



FINAL

6 May 2011

Site Characterization Report

Antenna Field, SA 79, SWMU 60, Former
Power Plant, and SWMU 61

Former Adak Naval Complex

Adak, Alaska

Department of the Navy

Naval Facilities Engineering Command Northwest

1101 Tautog Circle

Silverdale, WA 98315



**FINAL
SITE CHARACTERIZATION REPORT FOR
ANTENNA FIELD, SA 79, SWMU 60,
FORMER POWER PLANT, AND SWMU 61**

**FORMER ADAK NAVAL COMPLEX
ADAK, ALASKA**

**Prepared by
URS Group, Inc.
Seattle, Washington**

**Prepared for
Naval Facilities Engineering Command Northwest
1101 Tautog Circle
Silverdale, Washington 98315**

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Organization Title: Naval Facilities Engineering Command Northwest
Address: 1101 Tautog Circle
Silverdale, Washington 98315

Prime Contractor: URS Group, Inc.
Address: 1501 Fourth Avenue, Suite 1400
Seattle, Washington 98101-1616
(206) 438-2700

Navy Remedial Project Manager: Grady May

URS Program Manager: William L. Rohrer, C.P.G., P.G., L.H.G.

URS Project Manager: Greg Burgess, R.G., L.G., L.H.G.

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ABBREVIATIONS AND ACRONYMS

| | |
|-----------|---|
| AAC | Alaska Administrative Code |
| ADEC | Alaska Department of Environmental Conservation |
| AST | aboveground storage tank |
| ARAR | applicable and relevant or appropriate requirements |
| bgs | below ground surface |
| BTEX | benzene, toluene, ethylbenzene, and total xylenes |
| °C | degree Celsius |
| CMP | Comprehensive Monitoring Plan |
| DO | dissolved oxygen |
| DQO | data quality objective |
| DRO | diesel-range organics |
| EE/CA | engineering evaluation/cost analysis |
| EPA | U.S. Environmental Protection Agency |
| FCR | field change request |
| FCT | field-constructed tank |
| GEM | Ground Electronics Maintenance |
| GPS | Global Positioning System |
| GRO | gasoline-range organics |
| JP-5 | jet petroleum No. 5 |
| MLLW | mean lower low water |
| µg/L | microgram per liter |
| µS/cm | microsiemens per centimeter |
| mg/kg | milligram per kilogram |
| mg/L | milligram per liter |
| mL | milliliter |
| mL/min | milliliter per minute |
| mogas | motor gasoline |
| MNA | monitored natural attenuation |
| mS/cm | millisiemens per centimeter |
| msl | mean sea level |
| mV | millivolt |
| MW | monitoring well |
| Navy | U.S. Navy |
| NAVD88 | North American Vertical Datum of 1988 |
| NAVFAC NW | Naval Facilities Engineering Command Northwest |
| NIRIS | Navy Installation Restoration Information System |
| NTU | nephelometric turbidity unit |

ABBREVIATIONS AND ACRONYMS (Continued)

| | |
|-------|--|
| ORP | oxidation-reduction potential |
| OU | operable unit |
| PAH | polycyclic aromatic hydrocarbons |
| PID | photoionization detector |
| ppm | parts per million |
| PVC | polyvinyl chloride |
| ROD | record of decision |
| SA | source area |
| SAERA | State-Adak Environmental Restoration Agreement |
| SAP | sampling and analysis plan |
| SOP | standard operating procedure |
| SU | standard unit |
| SWMU | solid waste management unit |
| SVOC | semivolatile organic compound |
| TAH | total aromatic hydrocarbon |
| TAqH | total aqueous hydrocarbon |
| URS | URS Group, Inc. |
| UST | underground storage tank |
| VOC | volatile organic compound |

1.0 INTRODUCTION

Pursuant to the Federal Facilities Agreement, the U.S. Navy, U.S. Environmental Protection Agency (EPA), and Alaska Department of Environmental Conservation (ADEC) have agreed to a process for determining remedial actions for petroleum-release sites at the former Adak Naval Complex. As specified in the record of decision (ROD) for Operable Unit A (OU A), petroleum release sites are evaluated and remediated under terms mutually agreed to by the Navy and the State of Alaska (U.S. Navy, ADEC, and USEPA 2000). The Navy and ADEC have agreed that the identification and selection of remedial actions, including applicable institutional controls, will follow the cleanup process established by Alaska State regulations.

The five sites included in this additional characterization effort are as follows:

- Antenna Field
- Source Area (SA) 79, Main Road Pipeline, South End
- Solid Waste Management Unit (SWMU) 60, Tank Farm A
- Former Power Plant, Building T-1451
- SWMU 61, Tank Farm B

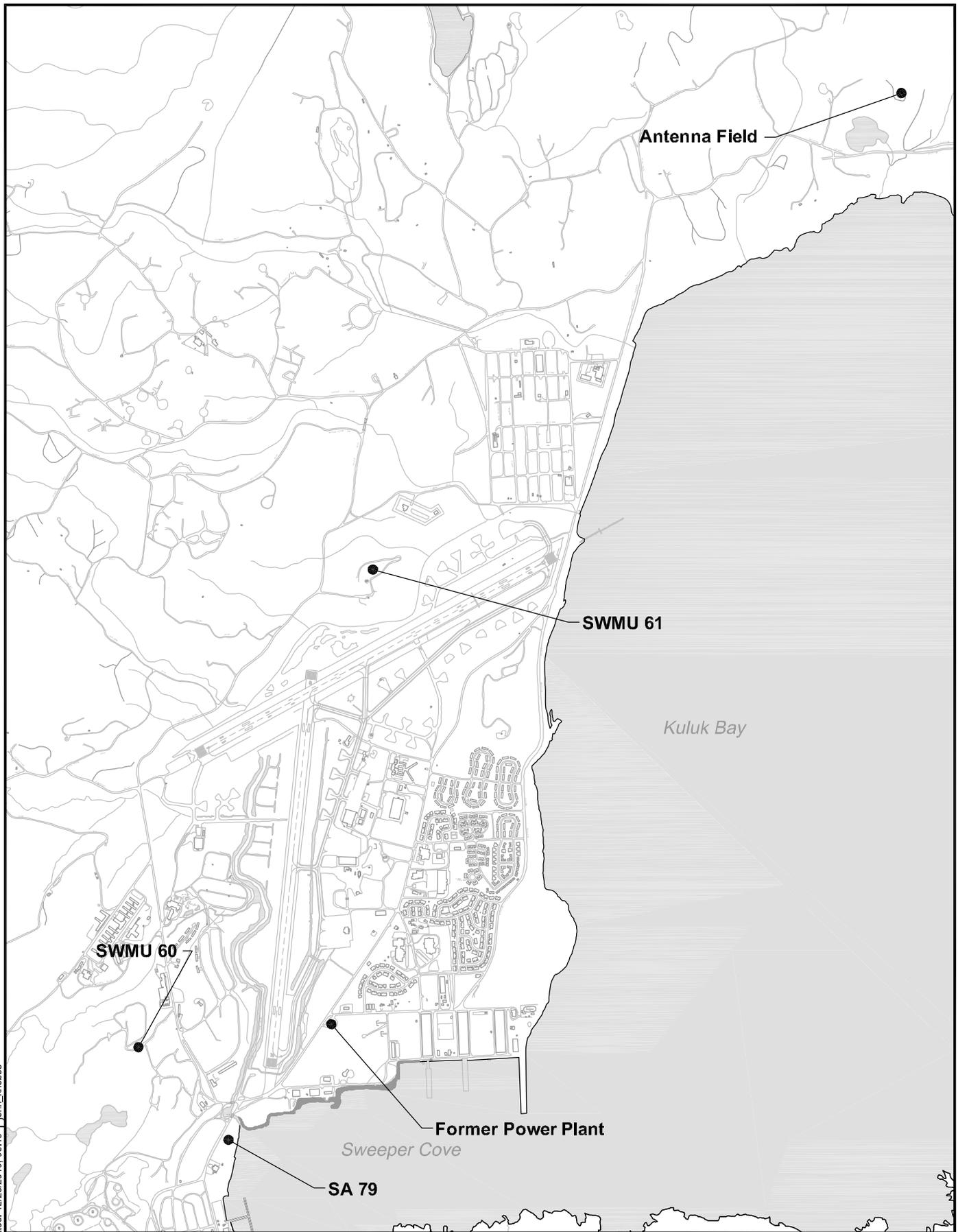
The locations of these sites are shown on Figure 1-1.

Remedies selected for these sites were included in the OU A ROD. The selected remedy for SA 79, Main Road Pipeline, is limited groundwater monitoring, while monitored natural attenuation (MNA) is the selected remedy for the other four sites. All four of these sites are currently in the monitoring phase of their respective remedies.

The original scope of work included additional characterization of Antenna Field, SA 79, SWMU 60, and Pipeline Sites A-06, J-34, and J-72. During the preparation of the sampling and analysis plan (SAP), the Former Power Plant, Building T-1451, and SWMU 61, Tank Farm B, were added to the scope while the Pipeline Sites J-34 and J-72 were removed. There was a provision in the SAP that the planned soil borings for Pipeline Site A-06 could be completed at Former Power Plant if extra data were needed to fully define the extent of impacted soil. The additional soil borings and related data were required at Former Power Plant, and, therefore, no field work was performed at Pipeline Site A-06.

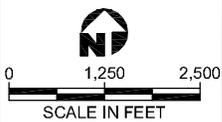
1.1 GENERAL PURPOSE

The purpose of this additional characterization effort is to determine the current extent of petroleum-impacted media of concern at the site. The specific purpose of the additional site



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U.S. NAVY



**Figure 1-1
 Site Locations**

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characterization for each site is described in the applicable site-specific section. In general, the results will be used to either demonstrate the adequacy of MNA, show the need to take further action, evaluate the migration of petroleum hydrocarbons to the downgradient water body, or determine the extent of petroleum-impacted soil for excavation and treatment.

1.2 REPORT ORGANIZATION

This site characterization report is organized as follows:

- Section 2 presents a general description of the field activities and methods that were performed at the sites, including utility locating, soil boring, soil sampling, well installation and development, and groundwater sampling.
- Section 3 is an assessment of the data quality of the analytical results of the environmental samples collected for all five sites addressed as part of this project.
- Section 4 summarizes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at Antenna Field.
- Section 5 summarizes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at SA 79, Main Road Pipeline, South End.
- Section 6 summarizes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at SWMU 60, Tank Farm A.
- Section 7 summarizes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at Former Power Plant, Building T-1451.
- Section 8 summarizes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at SWMU 61, Tank Farm B.
- Section 9 lists the documents referenced in this report.

2.0 GENERAL FIELD INVESTIGATIONS ACTIVITIES AND METHODS

This section provides descriptions of general field activities and methods conducted during the 2010 field effort. Specific field investigation details and applicable results for each site are provided in Sections 4 through 8.

2.1 UTILITY LOCATION

In areas near planned subsurface penetrations, all utilities were located in accordance with NAVFAC NW Standard Operating Procedure (SOP) I-A-6 (Utility Clearance). URS consulted with the City of Adak and other appropriate representatives to identify potential utility locations at the site. A private utility locator was mobilized to locate any conductible buried utilities at each drilling location prior to surface penetration. The private utility locator used toning, electromagnetic, or other equivalent equipment to conduct the utility locate and marked locations of detected utilities in the areas of the planned drilling locations. A URS representative was present during the utility locate to document the results. Several planned locations were within 5 feet of a marked or otherwise identified utility, and those drilling locations were adjusted accordingly to allow for clearance.

2.2 SOIL BORING COMPLETION AND SOIL SAMPLING

Soil borings for well installations were drilled using 8-inch outer diameter, hollow-stem augers. At SA 79, SWMU 60, and Former Power Plant locations where no well was installed, soil borings were attempted first with a 2.5-inch outer diameter drill rod using direct push technology and later completed using 8-inch outer diameter hollow-stem augers to drill down to the required depth. At Antenna Field, wells were installed and soil borings completed. At Antenna Field locations where no well was installed, soil borings were advanced to the required depth using a 2.5-inch-diameter drill rod and direct push technology. At SWMU 61 locations, soil borings were advanced using a combination of 2.5-inch-diameter hand augers and 2.5-inch-diameter slide-hammer driven samplers. The first 3 to 5 feet of each sampling location were completed using hand tools to reduce the potential for drilling into an unknown buried utility. Soil borings were advanced to a maximum of 20 feet below ground surface (bgs). Soil cuttings were placed in 55-gallon drums. A label was attached to each drum indicating the contents, boring number, site name, and date of accumulation.

Larger diameter soil borings were abandoned by backfilling the borehole with a mixture of soil cuttings and bentonite. The top 2 feet of each soil boring were backfilled with clean soil. Smaller diameter (2.5-inch) soil borings were abandoned by backfilling the borehole with bentonite chips.

Soil samples were collected at 2.5-foot intervals to the total drilled depth for visual description, field screening, and potential quantitative laboratory analysis. Soil samples were collected using split-spoon samplers. Blow counts were recorded for each sampling interval. The crew screened soil samples using a MiniRAE 2000 photoionization detector (PID) to measure the level of organic vapors in the each sample when it was possible. During drilling at Antenna Field, PID operation was severely degraded by rainy and windy conditions and lack of shelter.

Before screening soil samples, the field crew partially filled a clean Ziploc bag with soil from the sampled interval. At least 10 minutes after sealing the bag to allow headspace vapors to develop, the PID sampling probe was inserted into the bag to record the measured organic vapors for each sample. The results of the screening were used to select soil samples for diesel-range organics (DRO) or gasoline-range organics (GRO) analysis, depending upon the site. The selection of soil samples submitted for laboratory analyses were also based on odor and visual observations of staining and sheen.

At SWMU 61, soils were sampled for analysis for GRO, following Method Alaska AK 101. An aliquot of soil from each sampling interval was screened for headspace vapor content using a PID, and samples were selected for laboratory analysis immediately, based on field screening results. As samples were being collected for volatiles analyses, approximately 25 grams of undisturbed (where possible) soil were collected directly from the sampler (hand auger), transferred to the appropriate sample container, and field-preserved with 25 mL of methanol to reduce loss of volatile compounds from the soil.

2.3 WELL INSTALLATION AND DEVELOPMENT

Groundwater monitoring wells were installed at each site using 6- or 8-inch outer diameter hollow-stem augers. The groundwater monitoring wells were constructed using factory sealed, flush-threaded, 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) pipe. Wells were constructed with factory-slotted (0.010-inch slots) screen. A well screen measuring 5 or 10 feet was installed in each well, depending on site-specific conditions. Generally, the top of the screen was placed 2 to 3 feet above the anticipated stabilized groundwater surface to allow for monitoring of free product, if present.

The top of the filter pack that consists of 20/40 silica sand was placed from 1 to 4.3 feet above the top of the screen, depending on site-specific conditions. The well seal consisted of 1 or more feet of bentonite chips, depending on the site-specific conditions. The chips were allowed to hydrate for a minimum of 15 minutes prior to beginning backfill operations. Backfill materials consisted of a mixture of drilling cuttings and slurry grout or bentonite chips, as regulations allow.

Each well was completed using either a flush mount protective monument or using a steel, aboveground protective monument with a stick-up of 2 to 3 feet above grade. Monuments were set in a concrete surface seal. Aboveground protective monuments were surrounded by three bollards set in concrete. The aboveground protective monument was at least 4 inches in diameter bigger than the well-casing diameter and set with the top-of-well casing no more than 2 inches below the top of the monument, but with enough space to allow for a locking cap and lock on the well casing. The bollards were placed in a circular pattern around the well at 120 degree angles from each other and approximately 3 feet from the well. Each well top was secured with a locking, air-tight cap and lock.

Following completion of the soil borings and wells, a subcontractor surveyed the ground elevations and the top of casing elevations to the nearest 0.01 foot using the North American Vertical Datum of 1988 (NAVD88) and surveyed northings and eastings to the nearest 0.1 foot. The NAVD88 is 13.15 feet higher than the datum established by the National Oceanic and Atmospheric Administration based on mean lower low water (MLLW) that was used for previous surveys. Therefore, the elevations reported based on the NAVD88 datum have been lowered by 13.15 feet so that elevations can be referenced to mean sea level (msl) and are comparable to previously surveyed locations. The survey information provided by the surveyor (Lantech, Inc.) is in Appendix A.

All wells were developed subsequent to well installation and before groundwater sampling. Well development occurred at least 24 hours after well installation to allow the annular seal to fully set up. Development enhances the flow of groundwater from the formation into the well and grades the well filter pack to reduce sample turbidity.

To develop the well, a bailer was used to surge the well and remove particulates. After surging the well with a bailer, a 12-volt submersible pump was used to pump the well to monitor the water quality parameters. The Horiba Model U-22, set up with a flow-through cell, was used to monitor pH, specific conductance, turbidity, dissolved oxygen (DO), temperature, and oxidation-reduction potential (ORP). Readings were recorded periodically during development, and the well was considered adequately purged when the turbidity was less than or equal to 10 nephelometric turbidity units (NTUs) and the purge volume exceeded three times the volume of the saturated annular space. Well development water was contained in Department of

Transportation-approved 55-gallon drums pending waste characterization and determination of final disposition.

2.4 GROUNDWATER SAMPLING

Pre-sample well purging was conducted at least 24 hours after the completion of well development. A low-flow peristaltic pump was set up to intake water at the midpoint of the water column. Single-use tubing was used for both purging and sampling. Wells were purged at a rate of 200 to 400 mL/min according to NAVFAC NW SOP I-C-5. The depth to water was continually monitored throughout pumping processes to identify any low-producing wells.

Field parameters were monitored and recorded prior to sampling. The Horiba U-22 was calibrated using a standard solution for pH, specific conductance, and turbidity each day before sample collection, and the standard solution readings were reverified after the last sample was taken for each day. The pH, specific conductance, turbidity, DO, temperature, and ORP were measured periodically during purging. A well was considered adequately purged for sample collection after the field parameters stabilized for the last three readings.

Following water quality parameter stabilization, the flow-through cell was bypassed and water samples were collected. Approved and pre-preserved laboratory containers were filled with water in accordance with SOPs in the SAP (U.S. Navy 2010) and placed on ice in coolers until they were sent to the laboratory for analysis. Temperature blanks were included in each cooler, and chain-of-custody procedures were followed.

After samples were collected, labeled, and shipped to the laboratory, they were analyzed for the appropriate parameters specified for each site.

3.0 DATA USABILITY ASSESSMENT

Samples were analyzed by the EMAX Laboratory (Torrance, California) according to EPA Method 8260B for volatile organic compounds (VOCs), EPA Method 8270C (selected ion monitoring) for semivolatile organic compounds (SVOCs), Alaska Method AK 101 for GRO and Alaska Method AK 102 for DRO. Pyron Environmental performed a level IV data validation (Appendix B) using the October 1999 EPA *National Functional Guidelines for Organic Data Review*, with modifications to accommodate the analytical methods, and the project data quality objectives (DQOs). Although data validation qualifiers were added to some data values as a result of the validation review, the overall DQOs were met, and the data are acceptable for the intended purposes of the project.

All samples were analyzed and no data was rejected (Appendix C). Therefore, the project completeness is 100 percent.

The measurement performance criteria tables listed in Worksheet #12 of the SAP (U.S. Navy 2010a) were evaluated in detail in the data validation report. Project-required quality control samples, including laboratory method blanks, trip blanks, surrogate spikes, matrix spikes, matrix spike duplicates, laboratory control samples, field duplicates, and project-requested quantitation limits met laboratory and project DQOs, with the exceptions discussed below.

Volatile Organic Compounds

Five groundwater samples were qualified as estimated (as indicated by the “J” qualifier) for naphthalene because of a high initial calibration result: 601, 601D, 651, 652, and LC5A.

Semivolatile Organic Compounds

Four groundwater samples were qualified as estimated because of low surrogate spike percent recoveries: MRP-MW8, 650, 651, and 652. Fourteen analytes were qualified as estimated in sample 650 because of low matrix spike percent recoveries.

Gasoline-Range Organics

Two soil samples were qualified as estimated because of low surrogate spike percent recoveries: 14-708-1 and 14-708-2.

Diesel-Range Organics

Soil sample 01-161-15 was qualified as estimated because of low surrogate spike percent recoveries, and sample ANT-SB609-7.5 was qualified as estimated because of high surrogate spike percent recoveries. Three soil samples were qualified as estimated because of low matrix spike/matrix spike duplicate percent recoveries: ANT-605-5, 604-7.5 and 01-155-10. Five field duplicate pairs were submitted and analyzed. Two samples were qualified as estimated because of high field duplicate relative percent differences: ANT-602-7.5 and ANT-602D.

4.0 ANTENNA FIELD

This section describes the purpose of additional site characterization, site description, environmental history, 2010 field activities, and results of the site characterization activities at Antenna Field. A project quality objectives assessment and summary and conclusion are provided at the end of this section.

4.1 PURPOSE

The objective of the additional characterization at Antenna Field was to collect sufficient data to assess the lateral extent of residual DRO in soil and groundwater and establish a monitoring network that will demonstrate natural attenuation of DRO in groundwater over time.

4.2 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

4.2.1 Location and Setting

The Antenna Field site is located midway between downtown Adak and Clam Lagoon in an unpopulated area. The site is on a hilltop northeast of Palisades Lake and is accessed by an unmaintained gravel road that intersects Bayshore Highway (Figure 4-1). The general topography of the Antenna Field is irregular and characterized by hills and drainage swales. The site is in a remote area and the surface is mainly meadow dominated by grasses, grasslike plants, and other soft-stemmed species. No wetlands are mapped on the site (SCS 1990). The nearest area that is mapped as wetlands is Palisades Lake, which is approximately 675 feet southwest of well ANT-601.

4.2.2 Environmental History

The Antenna Field site was included in the State-Adak Environmental Restoration Agreement (SAERA) process because it included four jet petroleum No. 5 (JP-5) underground storage tanks (USTs) and petroleum-affected soils that exceeded ADEC matrix cleanup levels. The USTs were decommissioned and removed in 1993, and the site is no longer in operation. All four tanks showed signs of heavy corrosion when removed.

Subsurface soils were described as dark-brown sandy silt with some organics, grading to light- to medium-brown sandy silt with little organics within the UST excavation area. Groundwater was not encountered during the removal of the USTs.



Eight soil samples were collected from the limits of the UST excavations and submitted for laboratory analysis. Analytical results that were presented on Figure 3 of the SAP (U.S. Navy 2010a) showed DRO concentrations up to 14,000 mg/kg, which exceeds the ADEC cleanup level of 230 mg/kg. Figure 3 of the SAP is not presented in this site characterization report because, as explained in Section 4.3.5, the site map presented in the SAP, which was based on previous documentation, was not accurate.

One monitoring well (ANT-601) was installed approximately south of the tank excavations in July 1998 in an inferred downgradient direction from the former UST locations. It should be noted that this well is not 75 feet south of the excavation as previously reported. Based on a revised site map and understanding of site conditions developed during the 2010 site activities, well ANT-601 is thought to be positioned adjacent to the southeastern edge of the former UST excavation. Topography slopes downward to the southwest from the ANT-601 location. It is approximately 5 feet south of the apparent southern edge of the excavation as verified during the 2010 field activities. No other well was installed at this site prior to 2010. One soil sample was collected from the vadose zone during well installation and was analyzed for DRO. PID readings and the evidence of a sheen in soil classification samples indicated the presence of petroleum hydrocarbons at the time of drilling. The well was installed to a depth of 10 feet bgs where drilling was terminated in bedrock. The well was screened from 4.75 to 9.75 feet bgs. Low water-recharge conditions were encountered during well development. Following development, one groundwater sample was collected in August 1998 for DRO analysis.

Groundwater samples have been collected annually from well ANT-601 since 2000, with the exception of 2003. Low water conditions periodically cause problems with sample collection. For example, natural attenuation parameters could not be collected in 2009. DRO concentrations have been above the cleanup level. Mann-Kendall trend analysis shows an increasing DRO concentration trend in groundwater samples from ANT-601 at an 80 percent confidence interval (U.S. Navy 2009). This confidence interval refers to the statistical power of the monitoring program and not to the confidence interval surrounding a mean or regression line. Although there is an increasing trend in DRO concentrations, the reason for the reevaluation of this site is to delineate the lateral extent of DRO in soil and groundwater and establish a monitoring network to demonstrate natural attenuation of DRO in groundwater.

The OU A ROD for the former Adak Naval Complex selected MNA for Antenna Field (U.S. Navy, ADEC, and USEPA 2000). The Comprehensive Monitoring Plan (CMP) states that if the data tests indicated that the concentrations are increasing, an evaluation would be performed to determine whether to continue monitoring or take additional action (U.S. Navy 2007).

4.2.3 Geology and Hydrogeology

The site is located in an upland area east of Mt. Moffett. The geology and hydrogeology of this site correspond to the profile for Tephra Over Lahar or Till developed in the Adak groundwater study (U.S. Navy 1995). This profile can generally be described as 8 or fewer feet of tephra deposits overlying either lahar or glacial till.

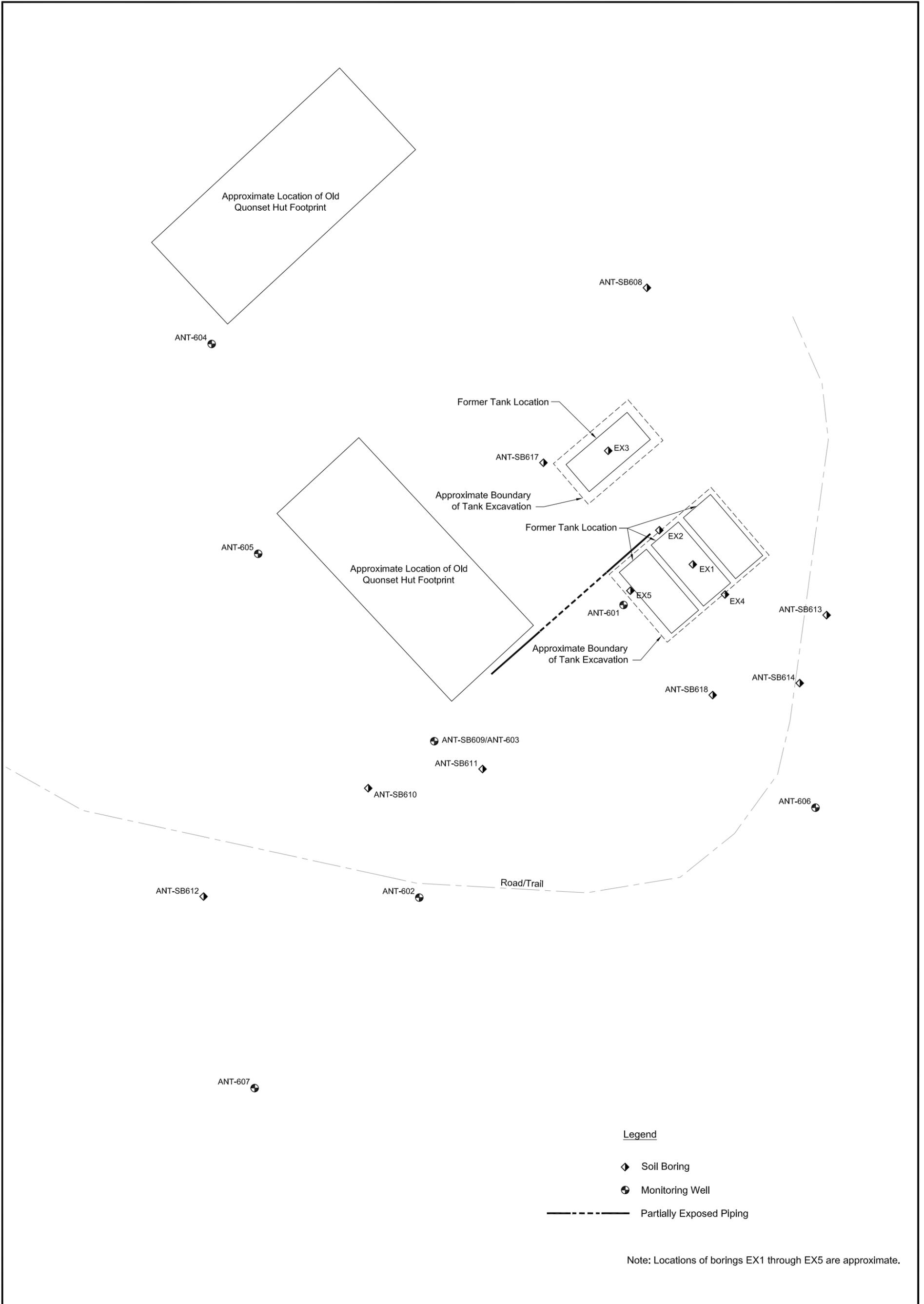
Tephra is relatively impermeable. It is a brown, clayey silt with little to trace amounts of fine sand. Lahar has a low permeability. It is a well-graded volcanic material found on the slopes of Mt. Moffett and Mt. Adagdak. The matrix consists predominantly of silt and fine sand. The glacial till is described as unsorted, massive, matrix-supported cobble and boulder gravel. The matrix consists of silt, clay, and fine sand.

