options (please circle if required)

Type I - Full Type VI (Raw Data) (Alaska/Type III)

Relinquished by	Date	Time	Received by	Date	Time
[signature]	9-24-13	1035			
[signature]	10-3-13	0900			
Relinquished by Commerical Carrier: UPS X FedEx ____ Other ____			[signature]	10/4/13	925

⑨

Temperature Upon Receipt 1.3-2.0 °C

Custody Seals Intact? (Yes) No

Lancaster Laboratories, Inc. • 2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300

The white copy should accompany samples to Lancaster Laboratories. The yellow copy should be retained by the client.

Issued by Dept. 40 Management 7047.01

Chevron Generic Analysis Request/Chain of Custody

eurofins | Lancaster Laboratories

Acct. # 11964 Group # 1424034 For Lancaster Laboratories use only Sample # 725449-64

Instructions on reverse side correspond with circled numbers.

SCR #: 145692

1 Client Information

Facility # 306443 WBS

Site Address: Gate 28, Block 1, Lot 8, W. Ramp, Fairbanks, AK

Chevron PM: Dan Carrier Lead Consultant: ARCADIS

Consultant/Office: 1100 Olive Way Suite 800, Seattle, WA 98101

Consultant Project Mgr.: Greg Montgomery

Consultant Phone #: (206) 726-4742

Sampler: David Beaudoin

2 Sample Identification

Sample Identification	Collected Date	Collected Time	3 Grab	Composite	4 Matrix: Soil	Water	Sediment	Potable	Ground	NPDES	Surface	Oil	Air	Total Number of Containers	5 Analyses Requested: BTEX + MTBE 8021	8260	Naphth	8260 full scan	Oxygenates	AK 103 TPH RRO	AK 101 TPHG RO	AK 102 TPHD RO	Silica Gel Cleanup	Lead Total	Diss.	Method	VPH/EPH Method	MOISTURE	lead (SEPA 200.8
MW-11-S-13'-100213	10-2-13	1522	X		X									3	X					X	X	X						X	X
MW-11-S-19'-100213	10-2-13	1525	X		X									3	X					X	X	X						X	X

Results in Dry Weight
J value reporting needed
Must meet lowest detection limits possible for 8260 compounds
8021 MTBE Confirmation
Confirm MTBE + Naphthalene
Confirm highest hit by 8260
Confirm all hits by 8260
Run _____ oxy's on highest hit
Run _____ oxy's on all hits

6 Remarks

7 Turnaround Time Requested (TAT) (please circle)

Standard | 5 day | 4 day | 72 hour | 48 hour | 24 hour

8 Data Package Options (please circle if required)

Type I - Full | Type VI (Raw Data) | Alaska/Type III

	Relinquished by	Date	Time	Received by	Date	Time
9		9-24-13	1035			
		10-3-13	0900			

Relinquished by Commerical Carrier: UPS X FedEx _____ Other _____ 10/4/13

Temperature Upon Receipt 0.4 °C

Received by: Date 10/4/13 Time 925

Custody Seals Intact? Yes No

1.3'-2.0'

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Data Qualifiers:

C – result confirmed by reanalysis.

J - estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*****	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	**+**	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

ARCADIS

Appendix D

Groundwater Sample Field Notes

Location Gate 28 Block 1, Lot 8 W. Ramp Date 10.11.13

Project / Client 306443 / FTA Unocal / CEMC

Sampling MW-11, 12 & 13 / Gauging all other wells

8:00	Package Greet 28A13 Sample Cooler
8:45	Complete Vehicle Inspection Checklist
	Mobilize to Pick up Ice
9:15	Mobilize to Storage Unit
	Picking Sample bottles & Hydra Sleeve weights for 306443
9:45	Mobilize to FedEx
10:15	Complete 21103 28A13 Sample bottle shipping
10:30	Mobilize to Sunbelt Exchange to drop off Scheinfeld rental
10:45	Pick up lunch
11:15	Arrive @ Boeing office to get Permit
11:35	Arrive @ 306443 Era Hangar to Gauge & set hydra sleeves in MW-11, 12 & 13.
12:00	Complete H&S meeting, HASP Review, JSA signing, FOBK policy, Haz ID, step work 3 Ft caution, Spotter usage, Permit, driving Airport Hazards.
12:10	Complete check in Discussion w/ Era Personnel

Location Gate 28 Block 1, Lot 8 W. Ramp Date 10.11.13

Project / Client 306443 / FTA Unocal / 306443

MW-11, 12 & 13 Sampling / Site Wide Gauging

Well ID	PID	DTW	Sample Time
GET-1	14.0	9.88'	—
GET-2	0.0	Ice @ 8.44'	obstructed w/ ice
GET-3	0.0	Ice @ 9.60'	obstructed w/ ice
GET-4	13.3	9.78'	—
GET-5	204.1	10.21'	—
GET-6	1.5	10.39'	—
GET-7	33.8	9.91'	—
GET-8	0.0	10.34'	—
GET-9	4.7	10.52'	—
MW-1	0.0	10.46'	—
MW-2	0.0	9.59'	—
MW-3	0.0	obstructed @ 8.41'	ice obstruction
MW-4	0.0	10.24'	—
MW-5	0.0	11.83'	—
MW-6	0.0	10.54'	—
*MW-7	0.0	10.90'	—
MW-8	0.0	ice @ 10.30'	obstructed w/ ice
MW-9	0.0	10.47'	—
MW-10	3.5	10.61'	—
MW-11	0.0	10.61'	17:30
MW-12	0.0	11.10'	17:00
MW-13	0.0	11.59'	15:45 MS/MSD; BD-1
RW-1	59.8	10.19'	—