In sloped areas, precipitation flows on top of the tephra, either as surface water runoff or as shallow through flow in the vegetative mat above the tephra zone (U.S. Navy 1995). In flat areas or areas where the tephra is incised by a stream or other erosional mechanisms, some percolation may occur through the tephra. However, there is limited potential for water storage in the tephra or underlying lahar or till. Because of the low hydraulic conductivity and small storage capacity, formations with this hydrogeology have a low water-bearing capacity and are unsuitable as a domestic water source.

Prior to the 2010 field effort, there was one groundwater monitoring well at the site (ANT-601). This well was completed to a depth of 10 feet bgs and constructed with 2-inch-diameter PVC casing with a 5-foot screen. Subsurface soils at well ANT-601 were classified as 4 feet of moist, dark-brown organic silt over 1 foot of moist, silty gravel over bedrock. Weathered bedrock was reported to 10 feet bgs, where auger refusal was encountered. Water was not noted during well installation.

As part of the 2010 field effort, the field crew completed additional borings and monitoring wells (Figure 4-2). Subsurface soils encountered during drilling consisted of predominantly silt and sand, with occasional fine gravel and weathered bedrock down to 4.5 to 11 feet bgs where solid bedrock was encountered.

Evidence of groundwater was encountered in a few soil borings during drilling. Wet soil was observed in the soil samples collected from bottom of soil borings ANT-SB605 and ANT-SB618 and in two borings (EX4 and EX5) within the former tank excavation area. Groundwater was present only in existing monitoring well ANT-601 and ANT-604 when water levels were measured on June 20, 2010, and only in ANT-601 on July 16, 2010 (Table 4-1). Groundwater levels were measured by Sealaska Environmental during the wet season on March 7, 2011 (Table 4-1). The data from wells ANT-602 through ANT-607 indicate that a minimal amount



(0.30 to 0.71 foot) of groundwater was present in wells ANT-602, ANT-603, and ANT-604, while the other wells remained dry. Apparently, the presence of groundwater above the bedrock surface is limited.

Given the low permeability of the thin layer of soil, the shallow presence of bedrock, and the topography of the site, it is likely that most precipitation at the site ends up as surface runoff. The groundwater observed in well ANT-601 is likely a result of precipitation build up in the backfill of the former UST excavation positioned immediately adjacent to ANT-601. As a result, appreciable groundwater resources may not exist at the site, or are present at very low volumes as a thin layer on top of bedrock during the wet season only.

**Table 4-1
 Groundwater Elevations at Antenna Field, July 16, 2010 and March 7, 2011**

| Well Identification | Top of Casing Elevation (feet above MLLW) | Depth to Free Product From Top of Casing (feet) | Depth to Bottom of Well (feet) | Depth to Water From Top of Casing (feet) | Depth of Water in Well (feet) | Elevation of Groundwater Surface (feet above MLLW) |
|----------------------------|--|--|---------------------------------------|---|--------------------------------------|---|
| July 16, 2010 | | | | | | |
| ANT-601 | Unknown | NA | 12.60 | 10.25 | 2.35 | NA |
| ANT-602 | 218.34 | NA | 12.69 | Dry | NA | NA |
| ANT-603 | 218.41 | NA | 10.08 | Dry | NA | NA |
| ANT-604 | 218.99 | NA | 10.37 | Dry | NA | NA |
| ANT-605 | 218.37 | NA | 11.59 | Dry | NA | NA |
| ANT-606 | 229.27 | NA | 12.33 | Dry | NA | NA |
| ANT-607 | 211.48 | NA | 11.65 | Dry | NA | NA |
| March 7, 2011 | | | | | | |
| ANT-602 | 218.34 | NA | 12.69 | 11.98 | 0.71 | 206.36 |
| ANT-603 | 218.41 | NA | 10.08 | 9.78 | 0.30 | 208.63 |
| ANT-604 | 218.99 | NA | 10.37 | 9.85 | 0.52 | 209.14 |
| ANT-605 | 218.37 | NA | 11.59 | Dry | NA | NA |
| ANT-606 | 229.27 | NA | 12.33 | Dry | NA | NA |
| ANT-607 | 211.48 | NA | 11.65 | Dry | NA | NA |

Notes:
 MLLW - mean lower low water
 NA - not applicable

4.3 FIELD INVESTIGATION ACTIVITIES

Drilling, soil sampling, and well completions at the site occurred from June 12 through June 20, 2010. The field investigation activities at Antenna Field had to be altered from the planned activities in the SAP, because the existing site map (based on historical information) was inaccurate. Details on the rationale for changes in the site investigation are provided in Section 4.3.5.

An important observation was that a partially buried pipe is present beginning at the approximate midpoint of the northwestern edge of the large former UST excavation. The pipe is shown on Figures 4-2 and 4-3. The pipe appears to run to the southwest and terminates near the midpoint of the southeastern end of the Quonset hut pad. It is possible that this was the pipeline that delivered heating fuel from the former USTs to the Quonset hut.

4.3.1 Soil Boring Completion

After determining that the existing site map was inaccurate, the field crew attempted to define the extent of the former tank excavation area. The crew advanced Geoprobe borings to shallow bedrock that was present at 3 to 4 feet bgs at five locations identified as EX1 to EX5 on the site map (Figure 4-2). The backfilled area was identified by the backfill material that was less compacted than the native material.

Outside of the excavation area, eight locations were completed as soil borings (ANT-SB608, ANT-SB610, ANT-SB611, ANT-SB612, ANT-SB613, ANT-SB614, ANT-SB617, and ANT-SB618) at the site. Soil boring ANT-SB09 was later completed as monitoring well ANT-603. These borings were drilled using 2.5-inch direct push equipment and subsequently abandoned following procedures described in Section 2.2. Borings were drilled to the depth of refusal where bedrock was encountered (4.5 to 7.5 feet bgs). Boring logs for Antenna Field are in Appendix D-1.

4.3.2 Soil Sampling

Table 4-2 summarizes the results of the soil screening for organic vapors using the PID. Soil samples were collected for soil screening from five locations (ANT-602, ANT-SB609, ANT-SB610, ANT-SB611, and ANT-SB618) at 2.5-foot intervals. The readings ranged from 0.3 to 35.6 ppm. The PID did not operate properly at times because of rainy and windy weather and lack of shelter. Therefore, not all soil sampling intervals could be screened using the PID.

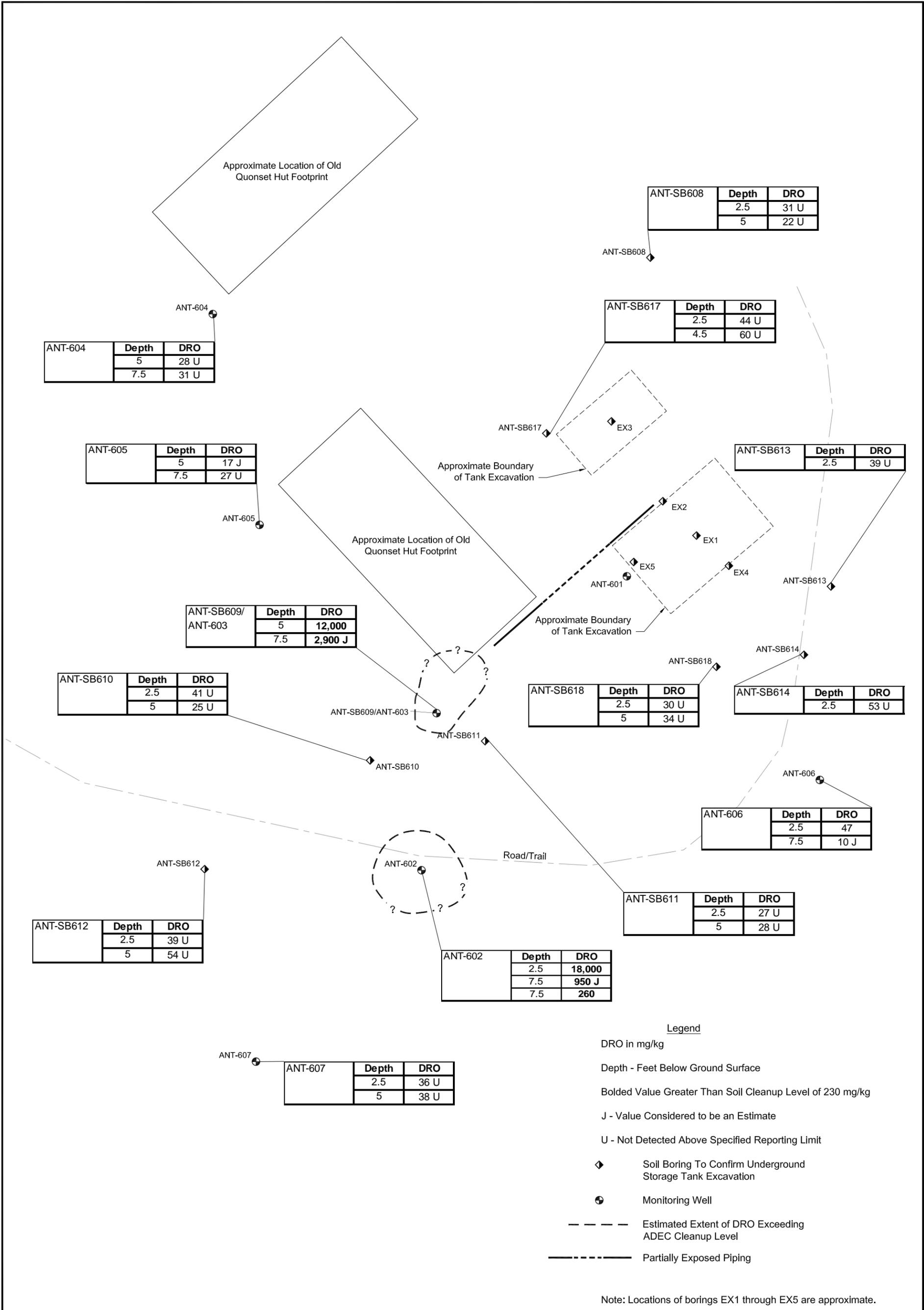


Table 4-2
Soil Screening Results from Soil Boring Locations at Antenna Field

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|-----------|---------------------------|-------------------|-----------------------------------|
| ANT-602 | 2.5 | 34.7 | X |
| ANT-602 | 7.5 | 9.3 | X |
| ANT-602 | 10 | 1.5 | - |
| ANT-SB609 | 2.5 | 2.5 | - |
| ANT-SB609 | 5 | 35.6 | X |
| ANT-SB609 | 7.5 | 17 | X |
| ANT-SB610 | 2.5 | 0.5 | X |
| ANT-SB610 | 5 | 0.4 | X |
| ANT-SB611 | 2.5 | 0.3 | X |
| ANT-SB611 | 5 | 0.5 | X |
| ANT-SB611 | 7.5 | 0.6 | - |
| ANT-SB618 | 2.5 | 0.9 | X |
| ANT-SB618 | 5 | 0.7 | X |

Notes:
 bgs - below ground surface
 DRO - diesel-range organics
 PID - photoionization detector
 ppm - parts per million

Samples were collected from all 14 soil boring and monitoring well locations as listed on Table 4-3. Samples were collected from two intervals at 12 of the 14 locations as shown on Table 4-3. At boring locations ANT-SB613 and ANT-SB614, shallow bedrock (present at 5 feet bgs and 4 feet 4 inches bgs, respectively) prevented the collection of the soil sample from the second planned interval. A total of 27 samples were submitted to the laboratory for DRO analysis by Alaska Method AK 102. The analytical results of the soil analyses are discussed in Section 4.4.1.

Table 4-3
Soil Sample Collection Summary for Antenna Field

| Location | Sample Identification | Depth (feet bgs) | DRO (Total Number of Samples) |
|----------|-----------------------|------------------|-------------------------------|
| ANT-602 | ANT-602-2.5 | 2.5 | 1 |
| ANT-602 | ANT-602-7.5 | 7.5 | 1 |

Table 4-3 (Continued)
Soil Sample Collection Summary for Antenna Field

| Location | Sample Identification | Depth (feet bgs) | DRO (Total Number of Samples) |
|------------------------|-----------------------|------------------|-------------------------------|
| ANT-602 | ANT-602D | 7.5 | 1 |
| ANT-604 | ANT-604-5 | 5 | 1 |
| ANT-604 | ANT-604-7.5 | 7.5 | 1 |
| ANT-605 | ANT-605-5 | 5 | 1 |
| ANT-605 | ANT-605-7.5 | 7.5 | 1 |
| ANT-606 | ANT-606-5 | 5 | 1 |
| ANT-606 | ANT-606-7.5 | 7.5 | 1 |
| ANT-607 | ANT-607-2.5 | 2.5 | 1 |
| ANT-607 | ANT-607-5 | 5 | 1 |
| ANT-SB608 | ANT-SB608-2.5 | 2.5 | 1 |
| ANT-SB608 | ANT-SB608-5 | 5 | 1 |
| ANT-SB609 ^a | ANT-SB609-5 | 5 | 1 |
| ANT-SB609 ^a | ANT-SB609-7.5 | 7.5 | 1 |
| ANT-SB610 | ANT-SB610-2.5 | 2.5 | 1 |
| ANT-SB610 | ANT-SB610-5 | 5 | 1 |
| ANT-SB611 | ANT-SB611-2.5 | 2.5 | 1 |
| ANT-SB611 | ANT-SB611-5 | 5 | 1 |
| ANT-SB612 | ANT-SB612-2.5 | 2.5 | 1 |
| ANT-SB612 | ANT-SB612-5 | 5 | 1 |
| ANT-SB613 | ANT-SB613-2.5 | 2.5 | 1 |
| ANT-SB614 | ANT-SB614-2.5 | 2.5 | 1 |
| ANT-SB617 | ANT-SB617-2.5 | 2.5 | 1 |
| ANT-SB617 | ANT-SB617-4.5 | 4.5 | 1 |
| ANT-SB618 | ANT-SB618-2.5 | 2.5 | 1 |
| ANT-SB618 | ANT-SB618-5 | 5 | 1 |

^aANT-SB609 was completed as monitoring well ANT-603.

Notes:

bgs - below ground surface

DRO - diesel-range organics

4.3.3 Well Installation

Six locations were completed as monitoring wells (ANT-602 through ANT-607) at the site (Figure 4-2). Eight-inch-diameter, hollow-stem augers were used to drill the boreholes for

installing the monitoring wells and to collect samples with split-spoon samplers. While drilling the boreholes for the wells, the drilling auger met refusal when bedrock was encountered. Wet soil that suggested the presence of groundwater was not encountered above the bedrock at any of the well locations. However, wells were completed to the top of the bedrock. It is possible that the groundwater may enter the wells at a later time (i.e., during wetter months). All wells have 5-foot-long screens and were completed with stick-up casings. Monitoring wells were drilled and constructed as described in Section 2.3. Monitoring well construction logs for the Antenna Field site are in Appendix D-1.

4.3.4 Groundwater Sampling

A groundwater sample plus a duplicate were collected from monitoring well ANT-601 on July 16, 2010 (Table 4-4). Because of the slow recovery, the well was purged at a rate of 200 mL/min. Samples were collected as described in Section 2.4. No other well could be sampled because there was no groundwater in those wells. The samples were submitted to the laboratory for DRO analysis by Alaska Method AK 102. The analytical results of the groundwater analyses are discussed in Section 4.4.2.

**Table 4-4
Groundwater Collection Summary for Antenna Field**

| Location^a | Sample Identification | DRO (Number of Samples) |
|-----------------------------|------------------------------|------------------------------------|
| ANT-601 | ANT-601 | 1 |
| ANT-601 | ANT-601D | 1 |

^aSamples were to be collected from monitoring wells at locations ANT-602 through ANT-607. However, the wells were dry.

Note: DRO - diesel-range organics

4.3.5 Deviations From the Project Plan

One field change request (FCR) identified as FCR No.1 (Appendix D-2) was prepared on June 18, 2010, and approved by the Navy on the following day. FCR No. 1 resulted in a significant change from the SAP, because the original map used to plan the field effort was inaccurate. Figure 4 of the SAP (U.S. Navy 2010a), which was based on historical information, shows ANT-601 being approximately 75 feet south of the former UST excavations. ANT-601 is approximately 5 feet south of the apparent southern edge of the larger excavated area. Also, the orientation of the positions of the USTs on Figure 4 of the SAP is incorrectly rotated approximately 90 degrees in a clockwise direction from the actual orientation as shown on the updated site figures in this site characterization report. To adequately characterize the intended

area, namely the former UST excavation, sampling locations were repositioned as shown on the Figure 4-2.

In addition, FRC No. 1 indicated that because field impacts were identified at the relocated ANT-SB609 location, a monitoring well (ANT-603) was installed at this location. Soil samples from this location were identified as ANT-SB609.

As a result of the changed conditions, five exploratory borings were completed to define the extent of the former UST excavation area (based on the presence or absence of fill), eight locations were completed as soil borings outside the former UST excavation area, and six locations were completed as monitoring wells. The SAP identified the completion of up to 12 soil borings and 5 monitoring wells.

No groundwater could be collected from six of the newly installed monitoring wells because there was no groundwater above the bedrock at the time of sampling.

4.4 RESULTS OF SITE CHARACTERIZATION ACTIVITIES

Results of the soil and groundwater analyses were evaluated against ADEC cleanup levels that were specified in the SAP. Analytical results from the laboratory reports (Forms 1) are in Appendix C.

4.4.1 Soil Analytical Results

This section presents the results of chemical analyses conducted on soil samples collected at Antenna Field during the 2010 field season. DRO analyses were conducted on 27 soil samples collected from 14 locations at the site.

DRO concentrations reported in soil samples collected from Antenna Field during 2010 are summarized in Table 4-5 and presented on Figure 4-3.

DRO was not detected at the reporting limit in 19 of the 27 samples as indicated by the “U” qualifier. These results are generally referred to as nondetected.

DRO was detected in 8 of the 27 samples. Detected concentrations ranged from an estimated 10 to 18,000 mg/kg. Concentrations detected in the eight samples were collected from four locations (ANT-602, ANT-605, ANT-606, and ANT-SB609/ANT-603), as shown on Figure 4-3 and in Table 4-5.

Table 4-5
Summary of Analytical Results for DRO in 2010 Soil Samples at Antenna Field

| Location | Sample Identification | Depth (feet bgs) | DRO (mg/kg) |
|--------------------|-----------------------|------------------|----------------|
| ANT-602 | ANT-602-2.5 | 2.5 | 18,000 |
| ANT-602 | ANT-602-7.5 | 7.5 | 950 J |
| ANT-602 | ANT-602D | 7.5 | 260 J |
| ANT-604 | ANT-604-5 | 5 | 28 U |
| ANT-604 | ANT-604-7.5 | 7.5 | 31 U |
| ANT-605 | ANT-605-5 | 5 | 17 J |
| ANT-605 | ANT-605-7.5 | 7.5 | 27 U |
| ANT-606 | ANT-606-5 | 5 | 47 |
| ANT-606 | ANT-606-7.5 | 7.5 | 10 J |
| ANT-607 | ANT-607-2.5 | 2.5 | 36 U |
| ANT-607 | ANT-607-5 | 5 | 38 U |
| ANT-SB608 | ANT-SB608-2.5 | 2.5 | 31 U |
| ANT-SB608 | ANT-SB608-5 | 5 | 22 U |
| ANT-SB609 | ANT-SB609-5 | 5 | 12,000 |
| ANT-SB609 | ANT-SB609-7.5 | 7.5 | 2,900 J |
| ANT-SB610 | ANT-SB610-2.5 | 2.5 | 41 U |
| ANT-SB610 | ANT-SB610-5 | 5 | 25 U |
| ANT-SB611 | ANT-SB611-2.5 | 2.5 | 27 U |
| ANT-SB611 | ANT-SB611-5 | 5 | 28 U |
| ANT-SB612 | ANT-SB612-2.5 | 2.5 | 39 U |
| ANT-SB612 | ANT-SB612-5 | 5 | 54 U |
| ANT-SB613 | ANT-SB613-2.5 | 2.5 | 39 U |
| ANT-SB614 | ANT-SB614-2.5 | 2.5 | 53 U |
| ANT-SB617 | ANT-SB617-2.5 | 2.5 | 44 U |
| ANT-SB617 | ANT-SB617-4.5 | 4.5 | 60 U |
| ANT-SB618 | ANT-SB618-2.5 | 2.5 | 30 U |
| ANT-SB618 | ANT-SB618-5 | 5 | 34 U |
| ADEC Cleanup Level | | | 230 |

Notes:

Bolded values exceed ADEC cleanup level.
 ADEC - Alaska Department of Environmental Conservation
 bgs - below ground surface
 DRO - diesel-range organics
 J - estimated concentration
 mg/kg - milligram per kilogram
 U - not detected above the value given

Concentrations that exceed the ADEC cleanup level of 230 mg/kg for DRO are identified by boldfaced type in Table 4-5 and on Figure 4-3. Exceedances were present in soil collected from two locations: (1) ANT-602 with concentrations of 18,000 mg/kg in the sample collected from 2.5 feet bgs and an estimated 950 mg/kg in the sample collected from 7.5 feet bgs and (2) ANT-SB09/ANT-603 with concentrations of 12,000 mg/kg in the sample collected from 5 feet bgs and an estimated 2,900 mg/kg in the sampling collected from 7.5 feet bgs. Historical soil sampling results are not shown on this figure because the 17-year-old results are not representative of current conditions.

DRO concentrations exceeding ADEC cleanup levels were detected to the southeast of the former UST excavation area at ANT-SB609/ANT-603 and at ANT-602. The DRO exceedances at ANT-SB609/ANT-603 are bounded to the southwest and southeast by ANT-SB610 and ANT-SB611, respectively, where samples contained concentrations below the reporting limits. The extent of the impacted soil between ANT-SB609/ANT-603 and the tank excavation area is estimated. The DRO exceedances at ANT-602 are bounded to the southwest, west, north, and partially to the east by nondetected or low concentrations from sampling locations in those directions. However, the extent of impacted soil does not appear to be determined to the southeast of ANT-602.

4.4.2 Groundwater Analytical Results

This section presents the results of chemical analyses conducted on the groundwater sample collected at Antenna Field during the 2010 field season. Out of the seven wells at the site, only ANT-601 contained groundwater. The sample from this well was analyzed for DRO.

Field parameters pH, specific conductance, turbidity, DO, temperature, and ORP were measured during groundwater sampling activities. Table 4-6 summarizes the final field parameter measurements collected just prior to sample collection. The measurements for pH, specific conductance, turbidity, DO, temperature, and ORP are 4.84 SUs, 29.3 mS/cm, 16 NTUs, 1.21 mg/L, 7.0°C, and 146 mV.

DRO concentrations detected in the groundwater samples (includes one duplicate sample) from ANT-601 were less than the ADEC cleanup level of 1,500 µg/L, as shown on Table 4-7.

4.5 PROJECT QUALITY OBJECTIVES ASSESSMENT

This section evaluates how the project quality objectives in the SAP Worksheet #11 (U.S. Navy 2010a) were satisfied. The project quality objectives were identified as seven steps in the SAP and are italicized here. The evaluation of how each step was addressed is provided immediately following each step.

**Table 4-6
 Summary of Field Parameters Measured
 During 2010 Groundwater Sampling at Antenna Field**

| Location | pH (SU) | Specific Conductance (µS/cm) | Turbidity (NTU) | DO (mg/L) | Temperature (°C) | ORP (mV) |
|----------|---------|------------------------------|-----------------|-----------|------------------|----------|
| ANT-601 | 4.84 | 29.3 | 16.0 | 1.21 | 7.0 | 146 |

Notes:

- °C - degree Celsius
- DO - dissolved oxygen
- µS/cm - microsiemens per centimeter
- mg/L - milligram per liter
- mV - millivolt
- NTU - nephelometric turbidity unit
- ORP - oxidization-reduction potential
- SU - standard unit

**Table 4-7
 Summary of Analytical Results for DRO in 2010
 Groundwater Samples at Antenna Field**

| Location | Sample Identification | DRO (µg/L) |
|--------------------|-----------------------|------------|
| ANT-601 | ANT-601 | 830 |
| ANT-601 | ANT-601D | 1,100 |
| ADEC Cleanup Level | | 1,500 |

Notes:

- ADEC - Alaska Department of Environmental Conservation
- DRO - diesel-range organics
- µg/L - microgram per liter

Step 1: State the problem. *This step identifies the issue to be addressed. The overall problem statement is as follows:*

The extent of DRO soil and groundwater impact at the site is not fully characterized, and the current monitoring program will not support demonstration of MNA.

How Step 1 was addressed: This step was addressed in the SAP as part of the SAP preparation.

Step 2: Identify the decision. *Do the data adequately characterize site conditions and demonstrate MNA? If yes, continue with MNA. If no, what additional steps are required to address the problem? If additional action is required, what action is appropriate?*

How Step 2 was addressed: This step was addressed as part of the SAP preparation. The pre-2010 data were not adequate to characterize site conditions and demonstrate MNA. Therefore, the SAP identified additional actions.

Step 3: Identify the inputs to the decision. *Soil and groundwater samples will be collected as shown on Figure 4 [of the SAP] for DRO analysis. Soil sample results will be compared to soil cleanup levels from ADEC Tables B1 and B2 and Technical Memorandums 01-002 (January 2001), 06-003 (August 2006), and 01-007 (November 2003). Groundwater sample results will be compared to groundwater cleanup levels from 18 Alaska Administrative Code (AAC) 75.345 Table C.*

How Step 3 was addressed: Analytical results of samples collected from the site were compared to the ADEC cleanup levels identified in the SAP, which were based on the identified sources.

Step 4: Define the site boundaries. *Soil samples will be collected from 17 locations. Groundwater samples will be collected from groundwater monitoring wells completed at five locations. Preliminary sampling locations are shown on Figure 4 [of the SAP]. These locations may need to be adjusted based on field conditions to meet the sampling objectives.*

How Step 4 was addressed: Because the historical map used for planning field work was inaccurate, the planned field work was revised to compensate as explained in Section 4.3.5. Soil samples were collected from 14 locations. Groundwater was collected from only one well, because groundwater was not present in the other six newly installed wells.

Step 5: Develop a decision rule. *If the resultant data bound the extent of soil and groundwater impacts at the site, characterization is complete. If the data do not bound the lateral extent of impacts in soil and groundwater, are additional data required? If so, what additional data are required? Does the existing data and monitoring program support MNA? Can we describe groundwater flow and are the wells placed within the plume to adequately monitor natural attenuation (i.e., can we show that the plume is stable or decreasing?)? If yes, continue with MNA. If no, install additional wells [Figure 21 of the SAP].*

How Step 5 was addressed: The extent of impacts to groundwater during June was determined by installing wells as specified in the SAP and modified by the revised site understanding. Groundwater was present in one well, ANT-601, during the June event. Given the low permeability of the thin layer of soil, the shallow presence of bedrock, and the topography of the

site, it is likely that most precipitation at the site ends up as surface runoff. The groundwater observed in well ANT-601 is likely a result of precipitation buildup in the backfill of the former UST excavation positioned immediately adjacent to well ANT-601. As a result, appreciable groundwater resources may not exist at the site, or are present in low volumes during the wet season only. DRO concentrations in the groundwater from well ANT-601 exceeded the ADEC cleanup level of 1,500 µg/L in 2008, but has since decreased to below the cleanup level in samples collected in 2009 (1,400 µg/L) and 2010 (1,100 µg/L). However, the more recent results of annual monitoring of well ANT-601 in September 2010 indicated a DRO concentration of 2,100 µg/L, which is in excess of the applicable ADEC cleanup level.

The extent of soil containing DRO exceedances above the ADEC cleanup levels is bounded, with the exception of the area to the southeast of well ANT-602.

Step 6: Specify limits on decision errors. Reporting limits for analytical results must be at least one-half of the applicable and relevant or appropriate requirements (ARARs) identified in Step 3 or within the parameters of the specified laboratory methods specified on Worksheet #15 [of the SAP]. Quality control requirements for specified analytical methods must be met to ensure data of known quality are produced by the analytical laboratory. Analytical performance criteria are specified on Worksheet #12 [of the SAP]. All data will be verified for completeness and subjected to full, independent validation.

How Step 6 was addressed: Analytical reporting limits for DRO in water and soil were less than half of the cleanup levels for soil (230 mg/kg) and groundwater (1,500 µg/kg). The analytical laboratory met the quality control requirements for specified analytical methods (see data usability assessment in Section 3). All data were verified for completeness and were 100 percent validated by a third party (see data validation report in Appendix B).

Step 7: Optimize the sampling design. The data will be collected during a single sampling event in June 2010. Soil borings will be completed and monitoring wells installed at locations shown on Figure 4 [of the SAP]. Collection of Global Positioning System (GPS) sampling coordinates will be performed for all locations to enhance data reproducibility. One soil field duplicate sample will be collected from 1 of the 16 locations to assess field collection methods. One groundwater field duplicate sample will be collected from one of the five locations to assess field collection methods.

How Step 7 was addressed: Field work for the site was completed in 2010. Changes in the planned field work were required to address actual site conditions as explained under Step 4. Coordinates of the soil borings and monitoring wells were surveyed to document exact locations. One duplicate soil sample and one duplicate groundwater sample were collected and analyzed.

4.6 SUMMARY AND CONCLUSION

The additional characterization at Antenna Field was completed to assess the lateral extent of residual DRO in soil and groundwater and establish a monitoring network that will demonstrate natural attenuation of DRO in groundwater over time. The general area of DRO in soil was identified. Groundwater was not encountered above the bedrock, with the exception of one of the six monitoring wells.

The planned field work was revised because the historical site map used to plan the field effort was inaccurate. Field work consisted of installing 5 exploratory borings in the former UST excavation area, drilling and sampling 14 soil borings, and completing 6 of the borings as monitoring wells.

Groundwater was present only in one of the seven wells on the site. All six new wells were installed to the maximum possible depth where bedrock, prevented deeper drilling. The only well containing groundwater was existing well ANT-601, which is installed at the southern edge of the former UST excavation area. It is possible that groundwater is observed in ANT-601 on a rather consistent basis as a result of its proximity to the former UST excavation and groundwater storage within this excavation. Although the DRO concentrations in 2009 and July 2010 were below the ADEC groundwater cleanup level, the September 2010 sample collected as part of the annual monitoring contained DRO concentrations at 2,100 µg/L, which is above the ADEC groundwater cleanup level.

Soil sampling results from the site show that DRO in excess of the ADEC cleanup level is present to the southwest of the excavated UST area, which is the inferred groundwater flow direction. Soil impacts may be the result of a release or releases from the USTs that migrated to the southwest along the observed pipe and with seasonal groundwater flow. Migration along the observed pipe could explain the observed DRO distribution in soil.

4.7 RECOMMENDATION

Based on the results reported herein, no further monitoring is recommended at Antenna Field for the following reasons:

- The extent of DRO in soil appears to be bounded.
- The extent of groundwater appears to be limited, based on the dry wells installed in 2010.

- The site is located at the top of a hill with steep slopes on all sides.
- Permeability of the surficial soil is very low, and topography at the site is steep. Under these conditions, most precipitation likely leaves the site as surface runoff.
- The DRO exceedance in groundwater is confined to the area adjacent to the former UST excavation and is likely representative of water buildup in the UST excavation and not representative of groundwater at the site.

5.0 SA 79, MAIN ROAD PIPELINE, SOUTH END

This section describes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at SA 79, Main Road Pipeline, South End. A project quality objectives assessment and summary and conclusion are provided at the end of this section.

5.1 PURPOSE

The objective of the additional characterization at SA 79, Main Road Pipeline, South End was to collect sufficient data to determine if DRO is migrating in groundwater to the adjacent surface water body (Sweeper Cove) at concentrations greater than ADEC surface water criteria.

5.2 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

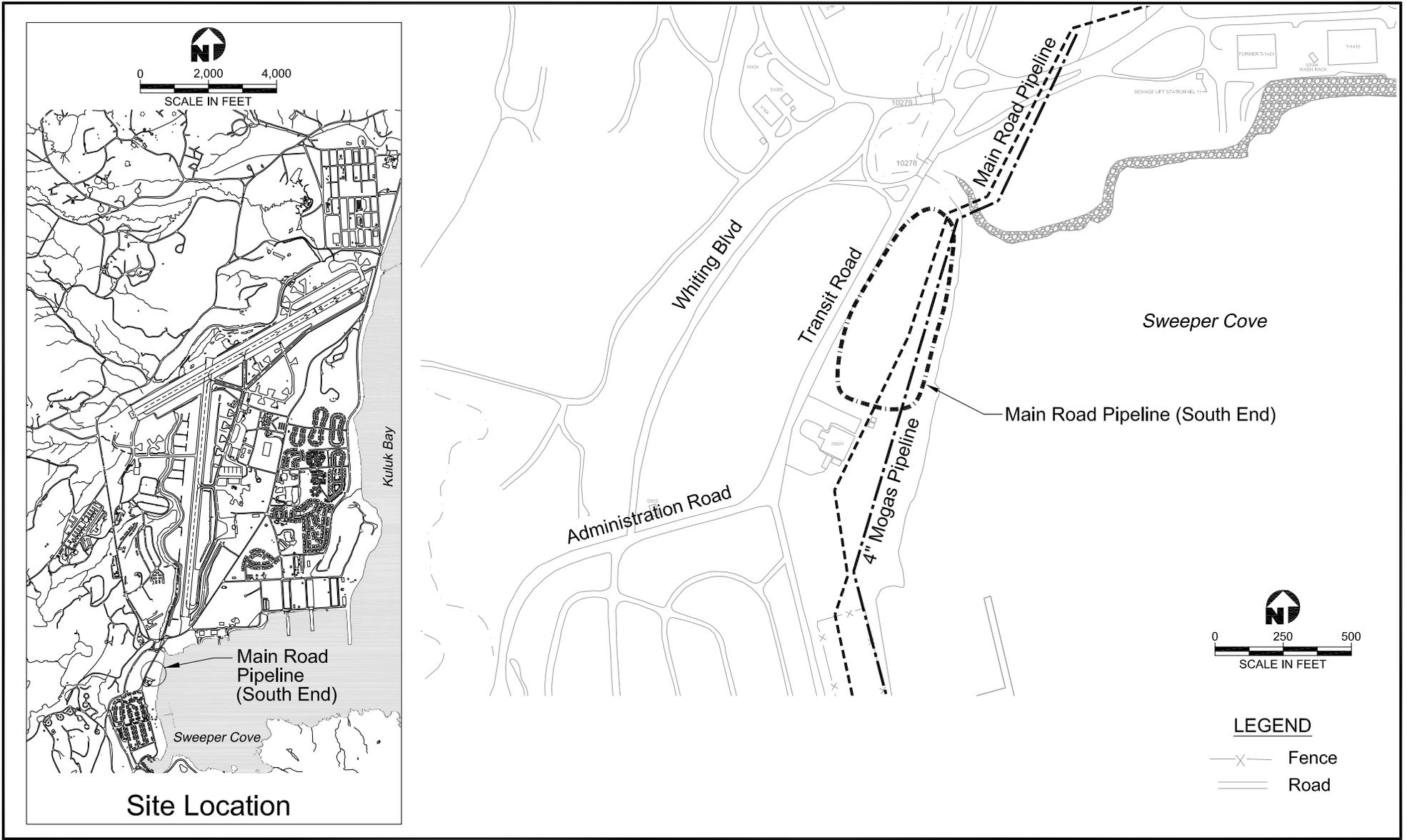
5.2.1 Location and Setting

SA 79 consists of two separate source areas along the Main Road Pipeline located approximately 6,000 feet apart. The Main Road Pipeline is located in downtown Adak. The pipeline is 9,800 feet long and 6 inches in diameter and was the primary JP-5 fuel transfer pipeline for downtown Adak. Site location and vicinity for the south end source area are shown on Figure 5-1. The Main Road Pipeline parallels Transit Road and Sweeper Cove and crosses several gravel access roads before reaching South Sweeper Creek. In addition, a 4-inch motor gasoline (mogas) line runs roughly parallel and to the east of the Main Road Pipeline.

SA 79 consists of relatively flat grassland with an elevation of approximately 10 feet above msl. Sweeper Cove is located immediately to the east of the site and South Sweeper Creek is located to the north.

5.2.2 Environmental History

Previous investigations indicated the presence of petroleum hydrocarbons in the subsurface near the south end of the Main Road Pipeline. During repair and replacement of several sections of pipeline in 1990, several areas exhibited petroleum hydrocarbon impacts in soil exposed by pipeline trenching. In 1992, a release investigation was performed that confirmed the preliminary trenching observations and delineated areas of interest (U.S. Navy 1994). In 1993, a release investigation of Tank Farm A was performed (EMCON 1995). As part of this investigation, soil and groundwater sampling were performed in the Traffic Circle Area, which



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**Figure 5-1
Site Location and Vicinity
SA 79, Main Road Pipeline, South End**

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included SA 79, Main Road Pipeline, South End. Petroleum hydrocarbons were detected in soil collected from SA 79, Main Road Pipeline, South End. However, petroleum hydrocarbons were not detected in the one well located within site boundaries.

In addition to the Main Road Pipeline, a 4-inch mogas pipeline is located adjacent to the Main Road Pipeline in the vicinity of the site. In historical drawings, this pipeline is labeled as a diesel, JP-5 pipeline. Therefore, the contents of the pipeline may have varied over the years. No other source of petroleum hydrocarbons has been identified. Therefore, it is likely that the petroleum hydrocarbons at the site are from deteriorating piping and/or loose piping joints from the Main Road Pipeline, or the 4-inch mogas pipeline, or both. It is not known when the release or releases occurred, because no records of releases from the pipelines are available. A portion of the 4-inch line was removed in 2003 (GeoEngineers 2003). The Main Road Pipeline was cleaned and closed in the summer of 2009.

Evaluations and investigations have been conducted relative to SA 79 in 1990, 1992 (U.S. Navy 1994), 1993 (EMCON 1995), and 1996 (U.S. Navy 1999). Compliance monitoring began in August 1999 and has been conducted on at least an annual basis through 2008 (U.S. Navy 2009). Results of the evaluations, investigations, and compliance monitoring are summarized in the petroleum summary report (U.S. Navy 2008).

Figure 5-2 shows the extent of residual DRO in soil exceeding the cleanup levels at depths of 2.5 to 11 feet bgs before the 2010 sampling event. Soil concentrations that exceeded the cleanup levels by more than 30 times are in two distinct areas at the site. The proposed sampling locations for the 2010 sampling event are also shown on Figure 5-2.

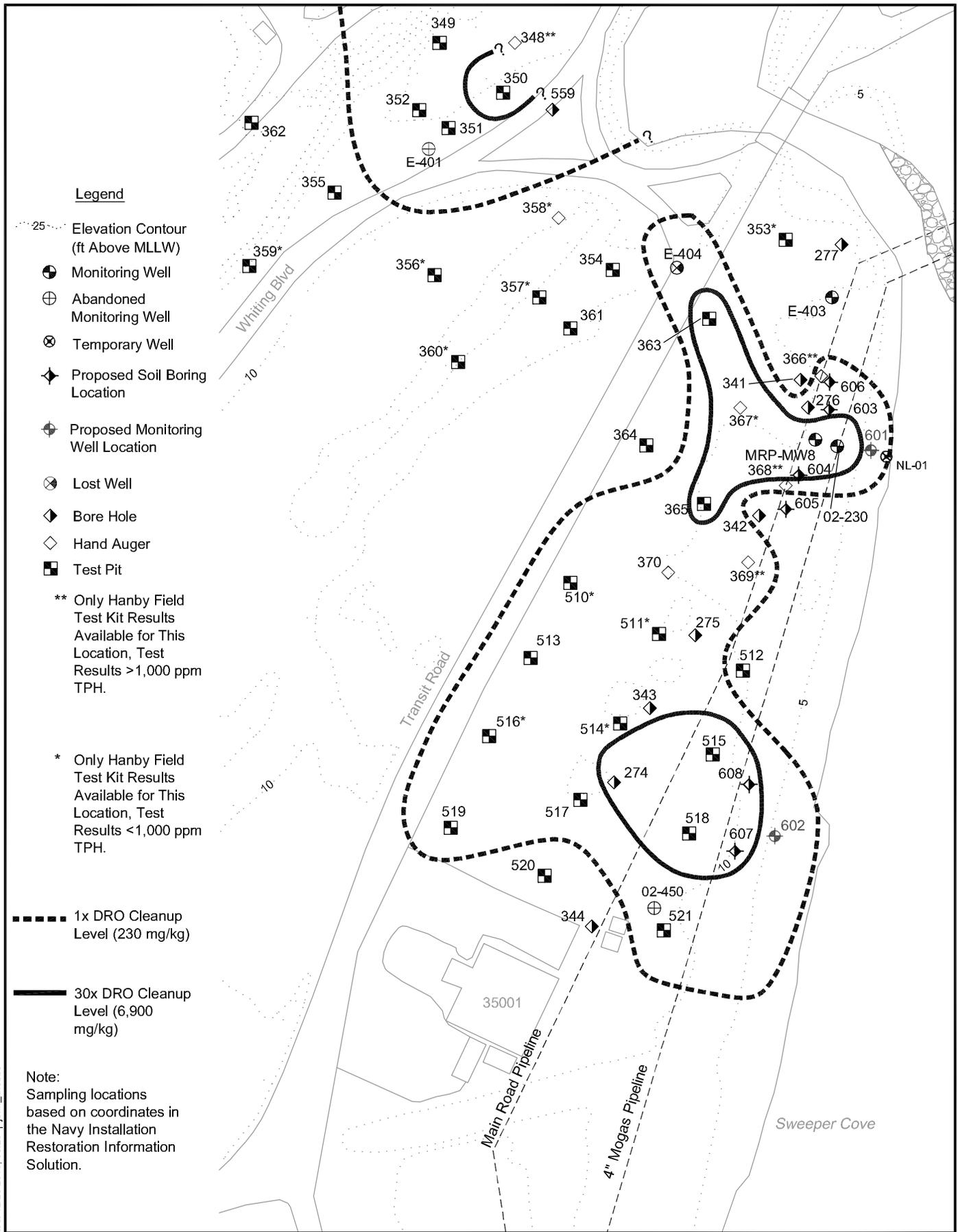
The estimated extent of groundwater exceeding the ADEC groundwater cleanup levels is shown on Figure 5-3.

The OU A ROD (U.S. Navy, ADEC, and USEPA 2000) selected limited groundwater monitoring as the remedy for SA 79, Main Road Pipeline, South End. However, the site did not achieve limited groundwater monitoring endpoints and reverted to natural attenuation evaluation.

The CMP states that if the data tests indicated that the concentrations are increasing, an evaluation would be performed to determine whether to continue monitoring or take additional action (U.S. Navy 2007).

5.2.3 Geology and Hydrogeology

The geology and hydrogeology of the site correspond to the profile for Downtown Soils developed in the Adak groundwater study (U.S. Navy 1995). The profile is described as sandy soils derived from stream deposition, with wind and wave action. During World War II, this



Legend

- 25 --- Elevation Contour (ft Above MLLW)
- ⊕ Monitoring Well
- ⊕ Abandoned Monitoring Well
- ⊗ Temporary Well
- ◆ Proposed Soil Boring Location
- ◆ Proposed Monitoring Well Location
- ⊗ Lost Well
- ◆ Bore Hole
- ◇ Hand Auger
- Test Pit

** Only Hanby Field Test Kit Results Available for This Location, Test Results >1,000 ppm TPH.

* Only Hanby Field Test Kit Results Available for This Location, Test Results <1,000 ppm TPH.

--- 1x DRO Cleanup Level (230 mg/kg)

— 30x DRO Cleanup Level (6,900 mg/kg)

Note:
Sampling locations based on coordinates in the Navy Installation Restoration Information Solution.

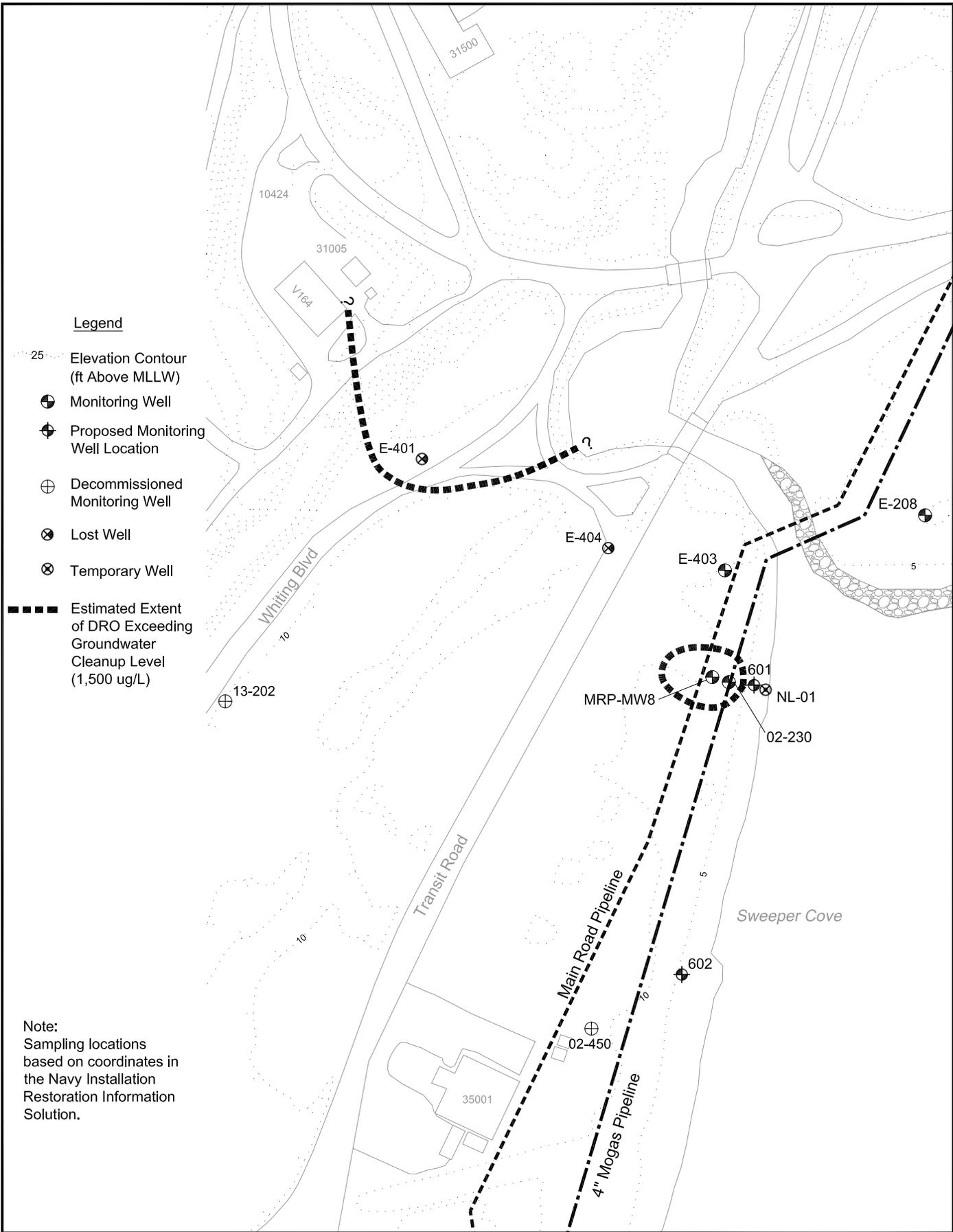
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Figure 5-2
Estimated Extent of DRO in Soil Prior to 2010 and Proposed Sampling Locations SA 79, Main Road Pipeline, South End

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Figure 5-3
Estimated Extent of DRO in Groundwater
Prior to 2010 and Proposed MW Locations,
SA 79, Main Road Pipeline, South End

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area was filled with sand from dune deposits along Kuluk Bay. The subsurface soils in this profile have variable permeability and generally consist of sands and gravels with varying portions of silt. The saturated soils have a high water-bearing capacity. However, the site's proximity to Sweeper Cove, a marine environment, limits use of groundwater as a drinking water source because of a high potential for inducing saltwater intrusion via groundwater extraction.

The geology of the site generally consists of transported fill material, including fine- to medium-grained sands with some silt. The fill material is underlain by beach and alluvial deposits. Remnants of coal that were stored on the site during the early part of World War II were observed on the surface at various locations. Tidally influenced groundwater is present at approximately 5 to 10 feet bgs.

Five groundwater wells are or were in the area (02-230, 02-450, E-403, E-404, and MRP-MW8) and two wells were located upgradient (13-202 and E-401). Wells 02-450 and 13-202 were decommissioned in 2006 and 1998, respectively (U.S. Navy 1998 and 2006). Well E-404 could not be located in 2010, and well E-401 could not be located since 1998 (U.S. Navy 1998). The Navy Installation Restoration Information System (NIRIS) does not indicate that the wells have been decommissioned. Therefore, these two wells are considered lost or abandoned. Groundwater in these wells was measured at between 7 and 11 feet bgs. Groundwater has been reported to flow to the east across the site towards Sweeper Cove (U.S. Navy 1995).

Water levels were measured in wells 02-230 and MRP-MW8 and new wells 601 and 602 on July 16, 2010 (Table 5-1). No free product was present. Groundwater flows to the east towards Sweeper Cove as supported by the progressively lower water levels from west to east in wells 601 (2.84 feet msl), MRP-MW8 (2.74 feet msl), and 02-230 (2.60 feet msl).

**Table 5-1
 Groundwater Elevations at SA 79, Main Road Pipeline, South End, July 16, 2010**

| Well Identification | Top of Casing Elevation (Feet Above MLLW) | Depth to Free Product From Top of Casing (Feet) | Depth to Water From Top of Casing (Feet) | Free-Product Thickness (Feet) | Elevation of Groundwater Surface (Feet Above MLLW) |
|----------------------------|--|--|---|--------------------------------------|---|
| 601 | 13.77 | NA | 10.93 | NA | 2.84 |
| 602 | 13.46 | NA | 10.75 | NA | 2.71 |
| 02-230 | 13.69 | NA | 11.09 | NA | 2.60 |
| MRP-MW8 | 12.72 | NA | 9.98 | NA | 2.74 |

Notes:
 MLLW - mean lower low water
 NA - not applicable

Sweeper Cove is located east of the site. Based on the topography and groundwater flow, Sweeper Cove is considered the downgradient exposure point for SA 79, Main Road Pipeline, South End. Sweeper Cove is a large saltwater inlet off Kuluk Bay that is a moderately high-energy marine environment. Its northern shoreline, which bounds the downtown area east of the site, is armored with riprap and boulders, forming a steep wall. This portion of the shoreline was constructed by the U.S. military in 1942. The shoreline that is not armored is either sandy (near larger stream discharges) or rocky.

5.3 FIELD INVESTIGATION ACTIVITIES

Drilling, soil sampling, and well completions at the site occurred from June 25 through July 5, 2010.

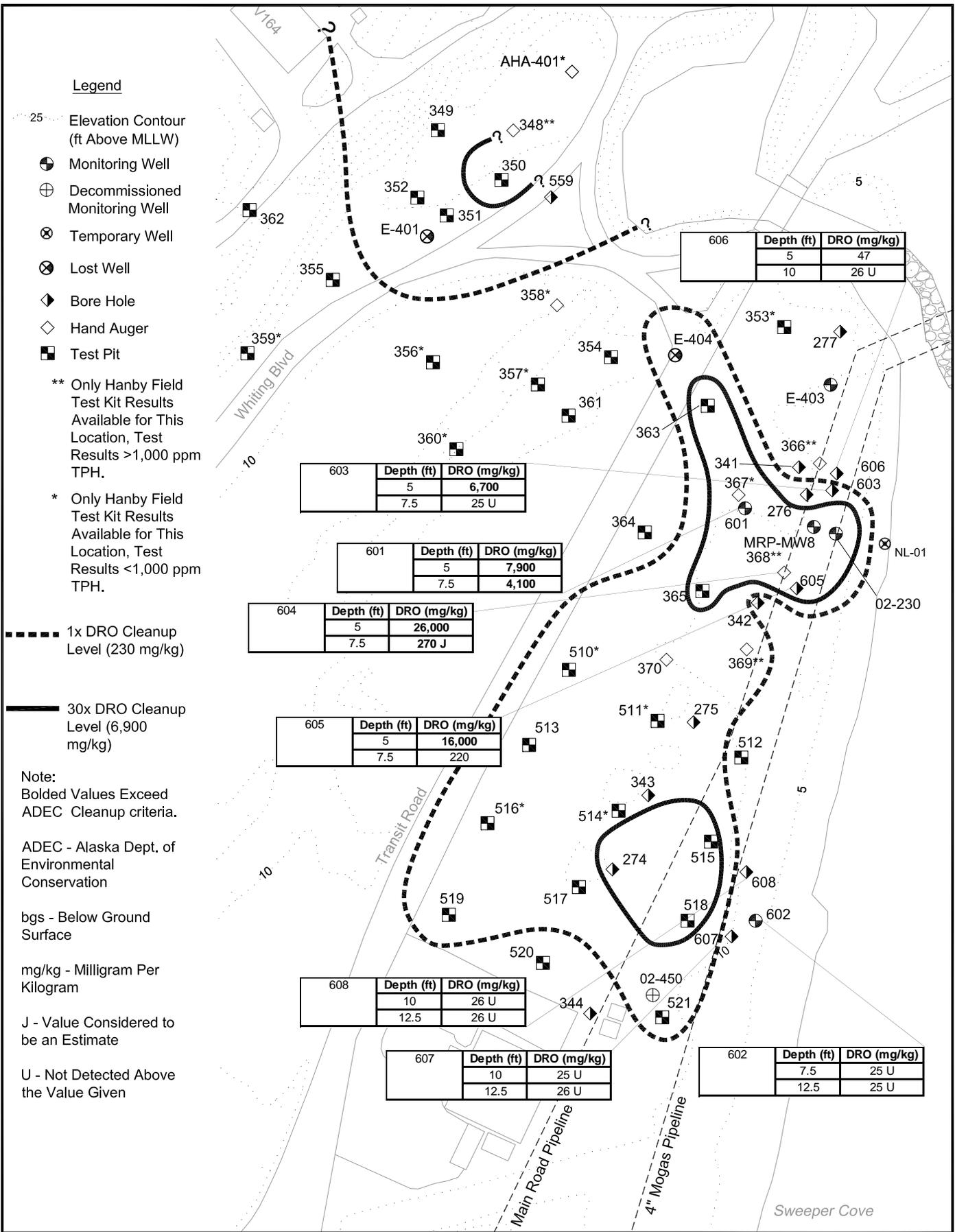
5.3.1 Soil Boring Completion

Six locations were completed as soil borings (603 through 608) at the locations shown on Figure 5-4. The first boring (606) was drilled using the 6-inch diameter hollow-stem auger equipment. This boring was advanced to 12.5 feet bgs, and the drillers encountered difficulties retrieving their equipment. All other borings at the site were drilled using 8-inch-diameter, hollow-stem auger equipment down to 20 feet bgs. Otherwise the borings were installed and subsequently abandoned following procedures described in Section 2.2. Boring logs for SA 79 are in Appendix E-1.

5.3.2 Soil Sampling

Table 5-2 summarizes the results of the soil screening for organic vapors using the PID. Soil samples were collected for soil screening from eight locations (601 through 608) at 2.5-foot intervals, starting at a depth of 5 feet bgs. The readings ranged from a minimum of 0 ppm in samples collected at various depth intervals at all locations to a maximum of 506 ppm in the sample collected at 5 feet bgs at location 604. Readings above 100 ppm occurred at three locations (601, 603, and 604). All readings above 100 ppm were not detected deeper than the 7.5 feet bgs sampling interval. Results of the field screening, in addition to odor and visual observations of staining and sheen, were used to select samples for laboratory analysis. Sheen was observed in soil samples during drilling at locations 604, 605, and 606.