* MW-7 - Well Frame Jacked - Needs to be cut down

Location Gate 28, Block 1, Lot 8 Date 10.11.13

Project / Client 30644.3 / CSMC

Sampling MW-11, 12 & 13

17:45	Complete GW Sampling
18:00	Complete loading vehicle and Secure the Site
	Mobilize to hotel to decon vehicle, change PID & import drive & email JSAs to Dan Carrier
18:15	Arrive @ Hotel
18:20	Complete unloading Van
18:30	Complete Changing out Tops & re-icing Samples
18:35	Mobilize to Office Meet, Scan JSAs
18:45	Mobilize to Hotel
19:00	Emailing JSAs to D.C. Completed

DGB

Location Date

Project / Client

ARCADIS

Appendix E

Groundwater Analytical Laboratory Report

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

October 29, 2013

Gregory Montgomery
Arcadis US, Inc.
1100 Olive Way
Suite 800
Seattle, WA 98101

RE: Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Dear Gregory Montgomery:
Enclosed are the analytical results for sample(s) received by the laboratory on October 15, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jennifer Gross

jennifer.gross@pacelabs.com
Project Manager

Enclosures

cc: David Beaudoin, Arcadis US, Inc.
Tammy Parise, Arcadis US, Inc.

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: C754
West Virginia Certification #: 382
Wisconsin Certification #: 999407970

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10245747001	**MW-11-W-101113**	Water	10/11/13 17:30	10/15/13 09:21
10245747002	**MW-12-W-101113**	Water	10/11/13 17:00	10/15/13 09:21
10245747003	**MW-13-W-101113**	Water	10/11/13 15:45	10/15/13 09:21
10245747004	**BD-1-W-101113**	Water	10/11/13 00:00	10/15/13 09:21
10245747005	**TRIP BLANK**	Water	10/11/13 00:00	10/15/13 09:21

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10245747001	**MW-11-W-101113**	Alaska 102/103	MT	4
		Alaska 101	LLC	2
		EPA 8260	SH2	7
10245747002	**MW-12-W-101113**	Alaska 102/103	MT	4
		Alaska 101	LLC	2
		EPA 8260	SH2	7
10245747003	**MW-13-W-101113**	Alaska 102/103	MT	4
		Alaska 101	LLC	2
		EPA 8260	SH2	7
10245747004	**BD-1-W-101113**	Alaska 102/103	MT	4
		Alaska 101	LLC	2
		EPA 8260	SH2	7
10245747005	**TRIP BLANK**	Alaska 101	LLC	2
		EPA 8260	SH2	7

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Sample: MW-11-W-101113 **Lab ID: 10245747001** Collected: 10/11/13 17:30 Received: 10/15/13 09:21 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
DRO and RRO by AK102/103	Analytical Method: Alaska 102/103 Preparation Method: EPA 3510							
DRO by AK 102	ND	mg/L	0.42	1	10/21/13 07:13	10/21/13 22:41		N2
Residual Range Organics AK103	ND	mg/L	0.42	1	10/21/13 07:13	10/21/13 22:41		N2
Surrogates								
o-Terphenyl (S)	75	%	50-150	1	10/21/13 07:13	10/21/13 22:41	84-15-1	
n-Triacontane (S)	82	%	50-150	1	10/21/13 07:13	10/21/13 22:41	638-68-6	
AK101 GCV	Analytical Method: Alaska 101							
AK101 Gasoline Range Organics	ND	ug/L	100	1		10/18/13 13:59		N2
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%	60-120	1		10/18/13 13:59	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/24/13 02:15	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/24/13 02:15	100-41-4	
Toluene	ND	ug/L	1.0	1		10/24/13 02:15	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/24/13 02:15	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	99	%	75-125	1		10/24/13 02:15	17060-07-0	
Toluene-d8 (S)	99	%	75-125	1		10/24/13 02:15	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		10/24/13 02:15	460-00-4	

Sample: MW-12-W-101113 **Lab ID: 10245747002** Collected: 10/11/13 17:00 Received: 10/15/13 09:21 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
DRO and RRO by AK102/103	Analytical Method: Alaska 102/103 Preparation Method: EPA 3510							
DRO by AK 102	ND	mg/L	0.42	1	10/21/13 07:13	10/21/13 23:03		N2
Residual Range Organics AK103	ND	mg/L	0.42	1	10/21/13 07:13	10/21/13 23:03		N2
Surrogates								
o-Terphenyl (S)	78	%	50-150	1	10/21/13 07:13	10/21/13 23:03	84-15-1	
n-Triacontane (S)	83	%	50-150	1	10/21/13 07:13	10/21/13 23:03	638-68-6	
AK101 GCV	Analytical Method: Alaska 101							
AK101 Gasoline Range Organics	ND	ug/L	100	1		10/18/13 14:20		N2
Surrogates								
a,a,a-Trifluorotoluene (S)	93	%	60-120	1		10/18/13 14:20	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/24/13 02:00	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/24/13 02:00	100-41-4	
Toluene	ND	ug/L	1.0	1		10/24/13 02:00	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/24/13 02:00	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	75-125	1		10/24/13 02:00	17060-07-0	
Toluene-d8 (S)	98	%	75-125	1		10/24/13 02:00	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		10/24/13 02:00	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Sample: MW-13-W-101113 **Lab ID: 10245747003** Collected: 10/11/13 15:45 Received: 10/15/13 09:21 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
DRO and RRO by AK102/103	Analytical Method: Alaska 102/103 Preparation Method: EPA 3510							
DRO by AK 102	ND	mg/L	0.39	1	10/21/13 07:13	10/21/13 23:26		N2
Residual Range Organics AK103	ND	mg/L	0.39	1	10/21/13 07:13	10/21/13 23:26		N2
Surrogates								
o-Terphenyl (S)	81	%	50-150	1	10/21/13 07:13	10/21/13 23:26	84-15-1	
n-Triacontane (S)	90	%	50-150	1	10/21/13 07:13	10/21/13 23:26	638-68-6	
AK101 GCV	Analytical Method: Alaska 101							
AK101 Gasoline Range Organics	ND	ug/L	100	1		10/25/13 00:17		L3,N2
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%	50-150	1		10/25/13 00:17	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/24/13 01:29	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/24/13 01:29	100-41-4	
Toluene	ND	ug/L	1.0	1		10/24/13 01:29	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/24/13 01:29	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	75-125	1		10/24/13 01:29	17060-07-0	
Toluene-d8 (S)	100	%	75-125	1		10/24/13 01:29	2037-26-5	
4-Bromofluorobenzene (S)	98	%	75-125	1		10/24/13 01:29	460-00-4	