Samples were collected from all eight locations as listed in Table 5-3. Samples were collected from two intervals at all locations. A total of 27 samples were submitted to the laboratory for DRO analysis by Alaska Method AK 102. The analytical results of the soil analyses are discussed in Section 5.4.1.



Legend

- 25' Elevation Contour (ft Above MLLW)
- Monitoring Well
- Decommissioned Monitoring Well
- Temporary Well
- Lost Well
- Bore Hole
- Hand Auger
- Test Pit

** Only Hanby Field Test Kit Results Available for This Location, Test Results >1,000 ppm TPH.

* Only Hanby Field Test Kit Results Available for This Location, Test Results <1,000 ppm TPH.

--- 1x DRO Cleanup Level (230 mg/kg)

— 30x DRO Cleanup Level (6,900 mg/kg)

Note:
Bolded Values Exceed ADEC Cleanup criteria.

ADEC - Alaska Dept. of Environmental Conservation

bgs - Below Ground Surface

mg/kg - Milligram Per Kilogram

J - Value Considered to be an Estimate

U - Not Detected Above the Value Given

| | | |
|-----|------------|--------------|
| 603 | Depth (ft) | DRO (mg/kg) |
| | 5 | 6,700 |
| | 7.5 | 25 U |

| | | |
|-----|------------|--------------|
| 601 | Depth (ft) | DRO (mg/kg) |
| | 5 | 7,900 |
| | 7.5 | 4,100 |

| | | |
|-----|------------|---------------|
| 604 | Depth (ft) | DRO (mg/kg) |
| | 5 | 26,000 |
| | 7.5 | 270 J |

| | | |
|-----|------------|---------------|
| 605 | Depth (ft) | DRO (mg/kg) |
| | 5 | 16,000 |
| | 7.5 | 220 |

| | | |
|-----|------------|-------------|
| 608 | Depth (ft) | DRO (mg/kg) |
| | 10 | 26 U |
| | 12.5 | 26 U |

| | | |
|-----|------------|-------------|
| 607 | Depth (ft) | DRO (mg/kg) |
| | 10 | 25 U |
| | 12.5 | 26 U |

| | | |
|-----|------------|-------------|
| 606 | Depth (ft) | DRO (mg/kg) |
| | 5 | 47 |
| | 10 | 26 U |

| | | |
|-----|------------|-------------|
| 602 | Depth (ft) | DRO (mg/kg) |
| | 7.5 | 25 U |
| | 12.5 | 25 U |

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Figure 5-4
Estimated Extent of DRO
in Soil in 2010
SA 79, Main Road Pipeline, South End

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Table 5-2
Soil Screening Results from Soil Boring Locations at
SA 79, Main Road Pipeline, South End

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|-----------------|--------------------------------------|------------------------------|--|
| 601 | 5 | 75 | X |
| 601 | 7.5 | 105 | X |
| 601 | 10 | 0 | - |
| 601 | 12.5 | 0 | - |
| 601 | 15 | 0 | - |
| 601 | 17.5 | 0 | - |
| 601 | 20 | 0 | - |
| 602 | 5 | 0 | - |
| 602 | 7.5 | 0 | X |
| 602 | 10 | 0 | - |
| 602 | 12.5 | 0 | X |
| 602 | 15 | 0 | - |
| 602 | 17.5 | 0 | - |
| 602 | 20 | 0 | - |
| 603 | 0.5 | 0 | - |
| 603 | 5 | 210 | X |
| 603 | 7.5 | 0.4 | X |
| 603 | 10 | 0 | - |
| 603 | 12.5 | 0 | - |
| 603 | 15 | 0 | - |
| 604 | 5 | 506 | X |
| 604 | 7.5 | 16.4 | X |
| 604 | 10 | 1.6 | - |
| 604 | 12.5 | 1.7 | - |
| 604 | 15 | 0 | - |
| 604 | 17.5 | 0 | - |
| 604 | 20 | 0 | - |
| 605 | 5 | 48.6 | X |
| 605 | 7.5 | 23.2 | X |
| 605 | 10 | 0 | - |
| 605 | 12.5 | 0 | - |
| 605 | 15 | 0 | - |
| 606 | 5 | 6.3 | X |
| 606 | 7.5 | 0.4 | - |
| 606 | 10 | 0 | X |
| 606 | 12.5 | 0.3 | - |

Table 5-2 (Continued)
Soil Screening Results from Soil Boring Locations at
SA 79, Main Road Pipeline, South End

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|----------|---------------------------|-------------------|-----------------------------------|
| 607 | 5 | 0 | - |
| 607 | 7.5 | 0 | - |
| 607 | 10 | 12.2 | X |
| 607 | 12.5 | 2.2 | X |
| 607 | 15 | 0 | - |
| 607 | 17.5 | 0 | - |
| 607 | 20 | 0 | - |
| 608 | 5 | 0 | - |
| 608 | 7.5 | 0 | - |
| 608 | 10 | 0 | X |
| 608 | 12.5 | 3.6 | X |

Notes:

bgs - below ground surface
 DRO - diesel-range organics
 PID - photoionization detector
 ppm - parts per million

Table 5-3
Soil Sample Collection Summary for
SA 79, Main Road Pipeline, South End

| Location | Sample Identification | Depth (feet bgs) | DRO (Total Number of Samples) |
|----------|-----------------------|------------------|-------------------------------|
| 601 | 601-5 | 5 | 1 |
| 601 | 601-7.5 | 7.5 | 1 |
| 602 | 602-7.5 | 7.5 | 1 |
| 602 | 602-12.5 | 12.5 | 1 |
| 603 | 603-5 | 5 | 1 |
| 603 | 603-7.5 | 7.5 | 1 |
| 604 | 604-5 | 5 | 1 |
| 604 | 604-7.5 | 7.5 | 1 |
| 605 | 605-5 | 5 | 1 |
| 605 | 605-7.5 | 7.5 | 1 |
| 606 | 606-5 | 5 | 1 |

Table 5-3 (Continued)
Soil Sample Collection Summary for
SA 79, Main Road Pipeline, South End

| Location | Sample Identification | Depth (feet bgs) | DRO (Total Number of Samples) |
|-----------------|------------------------------|-------------------------|--------------------------------------|
| 606 | 606-10 | 10 | 1 |
| 607 | 607-10 | 10 | 1 |
| 607 | 607-12.5 | 12.5 | 1 |
| 608 | 608-10 | 10 | 1 |
| 608 | 608-12.5 | 12.5 | 1 |

Notes:
bgs - below ground surface
DRO - diesel-range organics

5.3.3 Well Installation

Two locations were completed as monitoring wells (601 and 602) at locations shown on Figure 5-4. Eight-inch-diameter, hollow-stem augers were used to drill the boreholes for installing the monitoring wells. Samples were collected with split-spoon samplers. The boreholes for wells 601 and 602 were drilled to 18 and 20 feet bgs, respectively, and have 10-foot-long screens. Both wells were completed with stick-up casings. Monitoring wells were drilled and constructed as described in Section 2.3. Monitoring well construction logs for SA 79 are in Appendix E-1.

5.3.4 Groundwater Sampling

Groundwater samples were collected from monitoring wells 02-230 and MRP-MW8 and new wells 601 and 602 on July 16 and 17, 2010 (Table 5-4). A duplicate sample was collected from well 601. Samples were collected as described in Section 2.4. Samples were submitted to the laboratory for the following analyses: DRO by Alaska Method AK 102, VOCs by EPA Method 8260B, SVOCs by EPA Method 8270C. The analytical results of the groundwater analyses are discussed in Section 5.4.2.

5.3.5 Deviations From the Project Plan

FCR No. 3 (Appendix E-2) was prepared because well 601 could not be installed in the planned location between existing well 02-230 and the shoreline of Sweeper Cove. The armor rock along the shoreline prevented the drilling equipment from drilling below 4.5 feet bgs at that location.

**Table 5-4
 Groundwater Collection Summary for
 SA 79, Main Road Pipeline, South End**

| Location | Sample Identification | DRO (Number of Samples) | VOCs (Number of Samples) | SVOCs (Number of Samples) |
|-----------------|------------------------------|------------------------------------|-------------------------------------|--------------------------------------|
| 601 | 601 | 1 | 1 | 1 |
| 601 | 601 D | 1 | 1 | 1 |
| 602 | 602 | 1 | 1 | 1 |
| 02-230 | 02-230 | 1 | 1 | 1 |
| MRP-MW8 | MRP-MW8 | 1 | 1 | 1 |

Notes:

- DRO - diesel-range organics
- SVOCs - semivolatile organic compounds
- VOCs - volatile organic compounds

The field crew indicated that 02-230 is as close as drilling can occur to the shoreline without encountering armor rock. A new location to install well 601 was recommended. FRC No. 3 was completed on June 30, 2010, and approved by the Navy on July 1, 2010.

5.4 RESULTS OF SITE CHARACTERIZATION ACTIVITIES

Results of the soil and groundwater analyses were evaluated against ADEC cleanup levels that were presented in the SAP. Analytical results from the laboratory reports (Forms 1) are in Appendix C.

5.4.1 Soil Analytical Results

This section presents the results of chemical analyses conducted on soil samples collected at SA 79 during the 2010 field season. DRO analyses were conducted on 16 soil samples collected from 8 locations at the site.

Concentrations of DRO reported in soil samples collected from SA 79 during 2010 are summarized in Table 5-5 and presented on Figure 5-4.

DRO was not detected at the reporting limit in 8 of the 16 samples as indicated by the “U” qualifier. Detected concentrations ranged from 47 to 26,000 mg/kg. Concentrations detected in the eight samples were collected from five locations (601, 603, 604, 605, and 606) as shown on Figure 5-4 and in Table 5-5.

Table 5-5
Summary of Analytical Results for DRO in 2010 Soil Samples at
SA 79, Main Road Pipeline, South End

| Location | Sample Identification | Depth (feet bgs) | DRO (mg/kg) |
|--------------------|-----------------------|------------------|---------------|
| 601 | 601-5 | 5 | 7,900 |
| 601 | 601-7.5 | 7.5 | 4,100 |
| 602 | 602-7.5 | 7.5 | 25 U |
| 602 | 602-12.5 | 12.5 | 25 U |
| 603 | 603-5 | 5 | 6,700 |
| 603 | 603-7.5 | 7.5 | 25 U |
| 604 | 604-5 | 5 | 26,000 |
| 604 | 604-7.5 | 7.5 | 270 J |
| 605 | 605-5 | 5 | 16,000 |
| 605 | 605-7.5 | 7.5 | 220 |
| 606 | 606-5 | 5 | 47 |
| 606 | 606-10 | 10 | 26 U |
| 607 | 607-10 | 10 | 25 U |
| 607 | 607-12.5 | 12.5 | 26 U |
| 608 | 608-10 | 10 | 26 U |
| 608 | 608-12.5 | 12.5 | 26 U |
| ADEC Cleanup Level | | | 230 |

Notes:

- Bolded** values exceed ADEC cleanup level.
- ADEC - Alaska Department of Environmental Conservation
- bgs - below ground surface
- DRO - diesel-range organics
- J - estimated concentration
- mg/kg - milligram per kilogram
- U - not detected above the value given

Concentrations that exceeded the ADEC cleanup level of 230 mg/kg for DRO are identified by boldfaced type in Table 5-5 and on Figure 5-4. Exceedances were present in soil collected from four locations (601, 603, 604, and 605) located at the northern portion of the site. Exceedances were 30 times the ADEC cleanup level for DRO at locations 601, 604, and 605 in the samples collected from 5 feet bgs. No DRO concentration was detected in the soil samples collected from the southern portion of the site (locations 602, 607, and 608). The contour lines showing 1 and 30 times the ADEC cleanup level on Figure 5-4 were revised to account for the new data from the 2010 sampling effort.

5.4.2 Groundwater Analytical Results

This section presents the results of chemical analyses conducted on the groundwater samples collected at SA 79 during the 2010 field season. Table 5-6 summarizes the final field parameter measurements collected immediately prior to sample collection. Analytical results for DRO, VOCs, and SVOCs are summarized on Table 5-7.

Field parameters pH, specific conductance, turbidity, DO, temperature, and ORP were measured during groundwater sampling activities. pH ranged from 5.15 to 5.30 SUs, with an average of 5.23 SUs. Specific conductance was measured at 41.8 to 69.1 $\mu\text{S}/\text{cm}$. Final turbidity measurements ranged from 0 to 12.7 NTUs. DO ranged from 0.39 to 3.39 mg/L. The highest DO content was measured in the sample from well 602, which is located downgradient (towards Sweeper Cove) at the southern portion of the site where there is no evidence of impacted soil or groundwater. DO was measured at less than 1 mg/L in 3 of the 4 sampled wells, which were located within the dissolved petroleum hydrocarbon plume at the site. ORP ranged from -41 to 202 mV. All of the negative ORP values are associated with samples collected from wells within the dissolved petroleum hydrocarbon plume at the site. Final pre-sampling groundwater temperature readings ranged from 6.1 to 7.4°C.

Table 5-6
Summary of Field Parameters Measured During 2010 Groundwater
Sampling at SA 79, Main Road Pipeline, South End

| Location | pH (SU) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Turbidity (NTU) | DO (mg/L) | Temperature (°C) | ORP (mV) |
|----------|---------|--|-----------------|-----------|------------------|----------|
| 601 | 5.27 | 41.8 | 0 | 0.39 | 6.1 | -17 |
| 602 | 5.15 | 51.8 | 0 | 3.39 | 7.4 | 202 |
| 02-230 | 5.30 | 69.1 | 12.7 | 0.52 | 7.1 | -30 |
| MRP-MW8 | 5.21 | 46.0 | 2.4 | 0.69 | 6.6 | -41 |

Notes:

°C - degree Celsius

DO - dissolved oxygen

$\mu\text{S}/\text{cm}$ - microsiemens per centimeter

mg/L - milligram per liter

mV - millivolt

NTU - nephelometric turbidity unit

ORP - oxidization-reduction potential

SU - standard unit

Table 5-7
Summary of Analytical Results for DRO, VOCs, and SVOCs in 2010
Groundwater Samples at SA 79, Main Road Pipeline, South End

| Chemical | Location | | | | ADEC Cleanup Level ^a (µg/L) |
|-------------------------------------|---------------|---------------|------------------|-------------------|--|
| | 601 (µg/L) | 602 (µg/L) | 02-230 (µg/L) | MRP-MW8 (µg/L) | |
| Total Petroleum Hydrocarbons | | | | | |
| DRO | 2,500 | 520 U | 3,600 | 2,400 | 1,500 |
| TAH | ND | ND | 0.80 | ND | 10 |
| TAqH | ND | ND | 0.80 | ND | 15 |
| Volatile Organic Compounds | | | | | |
| 1,1,1,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | NE |
| 1,1,1-Trichloroethane (TCA) | 1 U | 1 U | 1 U | 1 U | 200 |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 4.3 |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 5 |
| 1,1-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 7,300 |
| 1,1-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 7 |
| 1,1-Dichloropropene | 1 U | 1 U | 1 U | 1 U | NE |
| 1,2,3-Trichlorobenzene | 1 U | 1 U | 0.35 J | 1 U | NE |
| 1,2,3-Trichloropropane | 1 U | 1 U | 1 U | 1 U | 0.12 |
| 1,2,4-Trichlorobenzene | 1 U | 1 U | 1 U | 1 U | 70 |
| 1,2,4-Trimethylbenzene | 1.6 | 1 U | 0.35 J | 1 U | 1,800 |
| 1,2-Dibromo-3-chloropropane | 2 U | 2 U | 2 U | 2 U | NE |
| 1,2-Dibromoethane (EDB) | 1 U | 1 U | 1 U | 1 U | 0.06 |
| 1,2-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 600 |
| 1,2-Dichloroethane (EDC) | 1 U | 1 U | 1 U | 1 U | 5 |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 5 |
| 1,3,5-Trimethylbenzene | 0.22 J | 1 U | 1 U | 1 U | 1,800 |
| 1,3-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 3,300 |
| 1,3-Dichloropropane | 1 U | 1 U | 1 U | 1 U | NE |
| 1,4-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 75 |
| 2,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | NE |
| 2-Butanone (MEK) | 10 U | 10 U | 10 U | 10 U | 22,000 |
| 2-Chlorotoluene | 1 U | 1 U | 1 U | 1 U | NE |
| 2-Hexanone | 10 U | 10 U | 10 U | 10 U | NE |
| 4-Chlorotoluene | 1 U | 1 U | 1 U | 1 U | NE |
| Acetone | 5.2 J | 10 U | 8.2 J | 10 U | 33,000 |
| Benzene | 1 U | 1 U | 1 U | 1 U | 5 |
| Bromobenzene | 1 U | 1 U | 1 U | 1 U | NE |
| Bromochloromethane | 1 U | 1 U | 1 U | 1 U | NE |

Table 5-7 (Continued)
Summary of Analytical Results for DRO, VOCs, and SVOCs in 2010
Groundwater Samples at SA 79, Main Road Pipeline, South End

| Chemical | Location | | | | ADEC Cleanup Level ^a (µg/L) |
|--------------------------------|---------------|---------------|------------------|-------------------|--|
| | 601 (µg/L) | 602 (µg/L) | 02-230 (µg/L) | MRP-MW8 (µg/L) | |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 14 |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 110 |
| Bromomethane (methyl bromide) | 1 U | 1 U | 1 U | 1 U | 51 |
| Carbon disulfide | 1 U | 1 U | 0.3 J | 1 U | 3,700 |
| Carbon tetrachloride | 1 U | 1 U | 1 U | 1 U | 5 |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 100 |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 290 |
| Chloroform | 1 U | 1 U | 1 U | 1 U | 140 |
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 66 |
| cis-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 70 |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 8.5 |
| Dibromochloromethane | 1 U | 1 U | 1 U | 1 U | 10 |
| Dibromomethane | 1 U | 1 U | 1 U | 1 U | 370 |
| Dichlorodifluoromethane | 1 U | 1 U | 1 U | 1 U | 7,300 |
| Ethylbenzene | 1 U | 1 U | 0.51 J | 1 U | 700 |
| Hexachlorobutadiene | 1 U | 1 U | 1 U | 1 U | 7.3 |
| Isopropyl benzene | 1 U | 1 U | 0.57 J | 1 U | 3,700 |
| m,p-Xylenes | 2 U | 2 U | 2 U | 2 U | 10,000 |
| Methyl isobutyl ketone (MIBK) | 10 U | 10 U | 10 U | 10 U | 2,900 |
| Methylene chloride | 1 U | 1 U | 1 U | 1 U | 6 |
| Methyl tert-butyl ether (MTBE) | 1 U | 1 U | 1 U | 1 U | 470 |
| Naphthalene | 2 J | 2 U | 2 U | 2 U | 730 |
| n-Butylbenzene | 1 U | 1 U | 1 U | 1 U | 370 |
| n-Propylbenzene | 1 U | 1 U | 0.64 J | 1 U | NE |
| o-Xylene | 1 U | 1 U | 0.29 J | 1 U | 10,000 |
| p-Isopropyltoluene | 1.4 | 1 U | 1 U | 1 U | NE |
| sec-Butylbenzene | 0.43 J | 1 U | 0.42 J | 1 U | 370 |
| Styrene | 1 U | 1 U | 1 U | 1 U | 100 |
| tert-Butylbenzene | 1 U | 1 U | 1 U | 1 U | 370 |
| Tetrachloroethene (PCE) | 1 U | 1 U | 1 U | 1 U | 5 |
| Toluene | 1 U | 1 U | 1 U | 1 U | 1,000 |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 100 |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 8.5 |
| Trichloroethene (TCE) | 1 U | 1 U | 1 U | 1 U | 5 |

Table 5-7 (Continued)
Summary of Analytical Results for DRO, VOCs, and SVOCs in 2010
Groundwater Samples at SA 79, Main Road Pipeline, South End

| Chemical | Location | | | | ADEC Cleanup Level ^a (µg/L) |
|---------------------------------------|---------------|---------------|------------------|-------------------|--|
| | 601 (µg/L) | 602 (µg/L) | 02-230 (µg/L) | MRP-MW8 (µg/L) | |
| Trichlorofluoromethane | 1 U | 1 U | 1 U | 1 U | 11,000 |
| Vinyl chloride | 1 U | 1 U | 1 U | 1 U | 2 |
| Semivolatile Organic Compounds | | | | | |
| 1,2,4-Trichlorobenzene | 9.8 U | 11 U | 9.9 U | 10 UJ | 70 |
| 1,2-Dichlorobenzene | 9.8 U | 11 U | 9.9 U | 10 UJ | 600 |
| 1,2-Diphenylhydrazine | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| 1,3-Dichlorobenzene | 9.8 U | 11 U | 9.9 U | 10 UJ | 3,300 |
| 1,4-Dichlorobenzene | 9.8 U | 11 U | 9.9 U | 10 UJ | 75 |
| 2,4,5-Trichlorophenol | 9.8 U | 11 U | 9.9 U | 10 U | 3,700 |
| 2,4,6-Trichlorophenol | 9.8 U | 11 U | 9.9 U | 10 U | 77 |
| 2,4-Dichlorophenol | 9.8 U | 11 U | 9.9 U | 10 U | 110 |
| 2,4-Dimethylphenol | 9.8 U | 11 U | 9.9 U | 10 U | 730 |
| 2,4-Dinitrophenol | 29 U | 32 U | 30 U | 31 U | 73 |
| 2,4-Dinitrotoluene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.3 |
| 2,6-Dinitrotoluene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.3 |
| 2-Chloronaphthalene | 9.8 U | 11 U | 9.9 U | 10 UJ | 2,900 |
| 2-Chlorophenol | 9.8 U | 11 U | 9.9 U | 10 U | 180 |
| 2-Methylnaphthalene | 9.8 U | 11 U | 9.9 U | 10 UJ | 150 |
| 2-Methylphenol | 9.8 U | 11 U | 9.9 U | 10 U | 1,800 |
| 2-Nitroaniline | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| 2-Nitrophenol | 9.8 U | 11 U | 9.9 U | 10 U | NE |
| 3,3'-Dichlorobenzidine | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.9 |
| 3-Nitroaniline | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| 4,6-Dinitro-2-methylphenol | 29 U | 32 U | 30 U | 31 U | NE |
| 4-Bromophenyl-phenyl ether | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| 4-Chloro-3-methylphenol | 9.8 U | 11 U | 9.9 U | 10 U | NE |
| 4-Chloroaniline | 9.8 U | 11 U | 9.9 U | 10 UJ | 16 |
| 4-Chlorophenyl-phenyl ether | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| 4-Methylphenol | 9.8 U | 11 U | 9.9 U | 10 U | 180 |
| 4-Nitroaniline | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| 4-Nitrophenol | 29 U | 32 U | 30 U | 31 U | NE |
| Acenaphthene | 9.8 U | 11 U | 9.9 U | 10 UJ | 2,200 |
| Acenaphthylene | 9.8 U | 11 U | 9.9 U | 10 UJ | 2,200 |
| Anthracene | 9.8 U | 11 U | 9.9 U | 10 UJ | 11,000 |

Table 5-7 (Continued)
Summary of Analytical Results for DRO, VOCs, and SVOCs in 2010
Groundwater Samples at SA 79, Main Road Pipeline, South End

| Chemical | Location | | | | ADEC Cleanup Level ^a (µg/L) |
|-----------------------------|---------------|---------------|------------------|-------------------|--|
| | 601 (µg/L) | 602 (µg/L) | 02-230 (µg/L) | MRP-MW8 (µg/L) | |
| Benzo(a)anthracene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.2 |
| Benzo(a)pyrene | 9.8 U | 11 U | 9.9 U | 10 UJ | 0.2 |
| Benzo(b)fluoranthene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.2 |
| Benzo(g,h,i)perylene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1,100 |
| Benzo(k)fluoranthene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.2 |
| Benzoic acid | 98 U | 100 U | 99 U | 100 U | 150,000 |
| Benzyl alcohol | 29 U | 32 U | 30 U | 31 U | NE |
| bis(2-Chloroethoxy)methane | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| bis(2-Chloroethyl)ether | 9.8 U | 11 U | 9.9 U | 10 UJ | 0.77 |
| bis(2-Chloroisopropyl)ether | 9.8 U | 11 U | 9.9 U | 10 UJ | NE |
| Bis(2-ethylhexyl)phthalate | 9.8 U | 11 U | 9.9 U | 10 UJ | 6 |
| Butylbenzylphthalate | 9.8 U | 11 U | 9.9 U | 10 UJ | 7,300 |
| Carbazole | 9.8 U | 11 U | 9.9 U | 10 UJ | 43 |
| Chrysene | 9.8 U | 11 U | 9.9 U | 10 UJ | 120 |
| Dibenzo(a,h)anthracene | 9.8 U | 11 U | 9.9 U | 10 UJ | 0.12 |
| Dibenzofuran | 9.8 U | 11 U | 9.9 U | 10 UJ | 73 |
| Diethylphthalate | 9.8 U | 11 U | 9.9 U | 10 UJ | 29,000 |
| Dimethylphthalate | 9.8 U | 11 U | 9.9 U | 10 UJ | 370,000 |
| Di-n-butylphthalate | 9.8 U | 11 U | 9.9 U | 10 UJ | 3,700 |
| Di-n-octylphthalate | 9.8 U | 11 U | 9.9 U | 10 UJ | 1,500 |
| Fluoranthene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1,500 |
| Fluorene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1,500 |
| Hexachlorobenzene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1 |
| Hexachlorobutadiene | 9.8 U | 11 U | 9.9 U | 10 UJ | 7.3 |
| Hexachloroethane | 9.8 U | 11 U | 9.9 U | 10 UJ | 40 |
| Indeno(1,2,3-cd)pyrene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1.2 |
| Isophorone | 9.8 U | 11 U | 9.9 U | 10 UJ | 900 |
| Naphthalene | 9.8 U | 11 U | 9.9 U | 10 UJ | 730 |
| Nitrobenzene | 9.8 U | 11 U | 9.9 U | 10 UJ | 18 |
| N-Nitrosodimethylamine | 9.8 U | 11 U | 9.9 U | 10 UJ | 0.017 |
| N-Nitroso-di-n-propylamine | 9.8 U | 11 U | 9.9 U | 10 UJ | 0.12 |
| n-Nitrosodiphenylamine | 9.8 U | 11 U | 9.9 U | 10 UJ | 170 |
| Pentachlorophenol | 29 U | 32 U | 30 U | 31 U | 1 |
| Phenanthrene | 9.8 U | 11 U | 9.9 U | 10 UJ | 11,000 |

Table 5-7 (Continued)
Summary of Analytical Results for DRO, VOCs, and SVOCs in 2010
Groundwater Samples at SA 79, Main Road Pipeline, South End

| Chemical | Location | | | | ADEC Cleanup Level ^a (µg/L) |
|----------|---------------|---------------|------------------|-------------------|---|
| | 601 (µg/L) | 602 (µg/L) | 02-230 (µg/L) | MRP-MW8 (µg/L) | |
| Phenol | 9.8 U | 11 U | 9.9 U | 10 U | 11,000 |
| Pyrene | 9.8 U | 11 U | 9.9 U | 10 UJ | 1,100 |

^aGroundwater cleanup levels are from 18 Alaska Administrative Code 75.345 Table C and/or Technical Memorandum 01-007 (November 2003), downloaded December 2009 from www.legis.state.ak.us/cgi-bin/folioisa.dll/aac and http://www.dec.state.ak.us/SPAR/csp/guidance/comps_update11_03.pdf.

Notes:

ADEC - Alaska Department of Environmental Conservation

J - estimated concentration

µg/L - microgram per liter

NE - not established

TAH - total aromatic hydrocarbons (calculated by summing detectable concentrations of benzene, toluene, ethylbenzene, and total xylenes)

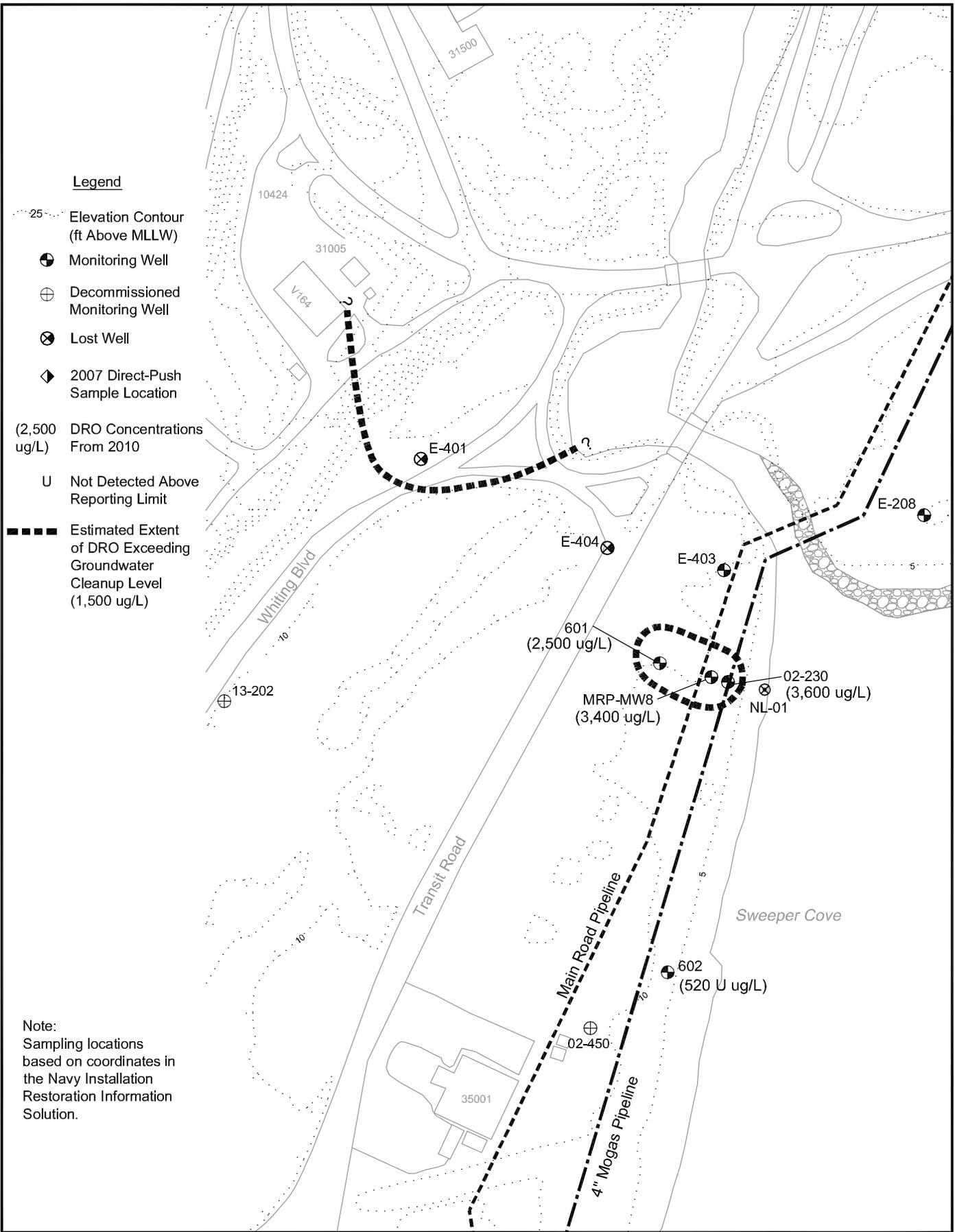
TAqH - total aqueous hydrocarbons (calculated by summing the TAH concentration and detectable polycyclic aromatic hydrocarbon concentrations)

U - not detected above the value given

DRO concentrations detected in the groundwater samples exceeded the ADEC cleanup level of 1,500 µg/L in three of the four samples collected from the site as shown on Table 5-7. Samples from wells 601, 02-230, and MRP-MW8 contained DRO concentrations of 2,500, 3,600, and 2,400 µg/L, respectively. Each of these wells is located in the northern portion of the site. Figure 5-5 shows the estimated extent of DRO in groundwater based on the 2010 sampling results.

No groundwater samples contained detected concentrations of VOCs or SVOCs in excess of individual ADEC cleanup levels. As shown on Table 5-7, the VOC analytes that were detected were three or more orders of magnitude below their respective ADEC cleanup levels. No SVOC was detected in any sample.

Total aromatic hydrocarbon (TAH) and total aqueous hydrocarbon (TAqH) concentrations were evaluated against surface water criteria of 10 µg/L for TAH and 15 µg/L for TAqH. TAH is calculated by summing detectable concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX). TAqH is calculated by summing the TAH concentration and detectable polycyclic aromatic hydrocarbon (PAH) concentrations. No sample contained TAH or TAqH in excess of its applicable surface water criterion. Detectable levels of TAH (0.8 µg/L) and TAqH



T:\ADAK\IDIS\Sub-Tasks\DO 5\SITE CHARACTER\Fig 5-5 DRO GW SA79.dwg
 Mod: 04/14/2011, 10:39 | Plotted: 04/18/2011, 08:15 | John_Knobbs

U.S. NAVY



Figure 5-5
Estimated Extent of DRO
in Groundwater in 2010, SA 79,
Main Road Pipeline, South End

Delivery Order 0005
 Adak Island, AK
 SITE CHARACTER.
 REPORT

(0.8 µg/L) were present only in the water sample from 02-230. In addition, the 2008 groundwater sample from the temporary monitoring point NL-01 did not contain TAqH at a concentration in excess of the surface water criterion (U.S. Navy 2009).

5.5 PROJECT QUALITY OBJECTIVES ASSESSMENT

This section evaluates how the project quality objectives in the SAP Worksheet #11 (U.S. Navy 2010a) were satisfied. The project quality objectives were identified as 7 steps in the SAP and are italicized here. The evaluation of how each step was addressed is provided immediately following each step.

Step 1: State the problem. *This step identifies the issue to be addressed. The overall problem statement is as follows:*

The primary concern at SA 79 is that DRO concentrations in groundwater from the two wells monitored annually at the site (02-230 and MRP-MW8) show an increasing concentration trend. These wells are located adjacent to Sweeper Cove, a marine environment, and well 02-230 is a surface water protection monitoring location. The adjacent marine environment may be at risk from migration of DRO in groundwater.

How Step 1 was addressed: This step was addressed in the SAP as part of the SAP preparation.

Step 2: Identify the decision. *Are petroleum hydrocarbons migrating in groundwater to Sweeper Cove at concentrations greater than ADEC surface water criteria?*

How Step 2 was addressed: Groundwater analytical results from wells adjacent to Sweeper Cove were evaluated to determine if hydrocarbons are migrating in groundwater to Sweeper Cove at concentrations greater than ADEC surface water criteria. Specifically, concentrations of TAH and TAqH in samples were calculated and compared to the applicable surface water criteria. No sample contained a concentration that exceeded the surface water criteria for TAH and TAqH.

Step 3: Identify the inputs to the decision. *Soil sample results will be compared to soil cleanup levels from ADEC Tables B1 and B2 and Technical Memorandums 01-002 (January 2001), 06-003 (August 2006), and 01-007 (November 2003).*

Groundwater sample results will be compared to groundwater cleanup levels from 18 AAC 75.345 Table C and surface water criteria of 10 µg/L for TAH and 15 µg/L for TAqH. TAH will be calculated by summing BTEX concentrations that are measured at concentrations greater than their respective method reporting limits. BTEX constituents that are not reported at concentrations greater than method reporting limits will not be included in the TAH quantity. TAqH will be calculated by summing PAH (and TAH) concentrations that are measured at concentrations greater than method reporting limits. PAH constituents that are not reported at concentrations greater than method reporting limits will not be included in the TAqH quantity.

How Step 3 was addressed: Analytical results of soil and groundwater samples collected from the site were compared to the ADEC cleanup levels identified in the SAP, which were based on the identified sources. TAH and TAqH concentrations in groundwater samples were calculated and evaluated against surface water criteria.

Step 4: Define the site boundaries. *Monitoring wells and soil borings will be completed as shown on Figure 6 [of the SAP]. These locations may need to be adjusted based on field conditions to meet the sampling objectives.*

How Step 4 was addressed: All locations, with the exception of location 601, were installed at the planned locations. The well at 601 could not be installed adjacent to the shoreline because of the riprap that was present at 4.5 feet bgs. FCR No. 3 was submitted and approved regarding the placement of location 601. Field changes are explained in more detail in Section 5.3.5.

Step 5: Develop a decision rule. *If petroleum hydrocarbons are migrating to Sweeper Cove in groundwater at concentrations greater than ADEC surface water criteria, additional actions are required. If not, continue with MNA (Figure 22 [of the SAP]).*

How Step 5 was addressed: Based on the samples collected in 2010, it appears that petroleum hydrocarbons in groundwater are not migrating into Sweeper Cove at concentrations greater than ADEC surface water criteria. The Navy should continue with MNA.

Step 6: Specify limits on decision errors. *Reporting limits for analytical results must be at least one-half of the ARARs identified in Step 3 or within the parameters of the specified laboratory methods specified on Worksheet #15 [of the SAP]. Quality control requirements for specified analytical methods must be met to ensure data of known quality are produced by the analytical laboratory. Analytical performance criteria are specified on Worksheet #12 [of the SAP]. All data will be verified for completeness and subjected to full, independent validation.*

How Step 6 was addressed: Analytical reporting limits for DRO in water and soil were less than half of the cleanup levels for soil (230 mg/kg) and groundwater (1,500 µg/kg). Analytical reporting limits for VOCs and SVOCs in water were either less than half of the cleanup levels or

were within the parameters specified on Worksheet #15 in the SAP. The analytical performance criteria were met (see data usability assessment in Section 3). All data were verified for completeness and were 100 percent validated by a third party (see data validation report in Appendix B).

Step 7: Optimize the sampling design. *The data will be collected during a single sampling event in June 2010. Collection of GPS sampling coordinates will be performed for all locations to enhance data reproducibility. One soil and groundwater field duplicate sample will be collected from one of the eight locations to assess field collection methods.*

How Step 7 was addressed: Field work for the site was completed in 2010. Changes in the planned field work were required to address actual site conditions, as explained under Step 4. Coordinates of the soil borings and monitoring wells were surveyed to document exact locations. One duplicate groundwater sample was collected and analyzed.

5.6 SUMMARY AND CONCLUSION

The results of the additional characterization at SA 79, Main Road Pipeline, South End indicate that sheen, TAH, and TAqH are not currently migrating from groundwater into Sweeper Cove surface water at concentrations greater than ADEC surface water criteria. Based on DRO concentrations observed, petroleum constituents and sheen associated with DRO have the potential to migrate to Sweeper Cove and result in a sheen and/or exceedance of the TAqH criterion. DRO is not migrating in groundwater to Sweeper Cove at concentrations greater than ADEC surface water criteria in the area of location 602. DRO may migrate in groundwater to Sweeper Cove at concentrations greater than ADEC surface water criteria in the area of well MRP-MW8 in the future. However, a groundwater sample collected from a temporary sampling point (NL-01) during 2008 did not contain DRO, TAH, or TAqH at concentrations greater than ADEC surface water criteria (U.S. Navy 2009). This temporary point was positioned downgradient of well 02-230.

All planned soil borings and monitoring wells were installed at the site as planned with the exception of well 601, which had to be moved because riprap prevented drilling to the required depth at the planned location. All soil samples were analyzed for DRO. Groundwater samples were analyzed for DRO, VOCs, and SVOCs. Only DRO was detected above the soil and groundwater cleanup levels. All exceedances of the DRO cleanup levels for soil and groundwater were detected in the northern portion of the site. No VOC or SVOC was detected in excess of their respective cleanup levels in groundwater samples collected from the site in 2010. No TAH or TAqH concentration was detected in groundwater samples in excess of their respective surface water criteria.

5.7 RECOMMENDATION

Groundwater samples collected from all locations near the shoreline of Sweeper Cove at the site did not contain exceedances of TAH and TAqH surface water criteria, and no sheen was observed at the adjacent shoreline. In addition, the 2008 groundwater sample collected from the temporary monitoring point NL-01 did not contain TAqH at a concentration above ADEC surface water criterion (U.S. Navy 2009). However, because petroleum constituents and sheen associated with DRO have the potential to migrate to Sweeper Cove and result in a sheen and/or exceedance of the TAqH criterion, natural attenuation monitoring should continue at wells MRP-MW8 and 02-230 as prescribed in the CMP, Revision 4 (U.S. Navy 2010d), with the addition of annual resampling at temporary sampling point NL-01. No additional action to remediate the site is warranted at this time.

6.0 SWMU 60, TANK FARM A

This section describes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at SWMU 60, Tank Farm A. A project quality objectives assessment and summary and conclusion are provided at the end of this section.

6.1 PURPOSE

The objective of the additional characterization at SWMU 60, Tank Farm A was to determine if DRO is migrating to South Sweeper Creek at concentrations greater than ADEC surface water criteria.

6.2 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

6.2.1 Location and Setting

Tank Farm A, designated SWMU 60 (also known as the Quartermaster Tank Farm), is a former bulk-fuel storage facility. It consists of approximately 55 acres on a hill with steeply sloped margins. The site is currently undeveloped and can be accessed from Hillside Boulevard by dirt roads (Figure 6-1). Tank Farm A is bounded by Hillside Boulevard to the east and vacant and undeveloped land to the west. Yakutat Creek is located at the base of a steep hill at the northern margin of the tank farm. Dumbell Lake and Tank Farm D are located short distances south of the southern margin of the site. Tank Farm A was included in the SAERA process because soil samples collected during a release investigation contained concentrations of petroleum hydrocarbons above ADEC Method 2 soil cleanup levels.

Tank Farm A is in an upland area situated between 90 and 200 feet above MLLW. Topography within the tank farm and to the north, south, and west is characterized as uneven upland terrain. The general topography of this area is variable, characterized by hills and swales. Numerous seeps and shallow drainages flow down the slopes of Tank Farm A and join larger drainage ditches and streams at the base of the hillsides. The northern margin of the tank farm is a deep, steep-sided stream valley containing Yakutat Creek. Topography at the eastern margin of Tank Farm A consists of steep slopes opening to a broad lowland with ground surface elevations less than 35 feet above MLLW. This marginal lowland area contains South Sweeper Creek and its associated wetland areas. The eastern margin that is west of Sweeper Creek was the focus of the 2010 sampling event.

6.2.2 Environmental History

A number of releases have been identified in the Tank Farm A area. It was reported that during the 1950s, several of the field-constructed tanks (FCTs) were leaking, and fuel was observed seeping out of hillside soil into the unnamed creek adjacent to the former high school and Navy Exchange Building (Building 10320) (ESE 1986). Several releases from underground fuel lines were identified in early 1989, some of which resulted in fuel reaching ditches and entering South Sweeper Creek (EMCON 1995). Two of these 1989 leaks were documented within Tank Farm A as underground pipelines that had been abandoned but were still connected to active pipelines. Navy personnel constructed containment ponds and used oil containment booms to contain and mitigate the migration of fuel from the source area. The abandoned pipelines were also isolated from the active pipelines at this time (U.S. Navy 1999). The locations of these documented petroleum release areas are shown on Figure 6-1.

Numerous investigations were performed at Tank Farm A and the surrounding areas together with ongoing compliance monitoring. These investigations and results of groundwater monitoring are summarized in the petroleum summary report (U.S. Navy 2008). More detailed information on previous investigations and groundwater monitoring results can be found in Tetra Tech 1989, Century West 1989, EMCON 1995, and U.S. Navy 1999, 2007, and 2009.

The estimated extent of DRO in soil at concentrations above ADEC cleanup levels based on samples collected prior to 2010 is shown on Figure 6-2. The planned sampling locations for the 2010 sampling event are also shown on Figure 6-2. The estimated extent of petroleum-related chemicals with concentrations greater than ADEC cleanup levels in groundwater prior to 2010 is shown on Figure 6-3.

The OU A ROD for the former Adak Naval Complex selected MNA for SWMU 60, Tank Farm A (U.S. Navy, ADEC, and USEPA 2000). The CMP states that if the data tests indicated that the concentrations are increasing, an evaluation would be performed to determine whether to continue monitoring or take additional action (U.S. Navy 2007).

6.2.3 Geology and Hydrogeology

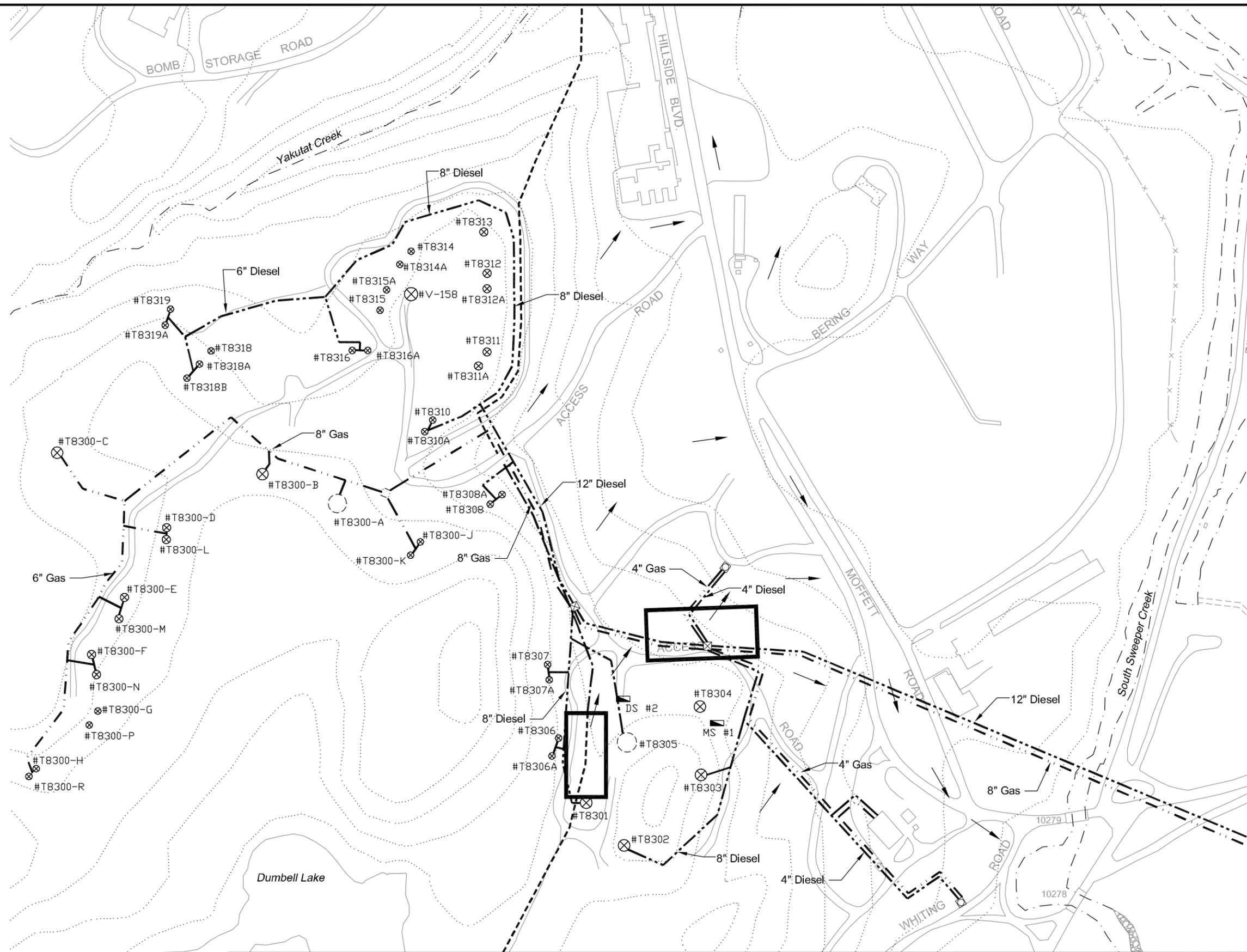
The geology and hydrogeology at Tank Farm A correspond to either the profile for Tephra Over Glacial Till, Tephra Over Bedrock, or Downtown Soils, all of which were developed in the Adak groundwater study (U.S. Navy 1995). Bedrock is exposed at former FCT locations (T8301, T8302, T8303, T8304, and T8305) in the southern portion of the site, while glacial till is exposed at most former FCT locations in the central and western portions of Tank Farm A. The Tephra Over Bedrock profile consists of about 8 feet of tephra (volcanic ash) directly overlying low-permeability bedrock. The Tephra Over Glacial Till profile is described as 8 or fewer feet of

Legend

- Elevation Contour (ft Above MLLW)
- Road
- Removed FCT
- Crushed and Buried FCT
- Removed UST
- Existing Aboveground JP-5 Pipeline
- Presumed Location Underground JP-5 Pipeline
- Gasoline Transfer Pipeline
- Diesel Transfer Pipeline
- Pump Station/Valve House
- Fill Stands
- Documented Petroleum Release Areas
- Surface Drainage Flow Direction

Note:
The size of the symbol represents the former size of the FCT.

FCT - Field-constructed Tank

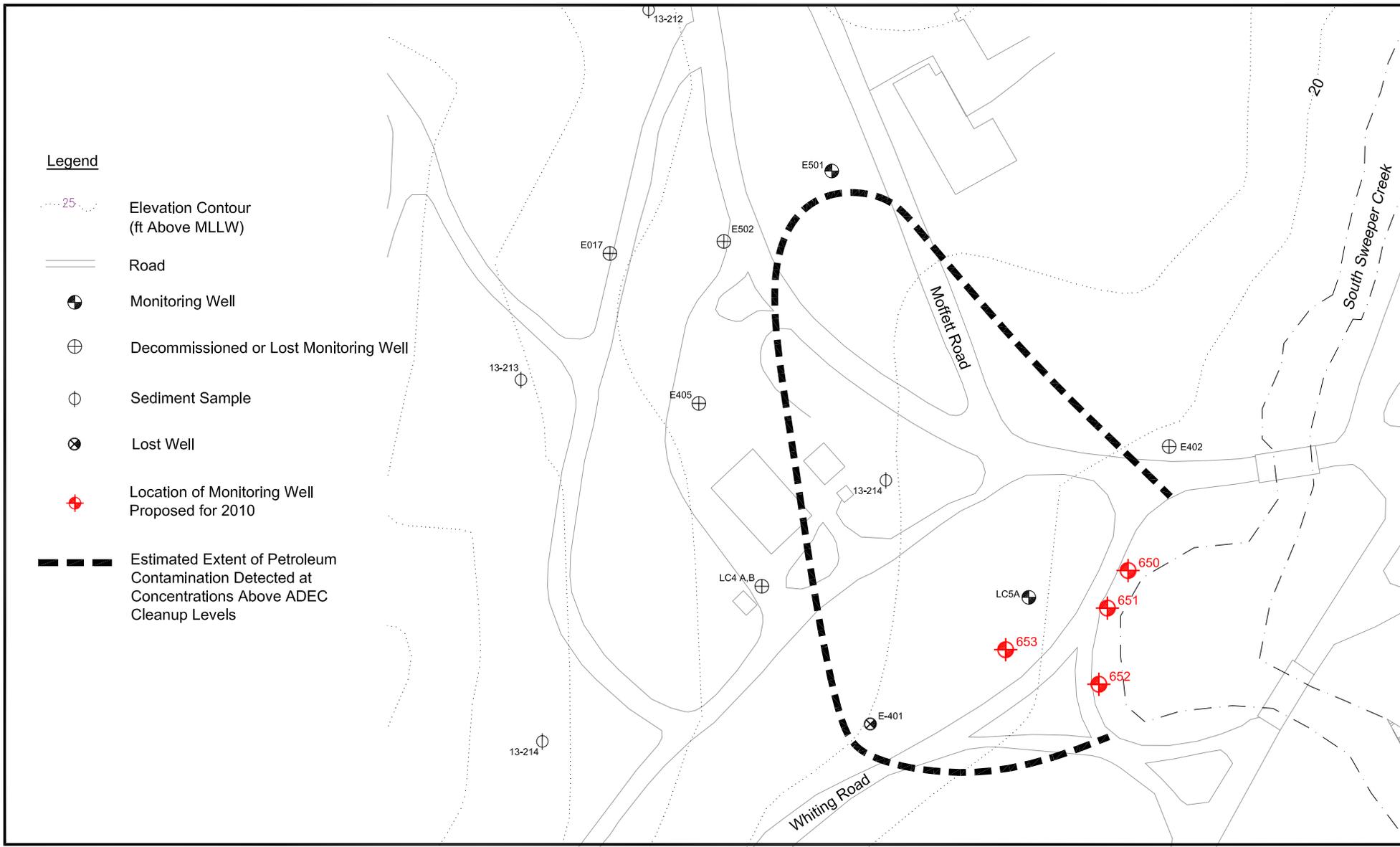


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Figure 6-1
Site Location and Vicinity Map
SWMU 60, Tank Farm A



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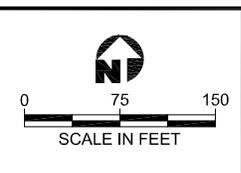


Figure 6-3
Estimated Extent of Petroleum-Related Chemicals in Groundwater
Prior to 2010 and Proposed Well Locations, SWMU 60, Tank Farm A

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tephra overlying low-permeability glacial till (U.S. Navy 1995). The Downtown Soils profile is described as sandy soils derived from stream deposition, with wind and wave action.

Tephra is a relatively impermeable deposit of material formed by aerial expulsion from a volcanic vent. It is a dark brown, clayey silt with little to trace amounts of fine sand. Glacial till is described as unsorted, massive, matrix-supported cobble and boulder gravel. The matrix consists of silt, clay, and fine sand. The underlying bedrock on Adak Island is predominantly volcanic with relatively minor amounts of marine sandstone, conglomerate, and shale.

Subsurface soils in the Downtown Soils profile have variable permeability and generally consist of sands and gravels with varying portions of silt. The saturated soils have a high water-bearing capacity.

In sloped areas within the upland portions of Tank Farm A, precipitation flows on top of the tephra, either as surface water runoff or as shallow throughflow in the vegetative mat above the tephra zone (U.S. Navy 1995). In areas where the tephra is incised by a stream, or areas where human activities have removed the tephra (crushed FCTs and buried pipelines), percolation through the tephra may occur. This water can then migrate downslope along buried erosional surfaces on the underlying till or bedrock. There is limited potential for significant yield of groundwater from the tephra or underlying till and bedrock in the upland portion of the tank farm. These formations have a low water-bearing capacity and are unsuitable as a domestic water source. Conversely, the sandy subsurface material found in the lowland area east of Tank Farm A has a high water-bearing capacity and could be used as a limited water source. However, the site's proximity to Sweeper Cove and South Sweeper Creek would likely result in saltwater intrusion if a large-volume pumping well were installed in this area.

The depth to groundwater was measured in monitoring wells in the vicinity of Tank Farm A on numerous occasions prior to 2010. Depth to groundwater varied from approximately 5 to 7 feet bgs. These data indicate that the limited quantity of groundwater believed to exist in the upland portion of Tank Farm A will flow outward from the topographic high occupied by the tank farm toward Yakutat Creek and South Sweeper Creek located in the lowland area to the east (U.S. Navy 1999).

Water levels were measured in monitoring well LC5A and new wells 650, 651, 652, and 653 on July 16, 2010 (Table 6-1). Free product (0.25 foot thick) was present in well 653. Water levels in the newer wells installed in 2010 and in well LC5A, all located in the southeastern portion of Tank Farm A, confirm that groundwater flows east from the higher elevation towards South Sweeper Creek (Figure 6-4).

**Table 6-1
 Groundwater Elevations at SWMU 60, Tank Farm A, July 16, 2010**

| Well ID | Top of Casing Elevation (Feet Above MLLW) | Depth to Free Product From Top of Casing (Feet) | Depth to Water From Top of Casing (Feet) | Free-Product Thickness (Feet) | Elevation of Groundwater Surface^a (Feet Above MLLW) |
|----------------|--|--|---|--------------------------------------|---|
| 650 | 13.11 | NA | 10.12 | NA | 2.18 |
| 651 | 12.08 | NA | 9.14 | NA | 1.15 |
| 652 | 12.37 | NA | 9.49 | NA | 1.44 |
| 653 | 15.14 | 11.12 | 11.37 | 0.25 | 4.41 |
| LC5A | 10.86 | NA | 6.35 | NA | 4.51 |

^aGroundwater elevation was adjusted where free product was present. Assuming the specific gravity of the free product is approximately 0.80 of water, the adjusted elevation equals the measured elevation of the groundwater and free- product interface plus the thickness of the free product times 0.80.