Sample: BD-1-W-101113 **Lab ID: 10245747004** Collected: 10/11/13 00:00 Received: 10/15/13 09:21 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
DRO and RRO by AK102/103	Analytical Method: Alaska 102/103 Preparation Method: EPA 3510							
DRO by AK 102	ND	mg/L	0.43	1	10/21/13 07:13	10/22/13 00:33		N2
Residual Range Organics AK103	ND	mg/L	0.43	1	10/21/13 07:13	10/22/13 00:33		N2
Surrogates								
o-Terphenyl (S)	79	%	50-150	1	10/21/13 07:13	10/22/13 00:33	84-15-1	
n-Triacontane (S)	84	%	50-150	1	10/21/13 07:13	10/22/13 00:33	638-68-6	
AK101 GCV	Analytical Method: Alaska 101							
AK101 Gasoline Range Organics	ND	ug/L	100	1		10/18/13 17:00		N2
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%	60-120	1		10/18/13 17:00	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/24/13 01:44	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/24/13 01:44	100-41-4	
Toluene	ND	ug/L	1.0	1		10/24/13 01:44	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/24/13 01:44	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	75-125	1		10/24/13 01:44	17060-07-0	
Toluene-d8 (S)	99	%	75-125	1		10/24/13 01:44	2037-26-5	
4-Bromofluorobenzene (S)	99	%	75-125	1		10/24/13 01:44	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Sample: TRIP BLANK **Lab ID: 10245747005** Collected: 10/11/13 00:00 Received: 10/15/13 09:21 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
AK101 GCV	Analytical Method: Alaska 101							
AK101 Gasoline Range Organics	ND	ug/L	100	1		10/18/13 16:20		N2
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%	60-120	1		10/18/13 16:20	98-08-8	
8260 MSV UST	Analytical Method: EPA 8260							
Benzene	ND	ug/L	1.0	1		10/24/13 01:13	71-43-2	
Ethylbenzene	ND	ug/L	1.0	1		10/24/13 01:13	100-41-4	
Toluene	ND	ug/L	1.0	1		10/24/13 01:13	108-88-3	
Xylene (Total)	ND	ug/L	3.0	1		10/24/13 01:13	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%	75-125	1		10/24/13 01:13	17060-07-0	
Toluene-d8 (S)	100	%	75-125	1		10/24/13 01:13	2037-26-5	
4-Bromofluorobenzene (S)	99	%	75-125	1		10/24/13 01:13	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

QC Batch: GCV/11398 Analysis Method: Alaska 101
QC Batch Method: Alaska 101 Analysis Description: AK101W GCV Water
Associated Lab Samples: 10245747001, 10245747002, 10245747004, 10245747005

METHOD BLANK: 1555830 Matrix: Water
Associated Lab Samples: 10245747001, 10245747002, 10245747004, 10245747005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
AK101 Gasoline Range Organics	ug/L	ND	100	10/18/13 11:59	N2
a,a,a-Trifluorotoluene (S)	%	95	60-120	10/18/13 11:59	

LABORATORY CONTROL SAMPLE & LCSD: 1555831 1555832

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
AK101 Gasoline Range Organics	ug/L	1000	1050	1010	105	101	60-120	4	20	N2
a,a,a-Trifluorotoluene (S)	%				103	100	60-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1555833 1555834

Parameter	Units	10245652002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
AK101 Gasoline Range Organics	ug/L	10400	5000	5000	16900	17900	130	150	70-142	6	30	M1,N2
a,a,a-Trifluorotoluene (S)	%						107	109	60-120			1M

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

QC Batch: GCV/11406 Analysis Method: Alaska 101
QC Batch Method: Alaska 101 Analysis Description: AK101W GCV Water
Associated Lab Samples: 10245747003

METHOD BLANK: 1558095 Matrix: Water
Associated Lab Samples: 10245747003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
AK101 Gasoline Range Organics	ug/L	ND	100	10/24/13 23:57	N2
a,a,a-Trifluorotoluene (S)	%	102	60-120	10/24/13 23:57	

LABORATORY CONTROL SAMPLE & LCSD: 1558096 1558097

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
AK101 Gasoline Range Organics	ug/L	1000	1210	1240	121	124	60-120	2	20	L0,N2
a,a,a-Trifluorotoluene (S)	%				101	105	60-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1558098 1558099

Parameter	Units	10245747003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
AK101 Gasoline Range Organics	ug/L	ND	1000	1000	1260	1180	125	117	70-142	7	30	N2
a,a,a-Trifluorotoluene (S)	%						108	99	60-120			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

QC Batch: MSV/25383 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 10245747001, 10245747002, 10245747003, 10245747004, 10245747005

METHOD BLANK: 1559977 Matrix: Water
Associated Lab Samples: 10245747001, 10245747002, 10245747003, 10245747004, 10245747005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	ug/L	ND	1.0	10/24/13 00:42	
Ethylbenzene	ug/L	ND	1.0	10/24/13 00:42	
Toluene	ug/L	ND	1.0	10/24/13 00:42	
Xylene (Total)	ug/L	ND	3.0	10/24/13 00:42	
1,2-Dichloroethane-d4 (S)	%	98	75-125	10/24/13 00:42	
4-Bromofluorobenzene (S)	%	100	75-125	10/24/13 00:42	
Toluene-d8 (S)	%	100	75-125	10/24/13 00:42	

LABORATORY CONTROL SAMPLE: 1559978

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzene	ug/L	20	16.9	85	75-125	
Ethylbenzene	ug/L	20	17.0	85	75-125	
Toluene	ug/L	20	17.3	86	75-125	
Xylene (Total)	ug/L	60	52.3	87	75-125	
1,2-Dichloroethane-d4 (S)	%			98	75-125	
4-Bromofluorobenzene (S)	%			97	75-125	
Toluene-d8 (S)	%			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1559979 1559980

Parameter	Units	10245747003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	ug/L	ND	20	20	16.9	20.3	85	102	70-135	18	30	
Ethylbenzene	ug/L	ND	20	20	17.0	20.0	85	100	75-125	16	30	
Toluene	ug/L	ND	20	20	17.3	20.6	86	102	75-125	17	30	
Xylene (Total)	ug/L	ND	60	60	52.3	61.6	87	103	75-125	16	30	
1,2-Dichloroethane-d4 (S)	%						98	101	75-125			
4-Bromofluorobenzene (S)	%						97	98	75-125			
Toluene-d8 (S)	%						100	101	75-125			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

QC Batch: OEXT/23387 Analysis Method: Alaska 102/103
QC Batch Method: EPA 3510 Analysis Description: AK1023 GCS
Associated Lab Samples: 10245747001, 10245747002, 10245747003, 10245747004

METHOD BLANK: 1557387 Matrix: Water
Associated Lab Samples: 10245747001, 10245747002, 10245747003, 10245747004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
DRO by AK 102	mg/L	ND	0.40	10/21/13 17:52	N2
Residual Range Organics AK103	mg/L	ND	0.40	10/21/13 17:52	N2
n-Triacontane (S)	%	79	60-120	10/21/13 17:52	
o-Terphenyl (S)	%	78	60-120	10/21/13 17:52	

LABORATORY CONTROL SAMPLE & LCSD: 1557388 1557442

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
DRO by AK 102	mg/L	2	1.7	1.6	84	82	75-125	3	20	N2
Residual Range Organics AK103	mg/L	2	1.9	1.9	95	96	60-120	.9	20	N2
n-Triacontane (S)	%				85	83	60-120			
o-Terphenyl (S)	%				86	86	60-120			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1557389 1557390

Parameter	Units	10245652002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
DRO by AK 102	mg/L	3.1	2.2	2.1	4.4	4.7	63	79	50-150	6	20	N2
Residual Range Organics AK103	mg/L	1.1	2.2	2.1	3.1	3.3	94	105	50-150	5	20	N2
n-Triacontane (S)	%						75	80	50-150			
o-Terphenyl (S)	%						76	81	50-150			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1557391 1557392

Parameter	Units	10245747003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
DRO by AK 102	mg/L	ND	2.1	2.1	1.8	1.8	77	78	50-150	2	20	N2
Residual Range Organics AK103	mg/L	ND	2.1	2.1	2.0	2.1	95	102	50-150	6	20	N2
n-Triacontane (S)	%						84	88	50-150			
o-Terphenyl (S)	%						86	88	50-150			

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1M	Surrogate recovery outside laboratory control limits due to matrix interferences.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold TNI accreditation for this parameter.

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METHOD CROSS REFERENCE TABLE

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Parameter	Matrix	Analytical Method	Preparation Method
8260 MSV UST	Water	SW-846 8260B/5030B	N/A

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 306443 FIA UNION 1
Pace Project No.: 10245747

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10245747001	**MW-11-W-101113**	EPA 3510	OEXT/23387	Alaska 102/103	GCSV/12274
10245747002	**MW-12-W-101113**	EPA 3510	OEXT/23387	Alaska 102/103	GCSV/12274
10245747003	**MW-13-W-101113**	EPA 3510	OEXT/23387	Alaska 102/103	GCSV/12274
10245747004	**BD-1-W-101113**	EPA 3510	OEXT/23387	Alaska 102/103	GCSV/12274
10245747001	**MW-11-W-101113**	Alaska 101	GCV/11398		
10245747002	**MW-12-W-101113**	Alaska 101	GCV/11398		
10245747003	**MW-13-W-101113**	Alaska 101	GCV/11406		
10245747004	**BD-1-W-101113**	Alaska 101	GCV/11398		
10245747005	**TRIP BLANK**	Alaska 101	GCV/11398		
10245747001	**MW-11-W-101113**	EPA 8260	MSV/25383		
10245747002	**MW-12-W-101113**	EPA 8260	MSV/25383		
10245747003	**MW-13-W-101113**	EPA 8260	MSV/25383		
10245747004	**BD-1-W-101113**	EPA 8260	MSV/25383		
10245747005	**TRIP BLANK**	EPA 8260	MSV/25383		