Notes:

ID - identification

MLLW - mean lower low water

NA - not applicable

6.3 FIELD INVESTIGATION ACTIVITIES

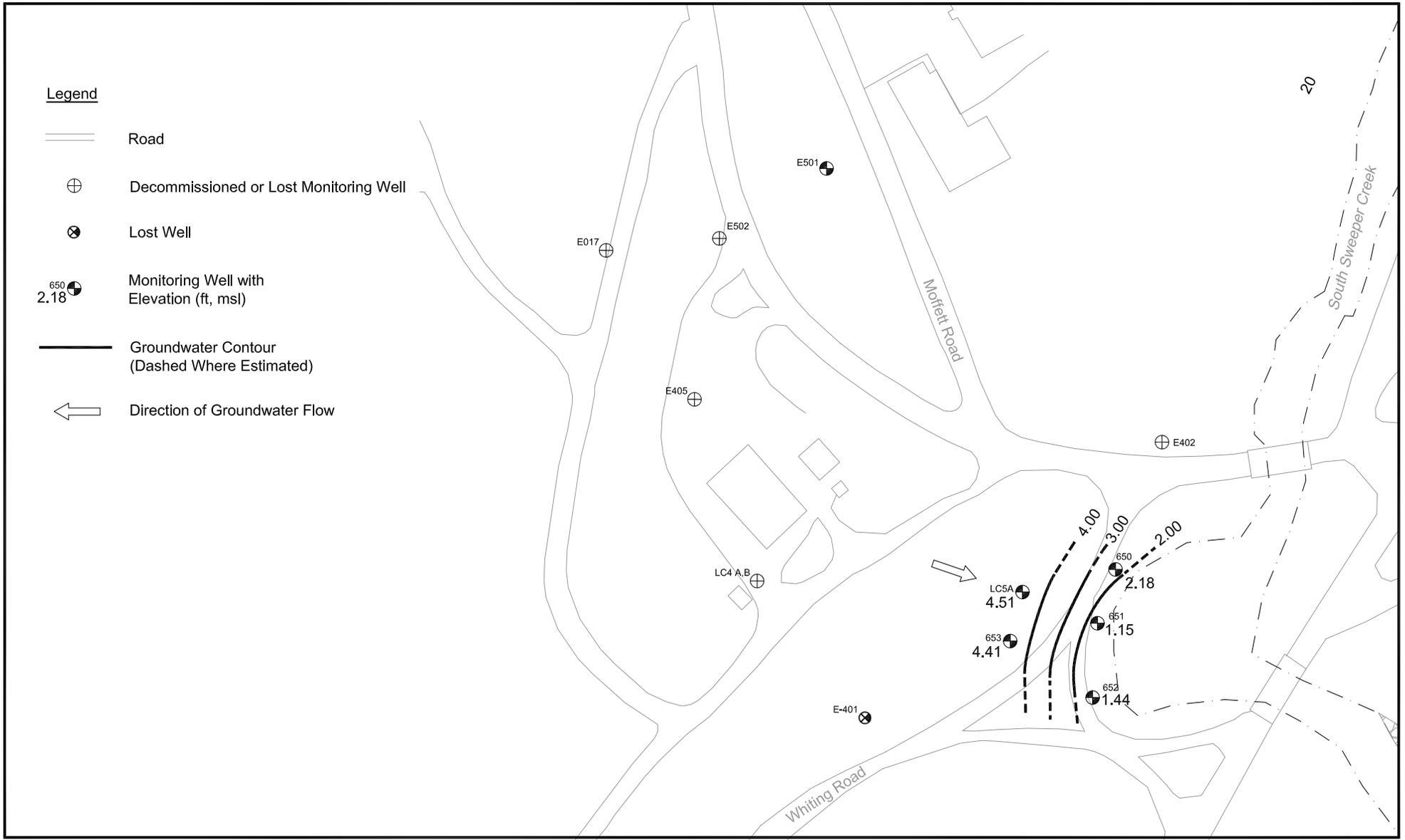
Drilling, soil sampling, and well completions at the site occurred from July 2 through 4, 2010. Groundwater sampling occurred on July 10 and 11, 2010.

6.3.1 Soil Boring Completion

Two locations were completed as soil borings (654 and 655) at the locations shown on Figure 6-5. Both borings were drilled using 8-inch-diameter, hollow-stem auger equipment. Soil boring 653 was advanced to a point of refusal at 12.5 feet bgs where rock (possibly bedrock) was encountered. Similarly, soil boring 655 was advanced to a point of refusal at 19 feet bgs where rock (possibly bedrock) was encountered. Otherwise, the borings were installed and subsequently abandoned following procedures described in Section 2.2. Boring logs for Tank Farm A are in Appendix F-1.

6.3.2 Soil Sampling

Table 6-2 summarizes the results of the soil screening for organic vapors using the PID. Soil samples were collected for soil screening from six locations (650 through 655) at 2.5-foot intervals, starting at a depth of 5 feet bgs. The readings ranged from 0 ppm in several sample intervals to 380 ppm in the sample collected at 7.5 feet bgs at 653. One other reading from the 7.5-foot sampling interval at 652 was above 100 ppm. Results of the field screening, in addition



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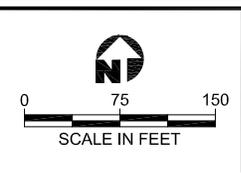
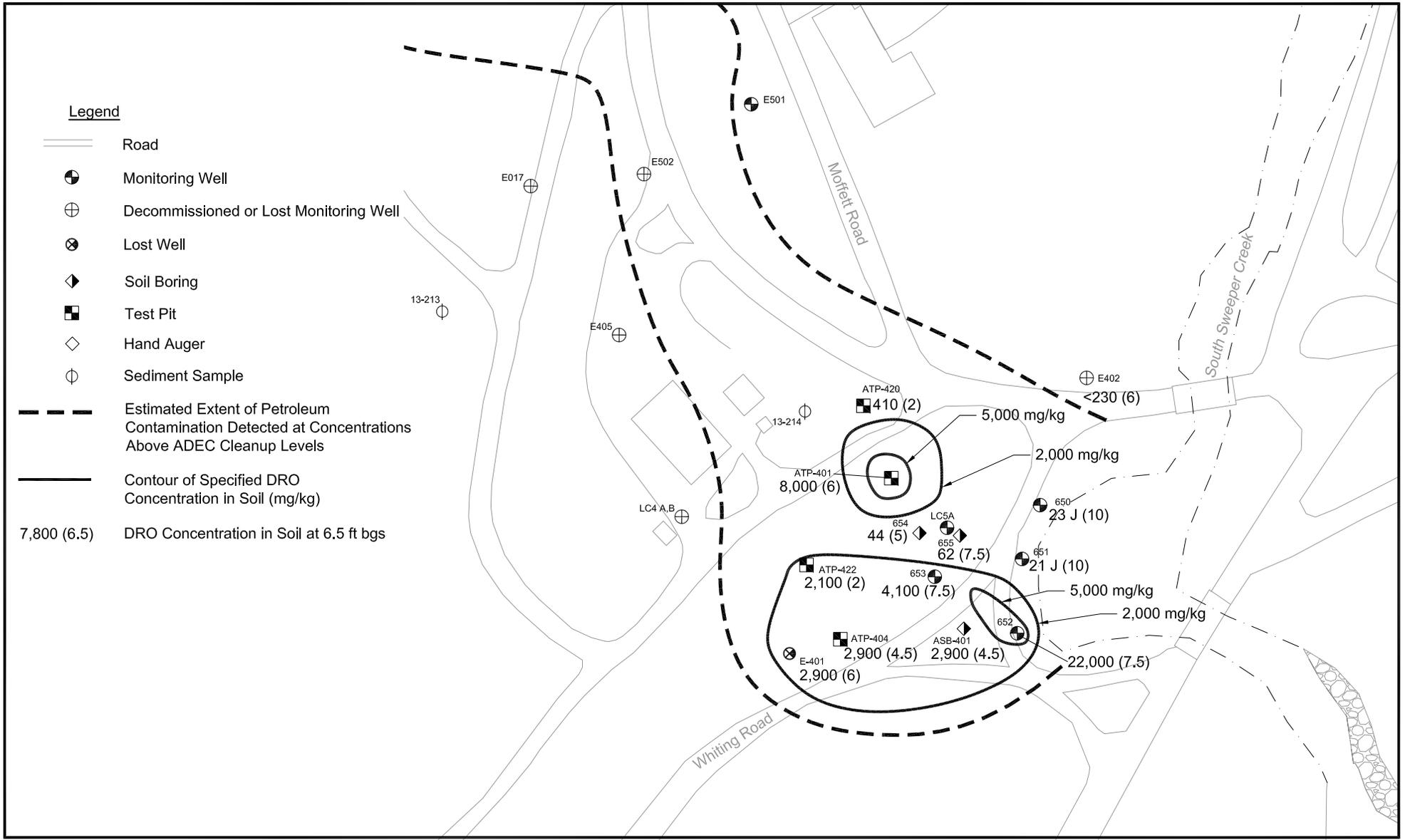


Figure 6-4
Groundwater Flow in the Southeastern Portion of
SWMU 60, Tank Farm A

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Figure 6-5
Estimated Extent of DRO in Soil After 2010 Sampling,
SWMU 60, Tank Farm A

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to odor and visual observations of staining and sheen, were used to select samples for laboratory analysis.

Table 6-2
Soil Screening Results From Soil Boring Locations at
SWMU 60, Tank Farm A

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|----------|---------------------------|-------------------|-----------------------------------|
| 650 | 5 | 0 | - |
| 650 | 7.5 | 0 | - |
| 650 | 10 | 4.0 | X |
| 650 | 12.5 | 0 | X |
| 650 | 15 | 0 | - |
| 650 | 17.5 | 0 | - |
| 650 | 20 | 0 | - |
| 651 | 5 | 0 | - |
| 651 | 7.5 | 0 | - |
| 651 | 10 | 0 | X |
| 651 | 12.5 | 8.0 | X |
| 651 | 15 | 0 | - |
| 651 | 17.5 | 0 | - |
| 651 | 20 | 0 | - |
| 652 | 5 | 0 | - |
| 652 | 7.5 | 175 | X |
| 652 | 10 | 12 | X |
| 652 | 12.5 | 0 | - |
| 652 | 15 | 0 | - |
| 652 | 17.5 | 0 | - |
| 653 | 5 | 0 | - |
| 653 | 7.5 | 380 | X |
| 653 | 10 | 2.0 | X |
| 653 | 12.5 | 1.5 | - |
| 653 | 15 | 0 | - |
| 653 | 17.5 | 0 | - |
| 654 | 5 | 52 | X |
| 654 | 7.5 | 18 | X |
| 654 | 10 | 2.1 | - |
| 654 | 12.5 | 2.0 | - |
| 655 | 5 | 19 | X |
| 655 | 7.5 | 13.2 | X |

Table 6-2 (Continued)
Soil Screening Results From Soil Boring Locations at
SWMU 60, Tank Farm A

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|----------|---------------------------|-------------------|-----------------------------------|
| 655 | 10 | 0 | - |
| 655 | 12.5 | 0 | - |
| 655 | 15 | 0 | - |

Notes:

bgs - below ground surface
 DRO - diesel-range organics
 PID - photoionization detector
 ppm - parts per million

Samples were collected for laboratory analysis from two intervals from all six locations (plus one duplicate from 651) as listed on Table 6-3. A total of 13 samples were submitted to the laboratory for DRO analysis by Alaska Method AK 102. The analytical results of the soil analyses are discussed in Section 6.4.1.

Table 6-3
Soil Sample Collection Summary for
SWMU 60, Tank Farm A

| Location | Sample Identification | Depth (feet bgs) | DRO (Total Number of Samples) |
|----------|-----------------------|------------------|-------------------------------|
| 650 | 650-10 | 10 | 1 |
| 650 | 650-12.5 | 12.5 | 1 |
| 651 | 651-10 | 10 | 1 |
| 651 | 651D | 10 | 1 |
| 651 | 651-12.5 | 12.5 | 1 |
| 652 | 652-7.5 | 7.5 | 1 |
| 652 | 652-10 | 10 | 1 |
| 653 | 653-7.5 | 7.5 | 1 |
| 653 | 653-10 | 10 | 1 |
| 654 | 654-5 | 5 | 1 |
| 654 | 654-7.5 | 7.5 | 1 |
| 655 | 655-5 | 5 | 1 |
| 655 | 655-7.5 | 7.5 | 1 |

Notes:

bgs - below ground surface
 DRO - diesel-range organics

6.3.3 Well Installation

Four locations were completed as monitoring wells (650 through 653) at locations shown on Figure 6-4. Eight-inch-diameter, hollow-stem augers were used to drill the boreholes for installing the monitoring wells. Samples were collected with split-spoon samplers. The boreholes for wells 650, 651, and 652 were drilled to 17 feet bgs, and the borehole for well 653 was drilled to 17.5 feet bgs. All four wells have 10-foot-long screens. Wells 650, 651, and 652 were completed with flush-mount well boxes, because they were installed on the shoulder of the road, and well 653 was completed with a stick-up monument surrounded by three protective bollards. Monitoring wells were drilled and constructed as described in Section 2.3. Monitoring well construction logs for these new wells at Tank Farm A are in Appendix F-1.

6.3.4 Groundwater Sampling

Groundwater samples were collected from monitoring well LC5A and new well 650, 651, and 652 on July 17, 2010 (Table 6-4). A sample was not collected from new well 653 because it contained 0.25 foot of free product. Samples were collected as described in Section 2.4 and submitted to the laboratory for the following analyses: DRO by Alaska Method AK 102, VOCs by EPA Method 8260B, and SVOCs by EPA Method 8270C. The analytical results of the groundwater analyses are discussed in Section 6.4.2.

Table 6-4
Groundwater Collection Summary for
SWMU 60, Tank Farm A

| Location | Sample Identification | DRO (Number of Samples) | VOCs (Number of Samples) | SVOCs (Number of Samples) |
|----------|-----------------------|----------------------------|-----------------------------|------------------------------|
| 650 | 650 | 1 | 1 | 1 |
| 651 | 651 | 1 | 1 | 1 |
| 652 | 652 | 1 | 1 | 1 |
| LC5A | LC5A | 1 | 1 | 1 |

Notes:
 DRO - diesel-range organics
 SVOCs - semivolatile organic compounds
 VOCs - volatile organic compounds

6.3.5 Deviations From the Project Plan

FCR No. 2 (Appendix F-2) was prepared because wells 650, 651, and 652 could not be completed 2 to 3 feet above grade with protective monuments and three bollards as planned. The locations are adjacent to the roadway and directly near a strung cable. Field conditions at the

proposed monitoring well locations did not allow for safe or practical installation of aboveground well completions. Flush-mount well boxes were used to complete the wells. Additionally, the location for well 651 was moved approximately 12 feet south of its originally designated position to avoid penetrating the culvert beneath the road. FCR No. 2 was submitted on June 30, 2010.

The planned location of boring 654 was within a previous test pit. However, the test pit was on the side of a steep hill. The boring location had to be moved to a level area to drill. Therefore, location 654 was moved approximately 75 feet southeast near the center of the area estimated to contain DRO at concentrations greater than 5,000 mg/kg (Figure 6-2).

6.4 RESULTS OF SITE CHARACTERIZATION ACTIVITIES

Results of the soil and groundwater analyses were evaluated against ADEC cleanup levels presented in the SAP (U.S. Navy 2010a). Analytical results from the laboratory reports (Forms 1) are in Appendix C.

6.4.1 Soil Analytical Results

This section presents the results of chemical analyses conducted on soil samples collected at Tank Farm A during the 2010 field season. DRO analyses were conducted on 13 soil samples collected from 12 locations at the site.

Concentrations of DRO reported in soil samples collected from Tank Farm A during 2010 are summarized in Table 6-5 and presented on the site map (Figure 6-5).

**Table 6-5
 Summary of Analytical Results for DRO in 2010 Soil Samples at
 SWMU 60, Tank Farm A**

| Location | Sample Identification | Depth (feet bgs) | DRO (mg/kg) |
|----------|-----------------------|------------------|---------------|
| 650 | 650-10 | 10 | 23 J |
| 650 | 650-12.5 | 12.5 | 26 U |
| 651 | 651-10 | 10 | 21 J |
| 651 | 651D | 10 | 19 J |
| 651 | 651-12.5 | 12.5 | 25 U |
| 652 | 652-7.5 | 7.5 | 22,000 |
| 652 | 652-10 | 10 | 150 |
| 653 | 653-7.5 | 7.5 | 4,100 |

Table 6-5 (Continued)
Summary of Analytical Results for DRO in 2010 Soil Samples at
SWMU 60, Tank Farm A

| Location | Sample Identification | Depth (feet bgs) | DRO (mg/kg) |
|--------------------|-----------------------|------------------|-------------|
| 653 | 653-10 | 10 | 25 U |
| 654 | 654-5 | 5 | 44 |
| 654 | 654-7.5 | 7.5 | 14 J |
| 655 | 655-5 | 5 | 21 J |
| 655 | 655-7.5 | 7.5 | 62 |
| ADEC Cleanup Level | | | 230 |

Notes:

- Bolded** values exceed ADEC cleanup level.
- ADEC - Alaska Department of Environmental Conservation
- bgs - below ground surface
- DRO - diesel -range organics
- J - estimated concentration
- mg/kg - milligram per kilogram
- U - not detected above the value given

DRO was not detected at the reporting limit in 3 of the 13 samples as indicated by the “U” qualifier. Detected concentrations ranged from an estimated 14 to 22,000 mg/kg. Concentrations detected in the 10 samples were collected from all six locations.

DRO concentrations exceeded the ADEC soil cleanup level for DRO (230 mg/kg) at two locations sampled in 2010 (652 and 653). The highest concentrations detected at each location sampled in 2010 and some previously detected DRO concentrations are shown on Figure 6-5. Exceedances in the 2010 samples were present at location 652, located in the southeast portion of the site within the traffic circle near South Sweeper Creek, and location 653, located on the northwest side of Whiting Road and west of the traffic circle.

The contour lines showing DRO concentrations on Figure 6-5 were revised to account for the new data from the 2010 sampling effort. The area of soil containing DRO concentrations in excess of 5,000 mg/kg is smaller than previously reported (Figure 6-2) based on the samples from soil boring 654, which had a maximum DRO concentration of 44 mg/kg, and soil boring 655, which had a maximum DRO concentration of 62 mg/kg. There is also an area of soil containing concentrations in excess of 5,000 mg/kg near 652 where the maximum DRO concentration of 22,000 mg/kg was detected (Figure 6-5). The extent of DRO concentrations in excess of 2,000 mg/kg encompasses a larger area than previously defined, as seen when

comparing Figures 6-2 and 6-5. It appears that the DRO concentrations in excess of 2,000 mg/kg and the applicable ADEC cleanup level of 230 mg/kg are not bounded to the south of the site.

6.4.2 Groundwater Analytical Results

This section presents the results of chemical analyses conducted on the groundwater samples collected at Tank Farm A during the 2010 field season. Table 6-6 summarizes the final field parameter measurements collected just prior to sample collection. Analytical results for DRO, VOCs, and SVOCs are summarized on Table 6-7.

Field parameters pH, specific conductance, turbidity, DO, temperature, and ORP were measured during groundwater sampling activities. pH ranged from 5.26 to 5.54 SUs, with an average of 5.40 SUs. Specific conductance was measured at 3.41 to 64.9 $\mu\text{S}/\text{cm}$. Final turbidity measurements ranged from 0 to 21 NTUs. DO ranged from 0.70 to 2.51 mg/L. DO was measured at less than 1 mg/L in three of the four sampled wells. ORP ranged from -90 to 6 mV. Final pre-sampling groundwater temperature readings ranged from 5.9 to 8.2°C.

DRO concentrations detected in the groundwater samples exceeded the ADEC cleanup level of 1,500 $\mu\text{g}/\text{L}$ in one of the four samples (well 652) collected from the site, as shown on Table 6-7 and Figure 6-6. The sample from well 652 contained a DRO concentration of 3,700 $\mu\text{g}/\text{L}$. Well 652 is the southeasternmost well at the site and is located in the traffic circle just upgradient of South Sweeper Creek. A groundwater sample was not collected from well 653 because of the presence of 0.25 foot of product.

Table 6-6
Summary of Field Parameters Measured During 2010 Groundwater at
SWMU 60, Tank Farm A

| Location | pH (SU) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Turbidity (NTU) | DO (mg/L) | Temperature (°C) | ORP (mV) |
|----------|---------|--|-----------------|-----------|------------------|----------|
| 650 | 5.26 | 3.41 | 2.0 | 0.70 | 6.3 | -9 |
| 651 | 5.32 | 32.0 | 21.0 | 2.51 | 5.9 | 6 |
| 652 | 5.49 | 64.9 | 6.9 | 0.66 | 6.3 | -90 |
| LC5A | 5.54 | 28.9 | 0 | 0.91 | 8.2 | -72 |

Notes:

°C - degree Celsius

DO - dissolved oxygen

$\mu\text{S}/\text{cm}$ - microsiemens per centimeter

mg/L - milligram per liter

mV - millivolt

NTU - nephelometric turbidity unit

ORP - oxidization-reduction potential

SU - standard unit

Table 6-7
Summary of Analytical Results for DRO, SVOCs, and VOCs in 2010
Groundwater Samples at SWMU 60, Tank Farm A

| Chemical | Location | | | | ADEC Cleanup Level ^a |
|-------------------------------------|---------------|---------------|---------------|----------------|---------------------------------|
| | 650 (µg/L) | 651 (µg/L) | 652 (µg/L) | LC5A (µg/L) | |
| Total Petroleum Hydrocarbons | | | | | |
| DRO | 1,400 | 1,100 | 3,700 | 1,100 | 1,500 |
| TAH | 9.4 | 96 | 170 | 62 | 10 |
| TAqH | 9.4 | 96 | 170 | 62 | 15 |
| Volatile Organic Compounds | | | | | |
| 1,1,1,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | NE |
| 1,1,1-Trichloroethane (TCA) | 1 U | 1 U | 1 U | 1 U | 200 |
| 1,1,2,2-Tetrachloroethane | 1 U | 1 U | 1 U | 1 U | 4.3 |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U | 5 |
| 1,1-Dichloroethane | 1 U | 1 U | 1 U | 1 U | 7,300 |
| 1,1-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 7 |
| 1,1-Dichloropropene | 1 U | 1 U | 1 U | 1 U | NE |
| 1,2,3-Trichlorobenzene | 1 U | 1 U | 1 U | 1 U | NE |
| 1,2,3-Trichloropropane | 1 U | 1 U | 1 U | 1 U | 0.12 |
| 1,2,4-Trichlorobenzene | 1 U | 1 U | 1 U | 1 U | 70 |
| 1,2,4-Trimethylbenzene | 8.2 | 38 | 81 | 49 | 1,800 |
| 1,2-Dibromo-3-chloropropane | 2 U | 2 U | 2 U | 2 U | NE |
| 1,2-Dibromoethane (EDB) | 1 U | 1 U | 1 U | 1 U | 0.06 |
| 1,2-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 600 |
| 1,2-Dichloroethane (EDC) | 0.22 J | 1 U | 0.4 J | 1 U | 5 |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | 5 |
| 1,3,5-Trimethylbenzene | 1.1 | 8.6 | 32 | 19 | 1,800 |
| 1,3-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 3,300 |
| 1,3-Dichloropropane | 1 U | 1 U | 1 U | 1 U | NE |
| 1,4-Dichlorobenzene | 1 U | 1 U | 1 U | 1 U | 75 |
| 2,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U | NE |
| 2-Butanone (MEK) | 10 U | 10 U | 10 U | 10 U | 22,000 |
| 2-Chlorotoluene | 1 U | 1 U | 1 U | 1 U | NE |
| 2-Hexanone | 10 U | 10 U | 10 U | 10 U | NE |
| 4-Chlorotoluene | 1 U | 1 U | 1 U | 2.4 | NE |
| Acetone | 10 U | 10 U | 10 U | 10 U | 33,000 |
| Benzene | 7 | 1.8 | 4 | 0.78 J | 5 |
| Bromobenzene | 1 U | 1 U | 1 U | 1 U | NE |
| Bromochloromethane | 1 U | 1 U | 1 U | 1 U | NE |

Table 6-7 (Continued)
Summary of Analytical Results for DRO, SVOCs, and VOCs in 2010
Groundwater Samples at SWMU 60, Tank Farm A

| Chemical | Location | | | | ADEC Cleanup Level ^a |
|--------------------------------|---------------|---------------|---------------|----------------|---------------------------------|
| | 650 (µg/L) | 651 (µg/L) | 652 (µg/L) | LC5A (µg/L) | |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U | 14 |
| Bromoform | 1 U | 1 U | 1 U | 1 U | 110 |
| Bromomethane (methyl bromide) | 1 U | 1 U | 1 U | 1 U | 51 |
| Carbon disulfide | 1 U | 1 U | 1 U | 1 U | 3,700 |
| Carbon tetrachloride | 1 U | 1 U | 1 U | 1 U | 5 |
| Chlorobenzene | 1 U | 1 U | 1 U | 1 U | 100 |
| Chloroethane | 1 U | 1 U | 1 U | 1 U | 290 |
| Chloroform | 1 U | 1 U | 1 U | 1 U | 140 |
| Chloromethane | 1 U | 1 U | 1 U | 1 U | 66 |
| cis-1,2-Dichloroethene | 1 U | 1 U | 0.94 J | 1 U | 70 |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 8.5 |
| Dibromochloromethane | 1 U | 1 U | 1 U | 1 U | 10 |
| Dibromomethane | 1 U | 1 U | 1 U | 1 U | 370 |
| Dichlorodifluoromethane | 1 U | 1 U | 1 U | 1 U | 7,300 |
| Ethylbenzene | 0.92 J | 23 | 47 | 19 | 700 |
| Hexachlorobutadiene | 1 U | 1 U | 1 U | 1 U | 7.3 |
| Isopropyl benzene | 0.49 J | 5.1 | 8.1 | 6.3 | 3,700 |
| m,p-Xylenes | 0.73 J | 69 | 150 | 41 | 10,000 |
| Methyl isobutyl ketone (MIBK) | 10 U | 10 U | 10 U | 10 U | 2,900 |
| Methylene chloride | 1 U | 1 U | 1 U | 1 U | 6 |
| Methyl tert-butyl ether (MTBE) | 1 U | 1 U | 1 U | 1 U | 470 |
| Naphthalene | 2 U | 43 J | 100 J | 42 J | 730 |
| n-Butylbenzene | 1 U | 1 U | 1 U | 1 U | 370 |
| n-Propylbenzene | 1 | 3.7 | 8.1 | 8.4 | NE |
| o-Xylene | 0.44 J | 1 | 3 | 1 J | 10,000 |
| p-Isopropyltoluene | 0.61 J | 1.5 | 4.2 | 3.5 | NE |
| sec-Butylbenzene | 0.33 J | 0.9 J | 1.9 | 2.5 | 370 |
| Styrene | 1 U | 1 U | 1 U | 1 U | 100 |
| tert-Butylbenzene | 1 U | 1 U | 1 U | 1 U | 370 |
| Tetrachloroethene (PCE) | 1 U | 1 U | 1 U | 1 U | 5 |
| Toluene | 0.31 J | 1 | 2.9 | 1.2 | 1,000 |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U | 100 |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U | 8.5 |
| Trichloroethene (TCE) | 1 U | 1 U | 1 U | 1 U | 5 |