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1126.1123

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10245747

Page: 1 of 1

1630764

Section A Required Client Information:
- Company: ARCADIS
- Address: 100 Olive Way Suite 800, Seattle, WA 98101
- Email To: Gregory.Montgomery@arcadis-us.com
- Phone: 206-726-4742 Fax: —
- Requested Due Date/TAT: 10 day STAT

Section B Required Project Information:
- Report To: Greg Montgomery
- Copy To: David Beaudoin, Tammy Parise
- Purchase Order No.: B0045507
- Project Name: FIA Unocal
- Project Number: 306443

Section C Invoice Information:
- Attention:
- Company Name:
- Address:
- Pace Quote Reference:
- Pace Project Manager:
- Pace Profile #:

REGULATORY AGENCY
- NPDES
- GROUND WATER
- DRINKING WATER
- UST
- RCRA
- OTHER

Site Location STATE:

Section D Required Client Information

Matrix Codes MATRIX / CODE: Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): N Z Z N Z

Preservatives: Unpreserved, H_2SO_4, HNO_3, HCl, NaOH, $Na_2S_2O_3$, Methanol, Other

Analysis Tests: BTEX WSEPH 8260; GRO AK101; DRO AK102; DRO w/SGC AK102; RRO AK103

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	HCl	BTEX WSEPH 8260	GRO AK101	DRO AK102	DRO w/SGC AK102	RRO AK103	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-11-W-101113	WT	G	10.11.13	17:30				9	X	X	X	X	X	X		001
2	MW-12-W-101113	WT	G	10.11.13	17:00				9	X	X	X	X	X	X		002
3	MW-13-W-101113	WT	G	10.11.13	15:45				9	X	X	X	X	X	X		003
4	MS-W-101113	WT	G	10.11.13	15:45				8	X	X	X	X		X		003
5	MSD-W-101113	WT	G	10.11.13	15:45				8	X	X	X	X		X		003
6	BD-1-W-101113	WT	G	10.11.13	—				8	X	X	X	X		X		004
7	Trip Blank-	WT	—	10.11.13	—				4	X	X	X					005
8																	
9																	
10																	
11																	
12																	

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	[signature] / ARCADIS	10.14.13		CS / Pace	101513	921	3.6	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
- PRINT Name of SAMPLER:
- SIGNATURE of SAMPLER:
- DATE Signed (MM/DD/YY):

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 19Sep2013 Page 1 of 1
	Document No.: F-MN-L-213-rev.07	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Arcadis

Project #: WO# : 10245747

10245747

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other: ______

Tracking Number: 8020 4472 9219

Optional: Proj. Due Date: Proj. Name:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No   Seals Intact? ☑ Yes ☐ No

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: ______   Temp Blank? ☑ Yes ☐ No

Thermom. Used: ☐ 80512447 ☐ 72337080 ☑ 888A912167504 ☐ 888A9132521491   Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.7   Cooler Temp Corrected (°C): 3.6   Biological Tissue Frozen? ☐ Yes ☐ No

Temp should be above freezing to 6°C   Correction Factor: -0.1   Date and Initials of Person Examining Contents: CS 10.15.13

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☐ Yes	☑ No (cs 10/15)	☐ N/A	10. 1 vial broken for MSD
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☑ N/A	13. ☐ HNO₃ ☐ H₂SO₄ ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO₃, H₂SO₄, HCl<2; NaOH>12)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☑ Yes	☐ No (cs 10/15/13)		Initial when completed: CS Lot # of added preservative: ______
Headspace in VOA Vials (>6mm)?	☐ Yes	☑ No	☐ N/A	14.
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	15. 4TB
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (if purchased): ______				

CLIENT NOTIFICATION/RESOLUTION   Field Data Required? ☐ Yes ☐ No

Person Contacted: ______   Date/Time: ______

Comments/Resolution: ______

Project Manager Review: Jenni Gross   Date: 10/15/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers) .

ARCADIS

Appendix F

ADEC Laboratory Data Review Checklists

boratory Data Review Checklist

Completed by: Michael MacDaniel

Title: Field Technician Date: November 20, 2013

CS Report Name: 2013 Additional Site Assessment Report Report Date: November 5, 2013

Consultant Firm: ARCADIS

Laboratory Name: Eurofins Laboratory Report Number: 1424034

ADEC File Number: 2100.6.007 ADEC RecKey Number: 1990210022901

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      □Yes □ No □NA (Please explain.) 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 approved?
      □Yes □ No □NA (Please explain.) Comments:

      N/A

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      □Yes □ No □NA (Please explain.) Comments:

      Yes

   b. Correct analyses requested?
      □Yes □ No □NA (Please explain.) Comments:

      Yes

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      □Yes □ No □NA (Please explain.) Comments:

      Yes

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
      □Yes □ No □NA (Please explain.) Comments:

      Yes

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
□Yes □ No □NA (Please explain.) 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, etc.?
□Yes □ No □NA (Please explain.) Comments:

No discrepancies noted

e. Data quality or usability affected? (Please explain.)
Comments:

Data quality or usability does not appear to be affected.

4. Case Narrative
a. Present and understandable?
□Yes □ No □NA (Please explain.) Comments:

Yes

b. Discrepancies, errors or QC failures identified by the lab?
□Yes □ No □NA (Please explain.) Comments:

No discrepancies noted

c. Were all corrective actions documented?
□Yes □ No □NA (Please explain.) Comments:

Yes

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

Data quality or usability does not appear to be affected.

5. Samples Results
a. Correct analyses performed/reported as requested on COC?
□Yes □ No □NA (Please explain.) Comments:

Yes

b. All applicable holding times met?

Yes

□Yes □ No □NA (Please explain.) Comments:

c. All soils reported on a dry weight basis?
□Yes □ No □NA (Please explain.) Comments:

Yes

d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
□Yes □ No □NA (Please explain.) Comments:

Yes.

e. Data quality or usability affected?
Comments:

Data quality or usability does not appear to be affected.

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?
      □Yes □ No □NA (Please explain.) Comments:

Yes

      ii. All method blank results less than PQL?
      □Yes □ No □NA (Please explain.) Comments:

Yes

      iii. If above PQL, what samples are affected?
      Comments:

N/A

      iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?
      □Yes □ No □NA (Please explain.) Comments:

N/A

      v. Data quality or usability affected? (Please explain.)
      Comments:

No, the data is usable.

   b. Laboratory Control Sample/Duplicate (LCS/LCSD)

      i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)
      □Yes □ No □NA (Please explain.) Comments:

Yes

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

□Yes □ No □NA (Please explain.) Comments:

NA

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

□Yes □ No □NA (Please explain.) Comments:

Yes

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

□Yes □ No □NA (Please explain.) Comments:

No, the RDP for the Lead MS/MSD was out of specification.

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

Comments:

Sample numbers: 7225449-7225463

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

□Yes □ No □NA (Please explain.) Comments:

Yes

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

Comments:

No, data quality or usability is not expected to be affected.

c. Surrogates – Organics Only

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

□Yes □ No □NA (Please explain.) Comments:

Yes

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

□Yes □ No □NA (Please explain.) Comments:

Yes

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

□Yes □ No □NA (Please explain.) Comments:

NA

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

Comments:

The data usability and quality is not affected.

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

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

□Yes □ No □NA (Please explain.) Comments:

Yes

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

□Yes □ No □NA (Please explain.) Comments:

Yes

iii. All results less than PQL?

□Yes □ No □NA (Please explain.) Comments:

Yes

iv. If above PQL, what samples are affected?

Comments:

NA

v. Data quality or usability affected? (Please explain.)

Comments:

No, data is usable.

e. Field Duplicate

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

Yes

□Yes □ No □NA (Please explain.) Comments:

ii. Submitted blind to lab?

□Yes □ No □NA (Please explain.) Comments:

Yes

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

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

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

□Yes □ No □NA (Please explain.) Comments:

No, the RPD is out of specification for the duplicate sample collected from MW-11 at 6' bgs.

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

Comments:

No, data quality or usability is not affected.

f. Decontamination or Equipment Blank (If not used explain why).

□Yes □ No □NA (Please explain.) Comments:

No equipment blank needed for soil sampling.

i. All results less than PQL?

□Yes □ No □NA (Please explain.) Comments:

N/A

ii. If above PQL, what samples are affected?

Comments:

N/A

iii. Data quality or usability affected? (Please explain.)

Comments:

N/A

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

a. Defined and appropriate?

□Yes □ No □NA (Please explain.) Comments:

N/A

Laboratory Data Review Checklist

Completed by:	Michael MacDaniel		
Title:	Field Technician	Date:	Oct 31, 2013
CS Report Name:	2013 Additional Site Assessment	Report Date:	Oct 29, 2013
Consultant Firm:	ARCADIS		
Laboratory Name:	Pace Analytical Inc.	Laboratory Report Number:	10245747
ADEC File Number:	2100.26.040	ADEC RecKey Number:	1990210018405

1. Laboratory

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

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

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

( ) Yes ( ) No (•) NA (Please explain) Comments:

Samples not transferred

2. Chain of Custody (COC)

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. Correct analyses requested?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

Temperature 3.6 degrees C

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

Sample MSD - 1 broken vial cap upon arrival at the lab

e. Data quality or usability affected? (Please explain)

Comments:

Data quality or usability does not appear to be affected.

4. Case Narrative

a. Present and understandable?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

( ) Yes ( ) No (•) NA (Please explain) Comments:

No discrepancies

c. Were all corrective actions documented?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

No corrective actions taken

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

Comments:

Data quality or usability does not appear to be affected.

5. Samples Results

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

b. All applicable holding times met?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

c. All soils reported on a dry weight basis?

( ) Yes ( ) No (•) NA (Please explain) Comments:

NA- only groundwater samples collected

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

( ) Yes (•) No ( ) NA (Please explain) Comments:

e. Data quality or usability affected? (Please explain)

Comments:

NA - Data quality or usability does not appear to be affected.

6. QC Samples

a. Method Blank

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

ii. All method blank results less than PQL?

(•) Yes ( ) No ( ) NA (Please explain) Comments:

iii. If above PQL, what samples are affected? Comments:

NA

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

○ Yes ○ No ◉ NA (Please explain) Comments:

NA - no affected samples

v. Data quality or usability affected? (Please explain) Comments:

NA

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics - One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

◉ Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ○ No ◉ NA (Please explain) Comments:

No metal or inorganic analysis requested.