Table 6-7 (Continued)
Summary of Analytical Results for DRO, SVOCs, and VOCs in 2010
Groundwater Samples at SWMU 60, Tank Farm A

| Chemical | Location | | | | ADEC Cleanup Level ^a |
|--|---------------|---------------|---------------|----------------|---------------------------------|
| | 650 (µg/L) | 651 (µg/L) | 652 (µg/L) | LC5A (µg/L) | |
| Trichlorofluoromethane | 1 U | 1 U | 1 U | 1 U | 11,000 |
| Vinyl chloride | 1 U | 1 U | 1 U | 1 U | 2 |
| Semivolatiles Organic Compounds | | | | | |
| 1,2,4-Trichlorobenzene | 11 UJ | 11 UJ | 10 UJ | 10 U | 70 |
| 1,2-Dichlorobenzene | 11 UJ | 11 UJ | 10 UJ | 10 U | 600 |
| 1,2-Diphenylhydrazine | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| 1,3-Dichlorobenzene | 11 UJ | 11 UJ | 10 UJ | 10 U | 3,300 |
| 1,4-Dichlorobenzene | 11 UJ | 11 UJ | 10 UJ | 10 U | 75 |
| 2,4,5-Trichlorophenol | 11 U | 11 U | 10 U | 10 U | 3,700 |
| 2,4,6-Trichlorophenol | 11 UJ | 11 U | 10 U | 10 U | 77 |
| 2,4-Dichlorophenol | 11 UJ | 11 U | 10 U | 10 U | 110 |
| 2,4-Dimethylphenol | 11 U | 11 U | 10 U | 10 U | 730 |
| 2,4-Dinitrophenol | 34 U | 32 U | 31 U | 31 U | 73 |
| 2,4-Dinitrotoluene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.3 |
| 2,6-Dinitrotoluene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.3 |
| 2-Chloronaphthalene | 11 UJ | 11 UJ | 10 UJ | 10 U | 2,900 |
| 2-Chlorophenol | 11 U | 11 U | 10 U | 10 U | 180 |
| 2-Methylnaphthalene | 11 UJ | 8.1 J | 25 J | 22 | 150 |
| 2-Methylphenol | 11 UJ | 11 U | 10 U | 10 U | 1,800 |
| 2-Nitroaniline | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| 2-Nitrophenol | 11 UJ | 11 U | 10 U | 10 U | NE |
| 3,3'-Dichlorobenzidine | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.9 |
| 3-Nitroaniline | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| 4,6-Dinitro-2-methylphenol | 34 U | 32 U | 31 U | 31 U | NE |
| 4-Bromophenyl-phenyl ether | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| 4-Chloro-3-methylphenol | 11 U | 11 U | 10 U | 10 U | NE |
| 4-Chloroaniline | 11 UJ | 11 UJ | 10 UJ | 10 U | 16 |
| 4-Chlorophenyl-phenyl ether | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| 4-Methylphenol | 11 U | 11 U | 10 U | 10 U | 180 |
| 4-Nitroaniline | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| 4-Nitrophenol | 34 U | 32 U | 31 U | 31 U | NE |
| Acenaphthene | 11 UJ | 11 UJ | 10 UJ | 10 U | 2,200 |
| Acenaphthylene | 11 UJ | 11 UJ | 10 UJ | 10 U | 2,200 |
| Anthracene | 11 UJ | 11 UJ | 10 UJ | 10 U | 11,000 |

Table 6-7 (Continued)
Summary of Analytical Results for DRO, SVOCs, and VOCs in 2010
Groundwater Samples at SWMU 60, Tank Farm A

| Chemical | Location | | | | ADEC Cleanup Level ^a |
|-----------------------------|---------------|---------------|---------------|----------------|---------------------------------|
| | 650 (µg/L) | 651 (µg/L) | 652 (µg/L) | LC5A (µg/L) | |
| Benzo(a)anthracene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.2 |
| Benzo(a)pyrene | 11 UJ | 11 UJ | 10 UJ | 10 U | 0.2 |
| Benzo(b)fluoranthene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.2 |
| Benzo(g,h,i)perylene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1,100 |
| Benzo(k)fluoranthene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.2 |
| Benzoic acid | 110 U | 110 U | 100 U | 100 U | 150,000 |
| Benzyl alcohol | 34 U | 32 U | 31 U | 31 U | NE |
| bis(2-Chloroethoxy)methane | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| bis(2-Chloroethyl)ether | 11 UJ | 11 UJ | 10 UJ | 10 U | 0.77 |
| bis(2-Chloroisopropyl)ether | 11 UJ | 11 UJ | 10 UJ | 10 U | NE |
| Bis(2-ethylhexyl)phthalate | 11 UJ | 11 UJ | 10 UJ | 7.9 J | 6 |
| Butylbenzylphthalate | 11 UJ | 11 UJ | 10 UJ | 10 U | 7,300 |
| Carbazole | 11 UJ | 11 UJ | 10 UJ | 10 U | 43 |
| Chrysene | 11 UJ | 11 UJ | 10 UJ | 10 U | 120 |
| Dibenzo(a,h)anthracene | 11 UJ | 11 UJ | 10 UJ | 10 U | 0.12 |
| Dibenzofuran | 11 UJ | 11 UJ | 10 UJ | 10 U | 73 |
| Diethylphthalate | 11 UJ | 11 UJ | 10 UJ | 10 U | 29,000 |
| Dimethylphthalate | 11 UJ | 11 UJ | 10 UJ | 10 U | 370,000 |
| Di-n-butylphthalate | 11 UJ | 11 UJ | 10 UJ | 10 U | 3,700 |
| Di-n-octylphthalate | 11 UJ | 11 UJ | 10 UJ | 10 U | 1,500 |
| Fluoranthene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1,500 |
| Fluorene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1,500 |
| Hexachlorobenzene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1 |
| Hexachlorobutadiene | 11 U | 11 UJ | 10 UJ | 10 U | 7.3 |
| Hexachloroethane | 11 UJ | 11 UJ | 10 UJ | 10 U | 40 |
| Indeno(1,2,3-cd)pyrene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1.2 |
| Isophorone | 11 UJ | 11 UJ | 10 UJ | 10 U | 900 |
| Naphthalene | 11 UJ | 11 UJ | 23 UJ | 15 | 730 |
| Nitrobenzene | 11 UJ | 11 UJ | 10 UJ | 10 U | 18 |
| N-Nitrosodimethylamine | 11 UJ | 11 UJ | 10 UJ | 10 U | 0.017 |
| N-Nitroso-di-n-propylamine | 11 UJ | 11 UJ | 10 UJ | 10 U | 0.12 |
| n-Nitrosodiphenylamine | 11 UJ | 11 UJ | 10 UJ | 10 U | 170 |
| Pentachlorophenol | 34 U | 32 U | 31 U | 31 U | 1 |
| Phenanthrene | 11 UJ | 11 UJ | 10 UJ | 10 U | 11,000 |

Table 6-7 (Continued)
Summary of Analytical Results for DRO, SVOCs, and VOCs in 2010
Groundwater Samples at SWMU 60, Tank Farm A

| Chemical | Location | | | | ADEC Cleanup Level ^a |
|----------|------------|------------|------------|-------------|---------------------------------|
| | 650 (µg/L) | 651 (µg/L) | 652 (µg/L) | LC5A (µg/L) | |
| Phenol | 11 U | 11 U | 10 U | 10 U | 11,000 |
| Pyrene | 11 UJ | 11 UJ | 10 UJ | 10 U | 1,100 |

^aGroundwater cleanup levels are from 18 Alaska Administrative Code 75.345 Table C and/or Technical Memorandum 01-007 (November 2003), downloaded December 2009 from www.legis.state.ak.us/cgi-bin/folioisa.dll/aac and http://www.dec.state.ak.us/SPAR/csp/guidance/comps_update11_03.pdf.

Notes:

ADEC - Alaska Department of Environmental Conservation

J - estimated concentration

µg/L - microgram per liter

NE - not established

TAH - total aromatic hydrocarbons (calculated by summing detectable concentrations of benzene, toluene, ethylbenzene, and total xylenes)

TAqH - total aqueous hydrocarbons (calculated by summing the TAH concentration and detectable polycyclic aromatic hydrocarbon concentrations)

U - not detected above value given

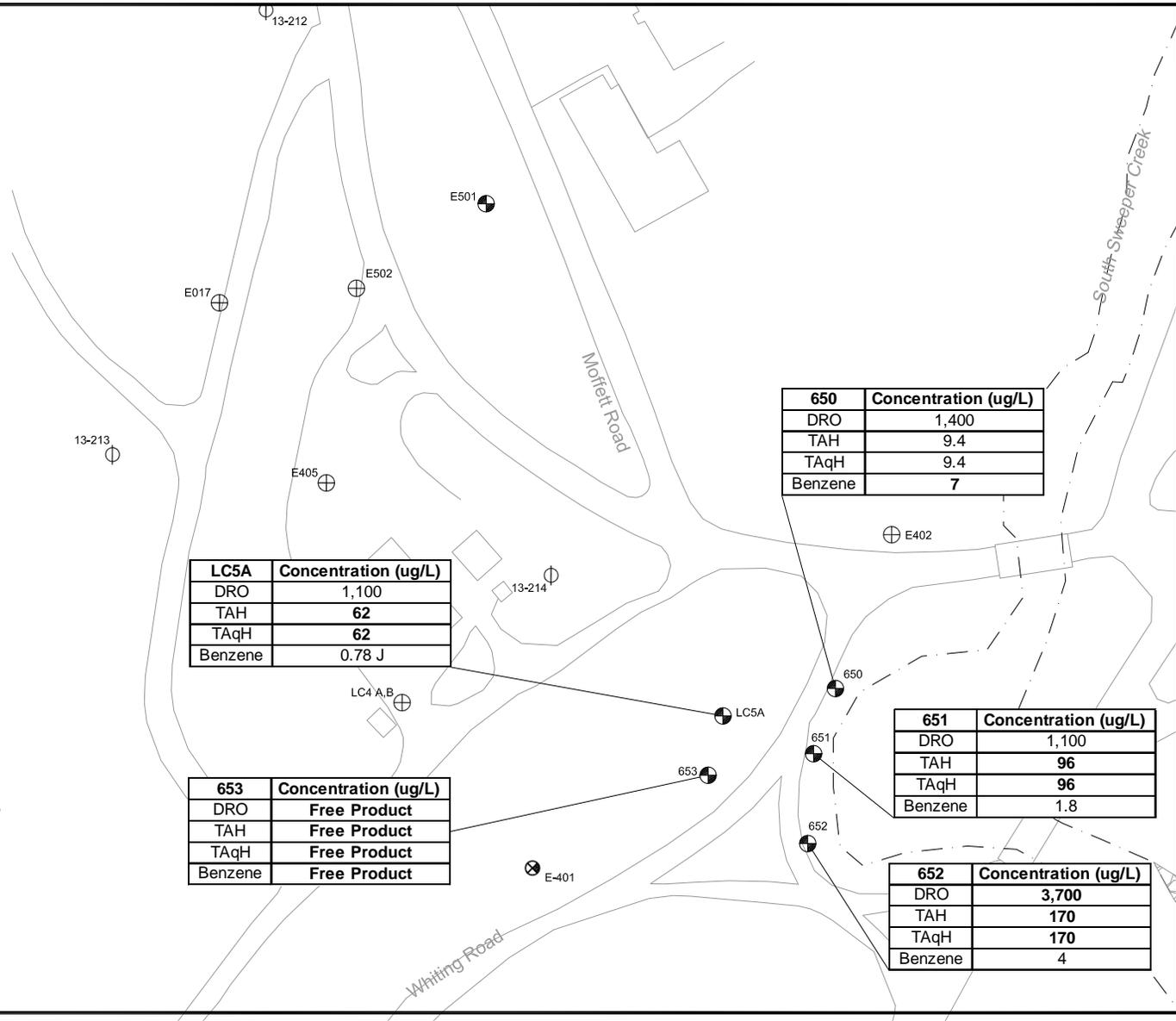
Benzene was the only VOC that was detected in excess of the respective ADEC cleanup level of 5 µg/L. The sample from well 650 contained a benzene concentration of 7 µg/L. Bis(2-ethylhexyl)phthalate was the only SVOC that was detected in excess of the respective ADEC cleanup level of 6 µg/L. It was detected only in well LC5A at an estimated concentration of 7.9 µg/L. Bis(2-ethylhexyl)phthalate is a frequent laboratory contaminant, and no other sample contained a detectable concentration, and, therefore, association with the site of the single bis(2-ethylhexyl)phthalate detection is suspect.

TAH and TAqH concentrations were present in excess of their respective ADEC cleanup levels in three of the four wells as shown on Table 6-7 and Figure 6-6. Exceedances were present in samples from wells 651, 652, and LC5A, which are located downgradient of Tank Farm A and directly upgradient of South Sweeper Creek. The groundwater sample from well 652 contained the highest TAH and TAqH concentrations, each at a concentration of 170 µg/L.

Based on the groundwater samples collected from new wells 651 and 652 downgradient of Tank Farm A and upgradient of South Sweeper Creek, TAH and TAqH concentrations in excess of surface water criteria may be migrating into the creek.

Legend

-  Road
-  Monitoring Well
-  Decommissioned or Lost Monitoring Well
-  Lost Well
-  Sediment Sample



| 650 | Concentration (ug/L) |
|---------|----------------------|
| DRO | 1,400 |
| TAH | 9.4 |
| TAqH | 9.4 |
| Benzene | 7 |

| LC5A | Concentration (ug/L) |
|---------|----------------------|
| DRO | 1,100 |
| TAH | 62 |
| TAqH | 62 |
| Benzene | 0.78 J |

| 651 | Concentration (ug/L) |
|---------|----------------------|
| DRO | 1,100 |
| TAH | 96 |
| TAqH | 96 |
| Benzene | 1.8 |

| 652 | Concentration (ug/L) |
|---------|----------------------|
| DRO | 3,700 |
| TAH | 170 |
| TAqH | 170 |
| Benzene | 4 |

| 653 | Concentration (ug/L) |
|---------|----------------------|
| DRO | Free Product |
| TAH | Free Product |
| TAqH | Free Product |
| Benzene | Free Product |

| Analyte | Concentration (ug/L) |
|---------|----------------------|
| DRO | 3,700 |
| TAH | 170 |
| TAqH | 190 |
| Benzene | 4 |

Note:
 Bolded values exceed
 ADEC Cleanup criteria.

| ADEC Cleanup Levels | |
|---------------------|------------|
| DRO: | 1,500 ug/L |
| TAH: | 10 ug/L |
| TAqH: | 15 ug/L |
| Benzene: | 5 ug/L |

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Figure 6-6
Analytical Results of Petroleum-Related Chemicals in 2010
Groundwater Samples, SWMU 60, Tank Farm A

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6.5 PROJECT QUALITY OBJECTIVES ASSESSMENT

This section evaluates how the project quality objectives in SAP Worksheet #11 (U.S. Navy 2010a) were satisfied. The project quality objectives were identified as seven steps in the SAP and are italicized here. The evaluation of how each step was addressed is provided immediately following each step.

Step 1: State the problem. *This step identifies the issue to be addressed. The overall problem statement is as follows:*

The adjacent freshwater environment may be at risk from migration of DRO, TAH, and TAqH into groundwater. DRO concentrations in groundwater from one of the three wells monitored annually at the site (LC5A) show an increasing concentration trend. This well is located approximately 75 feet from South Sweeper Creek, a freshwater environment, and is not identified as a surface water protection well. Monitoring in Sweeper Creek has not positively identified surface water impacts from SWMU 60. However, sediment monitoring (location 852 and NL-03) has shown exceedances of DRO criterion.

How Step 1 was addressed: This step was addressed in the SAP as part of the SAP preparation.

Step 2: Identify the decision. *Are petroleum hydrocarbons migrating in groundwater to South Sweeper Creek at concentrations greater than ADEC surface water criteria?*

How Step 2 was addressed: Groundwater analytical results from wells adjacent to South Sweeper Creek were evaluated to determine whether or not hydrocarbons are migrating in groundwater to the creek at concentrations greater than ADEC surface water criteria. Specifically, concentrations of TAH and TAqH in samples were calculated and compared to the applicable surface water criteria. Two wells located adjacent to South Sweeper Creek contained TAH and TAqH concentrations greater than ADEC surface water criteria. Thus, it appears that petroleum hydrocarbons in excess of surface water criteria are migrating from groundwater into South Sweeper Creek.

Step 3: Identify the inputs to the decision. *Soil sample results will be compared to soil cleanup levels from ADEC Tables B1 and B2 and Technical Memorandums 01-002 (January 2001), 06-003 (August 2006), and 01-007 (November 2003).*

Groundwater and leachate sample results will be compared to groundwater cleanup levels from 18 AAC 75.345 Table C and surface water criteria of 10 µg/L for TAH and 15 µg/L for TAqH. TAH will be calculated by summing BTEX concentrations that are measured at concentrations

greater than their respective method reporting limits. BTEX constituents that are not reported at concentrations greater than method reporting limits will not be included in the TAH quantity. TAqH will be calculated by summing PAH (and TAH) concentrations that are measured at concentrations greater than method reporting limits. PAH constituents that are not reported at concentrations greater than method reporting limits will not be included in the TAqH quantity.

How Step 3 was addressed: Analytical results of soil and groundwater samples collected from the site were compared to the ADEC cleanup levels identified in the SAP, which were based on the identified sources. TAH and TAqH concentrations in groundwater samples were calculated and evaluated against surface water criteria.

Step 4: Define the site boundaries. *Monitoring wells will be installed and soil borings completed as shown on Figure 9 [of the SAP]. These locations may need to be adjusted based on field conditions to meet the sampling objectives.*

How Step 4 was addressed: Four monitoring wells and two soil borings were completed as planned in the SAP. The locations of the wells and borings had to be adjusted as explained in more detail in Section 6.3.5.

Step 5: Develop a decision rule. *If petroleum hydrocarbons are migrating to South Sweeper Creek in groundwater at concentrations greater than ADEC surface water criteria, additional actions are required. If not, continue with MNA (Figure 23 [of the SAP]).*

How Step 5 was addressed: As explained in Step 2, petroleum hydrocarbons are migrating to South Sweeper Creek in groundwater at concentrations greater than ADEC surface water criteria. Therefore, additional actions are required.

Step 6: Specify limits on decision errors. *Reporting limits for analytical results must be at least one-half of the ARARs identified in Step 3 or within the parameters of the laboratory methods specified on Worksheet #15 [of the SAP]. Quality control requirements for specified analytical methods must be met to ensure data of known quality are produced by the analytical laboratory. Analytical performance criteria are specified on Worksheet #12 [of the SAP]. All data will be verified for completeness and subjected to full, independent validation.*

How Step 6 was addressed: Analytical reporting limits for DRO in water and soil were less than half of the cleanup levels for soil (230 mg/kg) and groundwater (1,500 µg/L). Analytical reporting limits for VOCs and SVOCs in water were either less than half of the cleanup levels or were within the parameters specified on Worksheet #15 in the SAP. The analytical performance criteria were met (see data usability assessment in Section 3). All data were subjected to full, independent validation (see the data validation report in Appendix B).

Step 7: Optimize the sampling design. *The data will be collected during a single sampling event in June 2010. Collection of GPS sampling coordinates will be performed for all locations to enhance data reproducibility. One soil and groundwater field duplicate sample will be collected from one of the six locations to assess field collection methods.*

How Step 7 was addressed: Field work for the site was completed in 2010. Changes in the planned field work were required to address actual site conditions, as explained under Step 4. Coordinates of the soil borings and monitoring wells were surveyed to document exact locations. One duplicate soil sample was collected and analyzed. No duplicate of a groundwater sample was collected and analyzed.

6.6 SUMMARY AND CONCLUSION

The results of the additional characterization at SWMU 60, Tank Farm A suggest that petroleum-related compounds in groundwater are migrating to South Sweeper Creek, causing exceedances of ADEC surface water criteria.

All planned soil borings and monitoring wells were installed at the site. Actual locations of wells and soil borings had to be adjusted as explained in Section 6.3.5. All soil samples from the seven sampling locations were analyzed for DRO. Well 653 was not sampled because it contained a measurable amount (0.25 foot) of free product. DRO was detected in soil above the ADEC cleanup levels at two of the seven locations sampled in 2010. One of these locations (652) was adjacent to South Sweeper Creek.

Groundwater samples from one existing well and three new wells were analyzed for DRO, VOCs, and SVOCs. DRO was also detected in groundwater above its ADEC cleanup level in one well (652). Benzene was detected in a sample from well 650 slightly above its cleanup level and was the only VOC detected above its applicable cleanup level. No significant detection of SVOCs was reported in excess of their respective cleanup levels in groundwater samples collected from the site in 2010. TAH and TAqH concentrations were detected in groundwater samples in excess of their respective surface water criteria in three of the four wells, which includes two wells (651 and 652) located adjacent to South Sweeper Creek.

6.7 RECOMMENDATION

DRO concentrations in samples collected from LC5A have decreased to levels less than the ADEC cleanup level. Therefore, monitoring for DRO at this location should be discontinued. However, TAH and TAqH concentrations exceeded ADEC surface water cleanup levels in well

LC5A. Therefore, annual monitoring for TAH and TAqH should be initiated in this well. Furthermore, the DRO concentration in well 652, the TAH and TAqH concentrations in wells 651 and 652, and the benzene concentration in well 650 exceeded ADEC cleanup levels. Therefore, monitoring for these constituents should be initiated in the wells with exceedances. Free-product monitoring should be initiated at location 653 at least on an annual basis and product recovery protocols implemented that are similar to other Adak sites.

7.0 FORMER POWER PLANT, BUILDING T-1451

This section describes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at Former Power Plant, Building T-1451. A project quality objectives assessment and summary and conclusion are provided at the end of this section.

7.1 PURPOSE

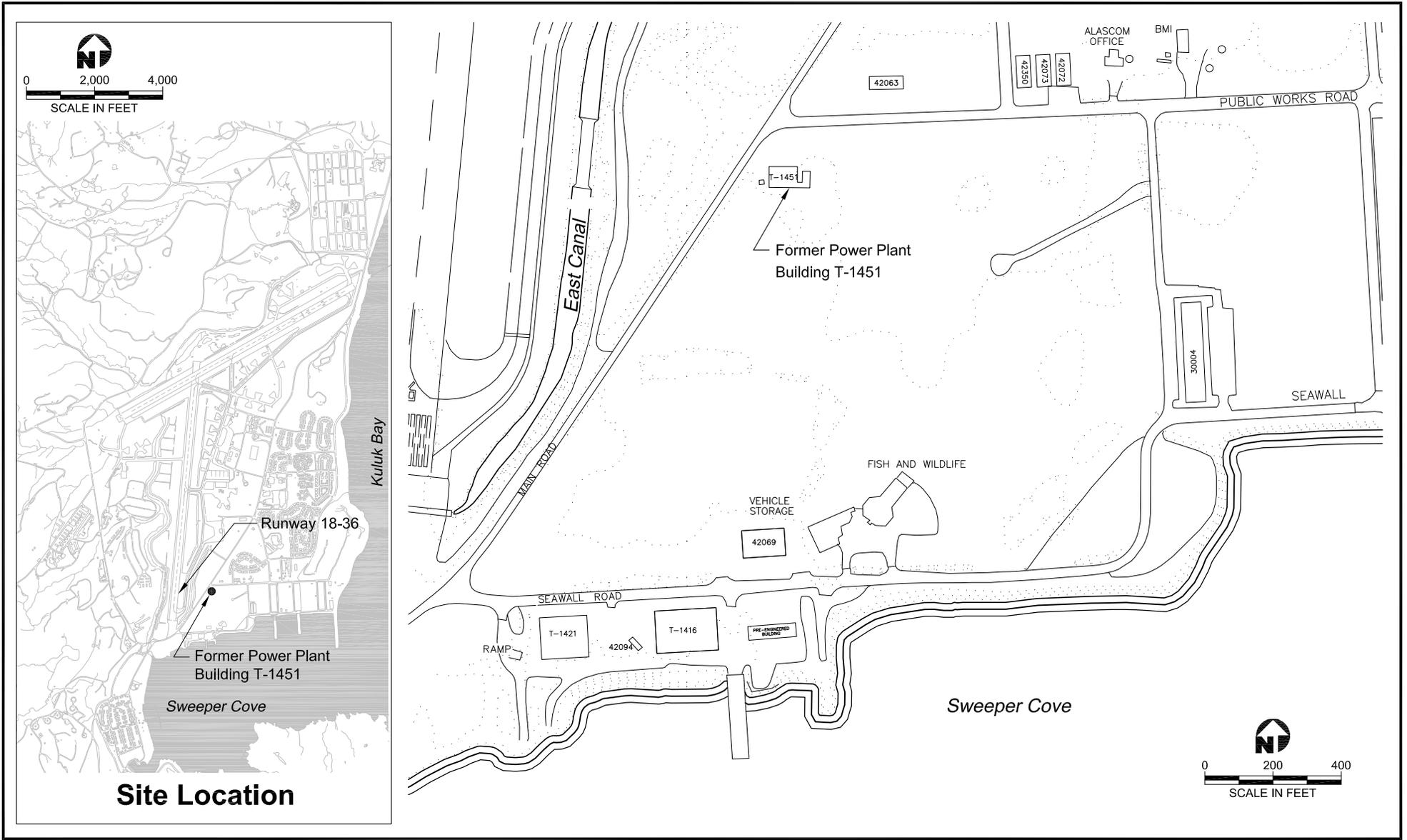
The objective of the additional characterization at Former Power Plant, Building T-1451 was to improve delineation of the extent of petroleum-impacted soils in support of the proposed focused soil excavation adjacent to East Canal. The intent of the proposed excavation is to remove the bulk portion of petroleum-impacted soil that is in proximity of the East Canal as an enhancement to the ROD-specified MNA remedy, creating a natural attenuation zone for groundwater.

7.2 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

7.2.1 Location and Setting

Former Power Plant, Building T-1451, is located on the corner of Main Road and Public Works Road (Figure 7-1). This building has also been referred to as Power House No. 4, Power Plant No. 4, or the main Ground Electronics Maintenance (GEM) building. The former power plant consisted of a power plant building, three fuel aboveground storage tanks (ASTs), a fuel pump shed, a water tank, and a septic tank (EMCON 1995). The existing building overlies much of the former location of the three ASTs. The site can be accessed directly from Main Road. Building T-1451 is bounded by Main Road to the west, Public Works Road to the north, and undeveloped land to the east and south. The Former Power Plant was included in the SAERA process because soil samples collected during the 1996/1997 investigation contained concentrations of petroleum hydrocarbons above ADEC Method 2 soil cleanup levels.

The Former Power Plant site consists of a level gravel lot at an elevation of approximately 20 feet above MLLW and an area dominated by native grasses, which slopes down to the west toward the East Canal. Overhead power lines run along the roadways to the north and west of the site. Underground utilities run along the roadways and in the area west of the GEM building (Building T-1451).



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SCALE: AS SHOWN

**Figure 7-1
Site Location and Vicinity
Former Power Plant, Building T-1451**

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East Canal, the closest surface water body, lies approximately 500 feet west of the Former Power Plant, Building T-1451 site. The manmade canal's shoreline is lined with grasses and other soft-stemmed plants.

7.2.2 Environmental History

Several investigations have been conducted at or near the Former Power Plant site. These investigations were conducted in 1992 (U.S. Navy 1994), 1993 (EMCON 1995), and 1996/1997.

Results of these investigations identified elevated DRO concentrations in soil and groundwater. The estimated extent of DRO in soil and groundwater is shown on Figures 7-2 and 7-3, respectively.

A corrective action was conducted in 1998. The objective of the corrective action was to cap petroleum-stained sediments along the eastern bank of East Airport Ditch while maintaining hydraulic continuity of the east airport drainage system. This area is approximately 500 feet due west of the Former Power Plant, Building T-1451. Work was initiated on August 11, 1998, and completed on August 29, 1998 (U.S. Navy 1998).

The OU A ROD for the former Adak Naval Complex identified MNA as the selected remedy for Former Power Plant, Building T-1451 site (U.S. Navy, ADEC, and USEPA 2000).

7.2.3 Geology and Hydrogeology

The geology and hydrogeology of the Former Power Plant area correspond to the profile for Downtown Soils developed in the Adak groundwater study (U.S. Navy 1995). The profile is described as sandy soils derived from stream deposition, with wind and wave action.

During World War II, this area was filled with sand from dune deposits along Kuluk Bay. The subsurface soils in this profile have variable permeability and generally consist of sands and gravels with varying portions of silt. Subsurface soil samples logged from the Building T-1451 area generally consisted of gray to brown silty sand and some gravel. The sand was fine to medium grained. The saturated soils have a high water-bearing capacity.

The depth to groundwater was measured in monitoring wells in the vicinity of Building T-1451 on numerous occasions. These data indicate that the groundwater flow is westerly, toward East Canal. The depth to groundwater varies from approximately 2 feet bgs near East Canal to approximately 16 to 18 feet bgs in the vicinity of existing Building T-1451. Groundwater is currently not a source for drinking water, and groundwater use restrictions have been implemented in the downtown area.