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

○ Yes ◉ No ○ NA (Please explain) Comments:

MATRIX SPIKE DUPLICATE SAMPLE: MSD% Rec at 150 for AK 101 GRO with a % Rec Limit of 70-142.

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

◉ Yes ○ No ○ NA (Please explain) Comments:

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

Comments:

NA

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

vii. Data quality or usability affected? (Please explain) Comments:

Data quality or usability does not appear to be affected.

c. Surrogates - Organics Only

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain) Comments:

iv. Data quality or usability affected? (Use the comment box to explain.). Comments:

Data quality or usability does not appear to be affected.

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

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

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

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

(•) Yes ( ) No ( ) NA (Please explain.) Comments:

iii. All results less than PQL?

◉ Yes ○ No ○ NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?

Comments:

NA

v. Data quality or usability affected? (Please explain.)

Comments:

NA

e. Field Duplicate

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

◉ Yes ○ No ○ NA (Please explain) Comments:

ii. Submitted blind to lab?

◉ Yes ○ No ○ NA (Please explain.) Comments:

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

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

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

◉ Yes ○ No ○ NA (Please explain) Comments:

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

○ Yes ◉ No ○ NA (Please explain) Comments:

Data quality or usability does not appear to be affected.

f. Decontamination or Equipment Blank (if applicable)

○ Yes ◉ No ○ NA (Please explain) Comments:

Equipment blank not collected due to sampling method used in groundwater collection.

i. All results less than PQL?

○ Yes ○ No ◉ NA (Please explain) Comments:

NA - no equipment blank collected

ii. If above PQL, what samples are affected?

Comments:

NA

iii. Data quality or usability affected? (Please explain.)

Comments:

NA

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

a. Defined and appropriate?

◉ Yes ○ No ○ NA (Please explain) Comments:

No other flags/qualifiers

Reset Form

ARCADIS

Appendix G

ADEC CSM Scoping Form and Graph

HUMAN HEALTH CONCEPTUAL SITE MODEL GRAPHIC FORM

Site: Former Chevron 306443
Gate 28, Blk 1, Lot 8, West Ramp, FIA, Fairbanks, AK

Completed By: Linda Rawlins
Date Completed: July 16, 2013

***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.*

Media	Transport Mechanisms
☑ Surface Soil (0-2 ft bgs)	☑ Direct release to surface soil → check soil ☑ Migration to subsurface → check soil ☑ Migration to groundwater → check groundwater ☑ 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 ☑ Migration to groundwater → check groundwater ☑ Volatilization → check air ☐ Uptake by plants or animals → check biota ☐ Other (list):
☑ Ground-water	☑ Direct release to groundwater → check groundwater ☑ Volatilization → check air ☐ Flow to surface water body → check surface water ☐ Flow to sediment → check sediment ☐ Uptake by plants or animals → check biota ☐ Other (list):
☐ Surface Water	☐ Direct release to surface water → check surface water ☐ Volatilization → check air ☐ Sedimentation → check sediment ☐ Uptake by plants or animals → check biota ☐ Other (list):
☐ Sediment	☐ Direct release to sediment → check sediment ☐ Resuspension, runoff, or erosion → check surface water ☐ Uptake by plants or animals → check biota ☐ Other (list):

(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.*

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
☑ soil	☑ Incidental Soil Ingestion		C/F	C/F	C/F			
	☐ Dermal Absorption of Contaminants from Soil							
	☐ Inhalation of Fugitive Dust							
☑ groundwater	☑ Ingestion of Groundwater		F	F	C/F			
	☐ Dermal Absorption of Contaminants in Groundwater							
	☐ Inhalation of Volatile Compounds in Tap Water							
☑ air	☑ Inhalation of Outdoor Air		C/F	C/F	F			
	☑ Inhalation of Indoor Air		C/F	C/F	F			
	☐ Inhalation of Fugitive Dust							
☐ surface water	☐ Ingestion of Surface Water							
	☐ Dermal Absorption of Contaminants in Surface Water							
	☐ Inhalation of Volatile Compounds in Tap Water							
☐ sediment	☐ Direct Contact with Sediment							
☐ biota	☐ Ingestion of Wild or Farmed Foods							

Revised, 10/01/2010

Print Form

Human Health Conceptual Site Model
Scoping Form

Site Name: Former Chevron 306443 (FIA Unocal)

File Number: 100.26.040

Completed by: Linda Rawlins

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 assumed to be protective of this pathway.

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

Comments:

Not Applicable

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.)

Generally, DEC groundwater cleanup levels in 18 AAC 75, Table C, are assumed to be protective of this pathway.

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

Comments:

Not Applicable

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.
- Chromium is present in soil that can be dispersed as dust particles of any size.

Generally, DEC direct contact soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because it is assumed most dust particles are incidentally ingested instead of inhaled to the lower lungs. The inhalation pathway only needs to be evaluated when very small dust particles are present (e.g., along a dirt roadway or where dusts are a nuisance). This is not true in the case of chromium. Site specific cleanup levels will need to be calculated in the event that inhalation of dust containing chromium is a complete pathway at a site.

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

Comments:

Not Applicable

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:

Not Applicable

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

APPENDIX A

BIOACCUMULATIVE COMPOUNDS OF POTENTIAL CONCERN

Organic compounds are identified as bioaccumulative if they have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5. Inorganic compounds are identified as bioaccumulative if they are listed as such by EPA (2000). Those compounds in Table B-1 of 18 AAC 75.341 that are bioaccumulative, based on the definition above, are listed below.

Aldrin	DDT	Lead
Arsenic	Dibenzo(a,h)anthracene	Mercury
Benzo(a)anthracene	Dieldrin	Methoxychlor
Benzo(a)pyrene	Dioxin	Nickel
Benzo(b)fluoranthene	Endrin	PCBs
Benzo(k)fluoranthene	Fluoranthene	
Cadmium	Heptachlor	Pyrene
Chlordane	Heptachlor epoxide	Selenium
Chrysene	Hexachlorobenzene	Silver
Copper	Hexachlorocyclopentadiene	Toxaphene
DDD	Indeno(1,2,3-c,d)pyrene	Zinc
DDE		

Because BCF values can relatively easily be measured or estimated, the BCF is frequently used to determine the potential for a chemical to bioaccumulate. A compound with a BCF greather than 1,000 is considered to bioaccumulate in tissue (EPA 2004b).

For inorganic compounds, the BCF approach has not been shown to be effective in estimating the compound's ability to bioaccumulate. Information available, either through scientific literature or site-specific data, regarding the bioaccumulative potential of an inorganic site contaminant should be used to determine if the pathway is complete.

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000).

The list was developed by including organic compounds that either have a BCF equal to or greater than 1,000 or a log K_{ow} greater than 3.5 and inorganic compounds that are listed by the United States Environmental Protection Agency (EPA) as being bioaccumulative (EPA 2000). The BCF can also be estimated from a chemical's physical and chemical properties. A chemical's octanol-water partitioning coefficient (K_{ow}) along with defined regression equations can be used to estimate the BCF. EPA's Persistent, Bioaccumulative, and Toxic (PBT) Profiler (EPA 2004) can be used to estimate the BCF using the K_{ow} and linear regressions presented by Meylan et al. (1996). The PBT Profiler is located at http://www.pbtprofiler.net/. For compounds not found in the PBT Profiler, DEC recommends using a log K_{ow} greater than 3.5 to determine if a compound is bioaccumulative.

APPENDIX B

VOLATILE COMPOUNDS OF POTENTIAL CONCERN

A chemical is identified here as sufficiently volatile and toxic for further evaluation if the Henry's Law constant is 1 x 10^{-5} atm-m^3/mol or greater, the molecular weight is less than 200 g/mole (EPA 2004a), and the vapor concentration of the pure component posed an incremental lifetime cancer risk greater than 10^{-6} or a non-cancer hazard quotient of 0.1, or other available scientific data indicates the chemical should be considered a volatile. Chemicals that are solid at typical soil temperatures and do not sublime are generally not considered volatile.

Acetone	Mercury (elemental)
Benzene	Methyl bromide (Bromomethane)
Bis(2-chloroethyl)ether	Methyl chloride (Chloromethane)
Bromodichloromethane	Methyl ethyl ketone (MEK)
Bromoform	Methyl isobutyl ketone (MIBK)
n-Butylbenzene	Methylene bromide
sec-Butylbenzene	Methylene chloride
tert-Buytlbenzene	**1-Methylnaphthalene**
Carbon disulfide	**2-Methylnaphthalene**
Carbon tetrachloride	Methyl *tert*-butyl ether (MTBE)
Chlorobenzene	**Naphthalene**
Chlorodibromomethane (Dibromochloromethane)	Nitrobenzene
Chloroethane	n-Nitrosodimethylamine
Chloroform	**n-Propylbenzene**
2-Chlorophenol	**Styrene**
1,2-Dichlorobenzene	1,1,2,2-Tetrachlorethane
1,3-Dichlorobenzene	Tetrachloroethylene (PCE)
1,4-Dichlorobenzene	**Toluene**

Dichlorodifluoromethane	1,2,4-Trichlorobenzene
1,1-Dichloroethane	1,1,1-Trichloroethane
1,2-Dichloroethane	1,1,2-Trichloroethane
1,1-Dichloroethylene	Trichloroethane
cis-1,2-Dichloroethylene	2,4,6-Trichlorophenol
trans-1,2-Dichloroethylene	1,2,3-Trichloropropane
1,2-Dichloropropane	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon-113)
1,3-Dichloropropane	Trichlorofluoromethane (Freon-11)
Ethylbenzene	**1,2,4-Trimethylbenzene**
Ethylene dibromide (1,2-Dibromoethane)	**1,3,5-Trimethylbenzene**
Hexachlorobenzene	Vinyl acetate
Hexachloro-1,3-butadiene	Vinyl chloride (Chloroethene)
Hexachlorocyclopentadiene	**Xylenes (total)**
Hexachloroethane	GRO (see note 3 below)
Hydrazine	DRO (see note 3 below)
Isopropylbenzene (Cumene)	RRO (see note 3 below)

Notes:

1. Bolded chemicals should be investigated as volatile compounds when petroleum is present. If fuel containing additives (e.g., 1,2-dichloroethane, ethylene dibromide, methyl *tert*-butyl ether) were spilled, these chemicals should also be investigated.
2. If a chemical is not on this list, and not in Tables B of 18 AAC 75.345, the chemical has not been evaluated for volatility. Contact the ADEC risk assessor to determine if the chemical is volatile.
3. At this time, ADEC does not require evaluation of petroleum ranges GRO, DRO, or RRO for the indoor air inhalation (vapor intrusion) pathway.