7.3 FIELD INVESTIGATION ACTIVITIES

Drilling soil borings and sampling soil at the site occurred from June 22 through July 7, 2010.

7.3.1 Soil Boring Completion

Fifteen locations were completed as soil borings (01-152 through 01-166) at the locations shown on Figure 7-4. At three locations, the soil boring had to be drilled again directly adjacent to the original borehole because of problems with heaving sands. These locations included locations 01-156 and 01-156A, 01-158 and 01-158A, and 01-165 and 01-165A. Because these boring pairs are so close, they are essentially at the same location and are counted as one location.

Soil borings were drilled using either 6- or 8-inch-diameter, hollow-stem auger equipment. All but three soil borings were completed to a depth of 20 feet bgs. The shallowest boring was completed at 7.5 feet bgs. The soil borings were drilled and subsequently abandoned following procedures described in Section 2.2. Boring logs for the Former Power Plant site are in Appendix G-1.

7.3.2 Soil Sampling

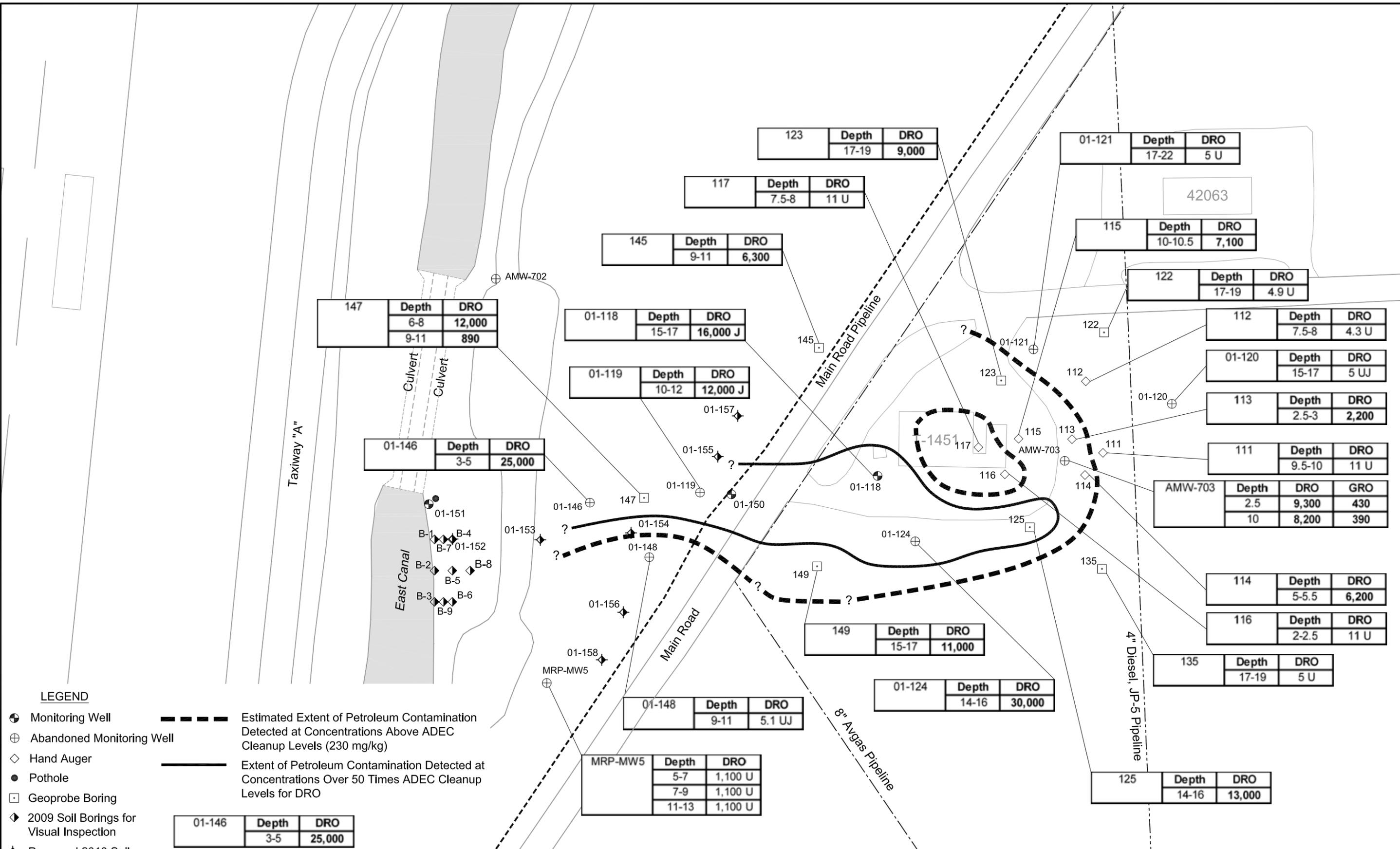
Table 7-1 summarizes the results of the soil screening for organic vapors using the PID. Soil samples were collected for soil screening from 15 locations (01-152 through 01-166) at 2.5-foot intervals, starting at a depth of 5 feet bgs. The readings ranged from 0 ppm in several sample intervals to 80 ppm in the sample collected at 10 feet bgs at 01-155. Results of the field screening, in addition to odor and visual observations of staining and sheen, were used to select samples for laboratory analysis.

Samples were collected for laboratory analysis from two intervals from all 15 locations (plus one duplicate from 01-154 and one duplicate from 01-159) as listed on Table 7-2. A total of 32 samples were submitted to the laboratory for DRO analysis by Alaska Method AK 102. The analytical results of the soil analyses are discussed in Section 7.4.

7.3.3 Deviations From the Project Plan

FCR No. 4 (Appendix G-2) was prepared because collection of additional soil data was necessary to fully delineate the impacted soil at the Former Power Plant site. During the field effort, the improved understanding of site conditions showed that the distribution of DRO in subsurface soil extends farther north than originally estimated using pre-2010 site data. Collection of additional soil data to the north would further refine the estimate of soil to be excavated and treated as part of the ongoing engineering evaluation/cost analysis (EE/CA) for

T:\ADAK\ID\Sub-Tasks\DO 5\SITE CHARACTER\FIG 7-2 DRO SOIL Fmr Pwr.dwg
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LEGEND

- ⊕ Monitoring Well
- ⊕ Abandoned Monitoring Well
- ◇ Hand Auger
- Pothole
- Geoprobe Boring
- ◆ 2009 Soil Borings for Visual Inspection
- ◆ Proposed 2010 Soil Boring Location

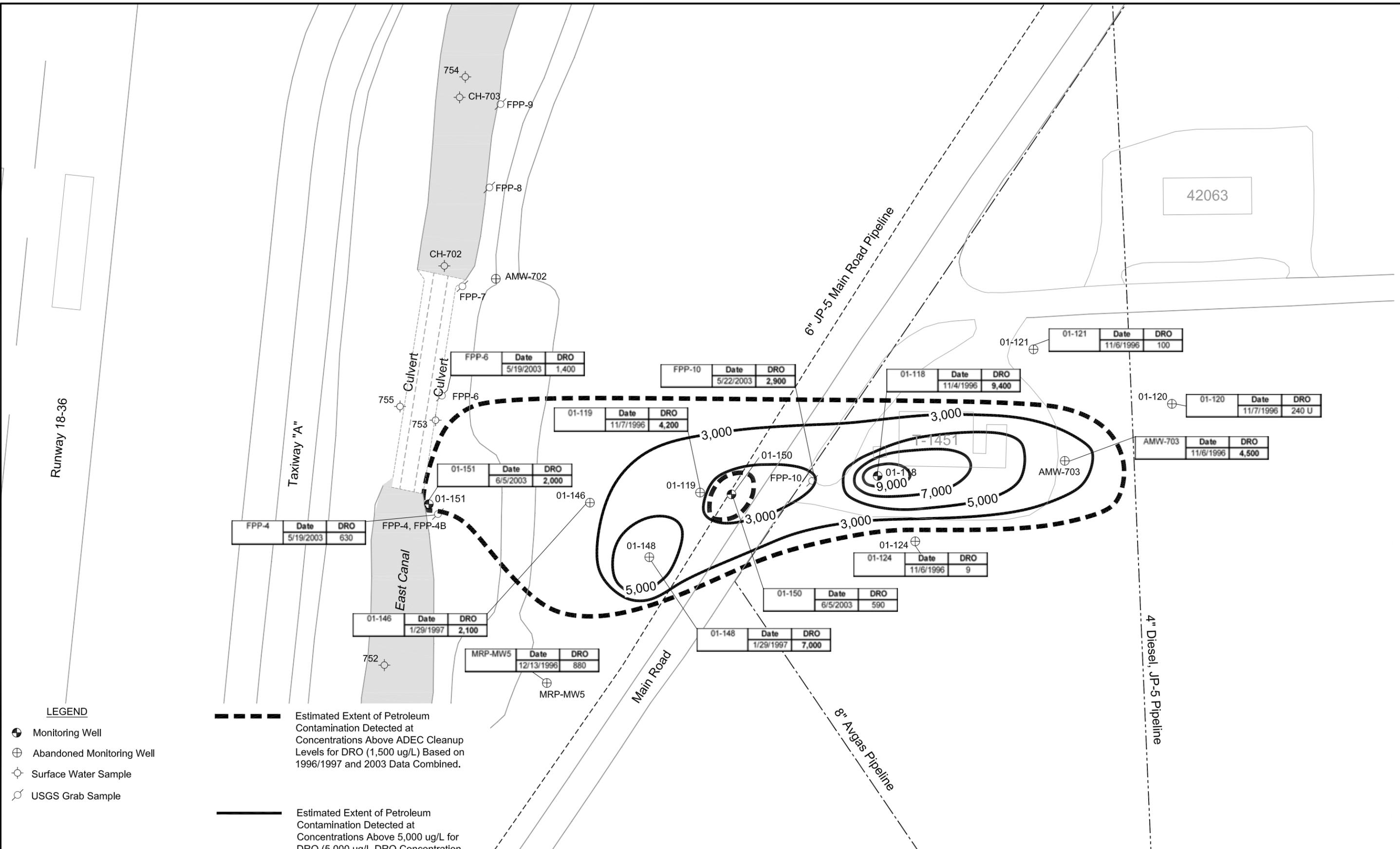
- - - - - Estimated Extent of Petroleum Contamination Detected at Concentrations Above ADEC Cleanup Levels (230 mg/kg)
 ————— Extent of Petroleum Contamination Detected at Concentrations Over 50 Times ADEC Cleanup Levels for DRO

| 01-146 | Depth | DRO |
|--------|-------|---------------|
| | 3-5 | 25,000 |

DRO in mg/kg
 Depth - Feet Below Ground Surface
 Bolded Value Greater Than Soil Cleanup Level of 230 mg/kg
 U - Not Detected Above Specified Reporting Limit
 J - Value Considered to be an Estimate

| | | | |
|-------------------------|--|----------------------|--|
| <p>U.S. NAVY</p> | <p>Delivery Order 0005 Adak Island, AK SITE CHARACTER. REPORT</p> | <p>SCALE IN FEET</p> | <p>Figure 7-2 Estimated Extent of DRO in Soil Prior to 2010 and Proposed Sampling Locations Former Power Plant, Building T-1451</p> |
|-------------------------|--|----------------------|--|

T:\ADAK\ID\Sub-Tasks\DO 5\SITE CHARACTER\FIG 7-3 Estim Hist DRO.dwg
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LEGEND

- ⊕ Monitoring Well
- ⊕ Abandoned Monitoring Well
- Surface Water Sample
- USGS Grab Sample

--- Estimated Extent of Petroleum Contamination Detected at Concentrations Above ADEC Cleanup Levels for DRO (1,500 ug/L) Based on 1996/1997 and 2003 Data Combined.

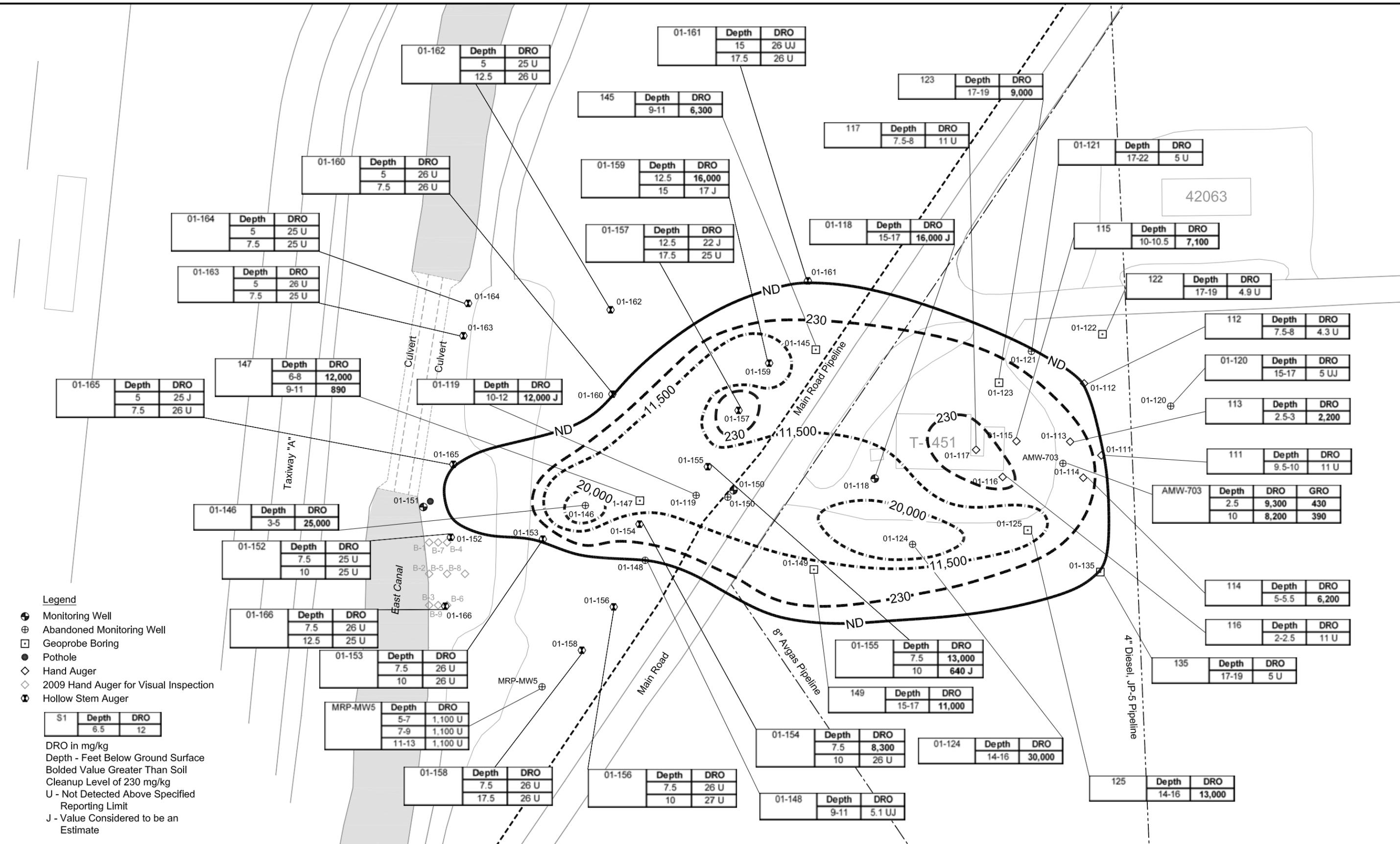
— Estimated Extent of Petroleum Contamination Detected at Concentrations Above 5,000 ug/L for DRO (5,000 ug/L DRO Concentration Contour)

| Well ID | Date | DRO |
|---------|-----------|-------|
| 01-148 | 1/29/1997 | 7,000 |

Results Reported in ug/L
 Bolded Value Greater Than Groundwater Cleanup Level of 1,500 ug/L
 U - Not Detected Above Specified Reporting Limit

| | | | |
|---------------------------------------|---|----------------------|--|
| <h1 style="margin: 0;">U.S. NAVY</h1> | Delivery Order 0005 Adak Island, AK SITE CHARACTER. REPORT | <p>SCALE IN FEET</p> | <p>Figure 7-3 Estimated Historical Extent of DRO in Groundwater (1996 and 2003 Data Combined) Former Power Plant, Building T-1451</p> |
|---------------------------------------|---|----------------------|--|

T:\ADAK\ID\Sub-Tasks\DO 5\SITE CHARACTER\FIG 7-4 Estim DRO.dwg
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Legend

- ⊕ Monitoring Well
- ⊗ Abandoned Monitoring Well
- Geoprobe Boring
- Pothole
- ◇ Hand Auger
- ◇ 2009 Hand Auger for Visual Inspection
- ⊗ Hollow Stem Auger

| S1 | Depth | DRO |
|----|-------|-----|
| | 6.5 | 12 |

DRO in mg/kg
 Depth - Feet Below Ground Surface
 Bolded Value Greater Than Soil
 Cleanup Level of 230 mg/kg
 U - Not Detected Above Specified
 Reporting Limit
 J - Value Considered to be an
 Estimate

- Estimated Extent of Petroleum Contamination Detected at Concentrations Above ADEC Cleanup Levels (230 mg/kg)
- - - Extent of Petroleum Contamination Detected at Concentrations Over 50 Times ADEC Cleanup Levels for DRO (11,500 mg/kg)

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SCALE IN FEET

Figure 7-4
Estimated Extent of DRO
in Soil After 2010 Sampling
Former Power Plant, Building T-1451

Table 7-1
Soil Screening Results From Soil Boring Locations at
Former Power Plant, Building T-1451

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|----------|------------------------------|----------------------|--------------------------------------|
| 01-152 | 5 | 0 | - |
| 01-152 | 7.5 | 0 | X |
| 01-152 | 10 | 0 | X |
| 01-152 | 12.5 | 0 | - |
| 01-152 | 15 | 0 | - |
| 01-152 | 17.5 | 0 | - |
| 01-152 | 20 | 0 | - |
| 01-152 | 5 | 0 | - |
| 01-153 | 7.5 | 0 | X |
| 01-153 | 10 | 0 | X |
| 01-153 | 12.5 | 0 | - |
| 01-153 | 15 | 0 | - |
| 01-153 | 17.5 | 0 | - |
| 01-154 | 5 | 0 | - |
| 01-154 | 7.5 | 11.7 | X |
| 01-154 | 10 | 0 | X |
| 01-154 | 12.5 | 0 | - |
| 01-154 | 15 | 0 | - |
| 01-154 | 17.5 | 0 | - |
| 01-154 | 20 | 0 | - |
| 01-155 | 5 | 0 | - |
| 01-155 | 7.5 | 20 | X |
| 01-155 | 10 | 80 | X |
| 01-155 | 12.5 | 0 | - |
| 01-155 | 15 | 0 | - |
| 01-155 | 17.5 | 0 | - |
| 01-156 | 5 | 0 | - |
| 01-156 | 7.5 | 0 | X |
| 01-156 | 10 | 0 | X |
| 01-156 | 12.5 | 0 | - |
| 01-156A | 7.5 | 0 | - |
| 01-156A | 10 | 0 | - |
| 01-156A | 15 | 0 | - |
| 01-156A | 17.5 | 0 | - |
| 01-156A | 20 | 0 | - |
| 01-157 | 5 | 0 | - |
| 01-157 | 7.5 | 0 | - |
| 01-157 | 10 | 0 | - |
| 01-157 | 12.5 | 25 | X |

Table 7-1 (Continued)
Soil Screening Results From Soil Boring Locations at
Former Power Plant, Building T-1451

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|----------|------------------------------|----------------------|--------------------------------------|
| 01-157 | 17.5 | 0 | X |
| 01-157 | 20 | 0 | - |
| 01-158 | 5 | 0.1 | - |
| 01-158 | 7.5 | 0 | X |
| 01-158 | 10 | 0 | - |
| 01-158A | 10 | 0 | - |
| 01-158A | 12.5 | 0 | - |
| 01-158A | 15 | 0 | - |
| 01-158A | 17.5 | 0 | X |
| 01-158A | 20 | 0 | - |
| 01-159 | 5 | 0 | - |
| 01-159 | 7.5 | 0 | - |
| 01-159 | 10 | 0 | - |
| 01-159 | 12.5 | 40 | X |
| 01-159 | 15 | 0 | X |
| 01-159 | 17.5 | 0 | - |
| 01-159 | 20 | 0 | - |
| 01-160 | 5 | 0 | X |
| 01-160 | 7.5 | 0 | X |
| 01-161 | 5 | 0 | - |
| 01-161 | 7.5 | 0 | - |
| 01-161 | 10 | 0 | - |
| 01-161 | 12.5 | 0 | - |
| 01-161 | 15 | 0 | X |
| 01-161 | 17.5 | 0 | X |
| 01-161 | 20 | 0 | - |
| 01-162 | 5 | 0 | X |
| 01-162 | 7.5 | 0 | - |
| 01-162 | 10 | 0 | - |
| 01-162 | 12.5 | 0 | X |
| 01-162 | 15 | 0 | - |
| 01-162 | 17.5 | 0 | - |
| 01-162 | 20 | 0 | - |
| 01-163 | 5 | 0 | X |
| 01-163 | 7.5 | 0 | X |
| 01-163 | 10 | 0 | - |
| 01-163 | 12.5 | 0 | - |
| 01-163 | 15 | 0 | - |

Table 7-1 (Continued)
Soil Screening Results From Soil Boring Locations at
Former Power Plant, Building T-1451

| Location | Depth Interval (feet bgs) | PID Reading (ppm) | Sample Collected for DRO Analysis |
|-----------------|--------------------------------------|------------------------------|--|
| 01-163 | 17.5 | 0 | - |
| 01-163 | 20 | 0 | - |
| 01-164 | 5 | 0 | X |
| 01-164 | 7.5 | 0 | X |
| 01-164 | 10 | 0 | - |
| 01-164 | 12.5 | 0 | - |
| 01-164 | 15 | 0 | - |
| 01-164 | 20 | 0 | - |
| 01-165 | 5 | 8.0 | X |
| 01-165 | 7.5 | 0 | X |
| 01-165 | 10 | 0 | - |
| 01-165 | 12.5 | 0 | - |
| 01-165A | 15 | 0 | - |
| 01-165A | 17.5 | 0 | - |
| 01-165A | 20 | 0 | - |
| 01-166 | 5 | 8.0 | - |
| 01-166 | 7.5 | 0 | X |
| 01-166 | 10 | 0 | - |
| 01-166 | 12.5 | 0 | X |
| 01-166 | 15 | 0 | - |
| 01-166 | 17.5 | 0 | - |
| 01-166 | 20 | 0 | - |

Notes:

bgs - below ground surface
 DRO - diesel-range organics
 PID - photoionization detector
 ppm - parts per million

Table 7-2
Soil Sample Collection Summary for
Former Power Plant, Building T-1451

| Location | Sample Identification | Depth (feet bgs) | DRO (Total Number of Samples) |
|-----------------|------------------------------|-------------------------|--|
| 01-152 | 01-152-7.5 | 7.5 | 1 |
| 01-152 | 01-152-10 | 10 | 1 |
| 01-153 | 01-153-7.5 | 7.5 | 1 |
| 01-153 | 01-153-10 | 10 | 1 |
| 01-154 | 01-154-7.5 | 7.5 | 1 |
| 01-154 | T-1451D | 7.5 | 1 |
| 01-154 | 01-154-10 | 10 | 1 |
| 01-155 | 01-155-7.5 | 7.5 | 1 |
| 01-155 | 01-155-10 | 10 | 1 |
| 01-156 | 01-156A-7.5 | 7.5 | 1 |
| 01-156 | 01-156A-10 | 10 | 1 |
| 01-157 | 01-157-12.5 | 12.5 | 1 |
| 01-157 | 01-157-17.5 | 17.5 | 1 |
| 01-158 | 01-158-7.5 | 7.5 | 1 |
| 01-158 | 01-158A-17.5 | 17.5 | 1 |
| 01-159 | 01-159-12.5 | 12.5 | 1 |
| 01-159 | 01-159-15 | 15 | 1 |
| 01-159 | 01-159D | 15 | 1 |
| 01-160 | 01-160-5 | 5 | 1 |
| 01-160 | 01-160-7.5 | 7.5 | 1 |
| 01-161 | 01-161-15 | 15 | 1 |
| 01-161 | 01-161-17.5 | 17.5 | 1 |
| 01-162 | 01-162-5 | 5 | 1 |
| 01-162 | 01-162-12.5 | 12.5 | 1 |
| 01-163 | 01-163-5 | 5 | 1 |
| 01-163 | 01-163-7.5 | 7.5 | 1 |
| 01-164 | 01-164-5 | 5 | 1 |
| 01-164 | 01-164-7.5 | 7.5 | 1 |
| 01-165 | 01-165-5 | 5 | 1 |
| 01-165 | 01-165-7.5 | 7.5 | 1 |
| 01-166 | 01-166-7.5 | 7.5 | 1 |
| 01-166 | 01-166-12.5 | 12.5 | 1 |

Notes:
 bgs - below ground surface
 DRO - diesel-range organics

this site. The seven soil borings planned for Pipeline Site A-06 were reallocated to this site. Six of these borings were positioned to further refine the estimated extent to the north. The seventh boring was positioned to assess DRO concentrations in soil in the southwestern portion of the site. FRC No. 4 was completed on July 2, 2010 and approved by the Navy on July 2, 2010.

7.4 RESULTS OF SITE CHARACTERIZATION ACTIVITIES

This section presents the results of chemical analyses conducted on soil samples collected at Former Power Plant during the 2010 field season. DRO analyses were conducted on 32 soil samples collected from 15 locations at the site (Table 7-3). Results of the soil analyses are evaluated against ADEC cleanup levels that were presented in the SAP. Analytical results from the laboratory reports (Forms 1) are in Appendix C.

**Table 7-3
 Summary of Analytical Results for DRO in 2010 Soil Samples at
 Former Power Plant, Building T-1451**

| Location | Sample Identification | Depth (feet bgs) | DRO (mg/kg) |
|----------|-----------------------|------------------|---------------|
| 01-152 | 01-152-7.5 | 7.5 | 25 U |
| 01-152 | 01-152-10 | 10 | 25 U |
| 01-153 | 01-153-7.5 | 7.5 | 26 U |
| 01-153 | 01-153-10 | 10 | 26 U |
| 01-154 | 01-154-7.5 | 7.5 | 8,300 |
| 01-154 | T-1451D | 7.5 | 9,300 |
| 01-154 | 01-154-10 | 10 | 26 U |
| 01-155 | 01-155-7.5 | 7.5 | 13,000 |
| 01-155 | 01-155-10 | 10 | 640 J |
| 01-156 | 01-156A-7.5 | 7.5 | 26 U |
| 01-156 | 01-156A-10 | 10 | 27 U |
| 01-157 | 01-157-12.5 | 12.5 | 22 J |
| 01-157 | 01-157-17.5 | 17.5 | 25 U |
| 01-158 | 01-158-7.5 | 7.5 | 26 U |
| 01-158 | 01-158A-17.5 | 17.5 | 26 U |
| 01-159 | 01-159-12.5 | 12.5 | 16,000 |
| 01-159 | 01-159-15 | 15 | 17 J |
| 01-159 | 01-159D | 15 | 26 U |
| 01-160 | 01-160-5 | 5 | 26 U |
| 01-160 | 01-160-7.5 | 7.5 | 26 U |
| 01-161 | 01-161-15 | 15 | 26 UJ |
| 01-161 | 01-161-17.5 | 17.5 | 26 U |

Table 7-3 (Continued)
Summary of Analytical Results for DRO in 2010 Soil Samples at
Former Power Plant, Building T-1451

| Location | Sample Identification | Depth (feet bgs) | DRO (mg/kg) |
|--------------------|-----------------------|------------------|-------------|
| 01-162 | 01-162-5 | 5 | 25 U |
| 01-162 | 01-162-12.5 | 12.5 | 26 U |
| 01-163 | 01-163-5 | 5 | 26 U |
| 01-163 | 01-163-7.5 | 7.5 | 25 U |
| 01-164 | 01-164-5 | 5 | 25 U |
| 01-164 | 01-164-7.5 | 7.5 | 25 U |
| 01-165 | 01-165-5 | 5 | 25 J |
| 01-165 | 01-165-7.5 | 7.5 | 26 U |
| 01-166 | 01-166-7.5 | 7.5 | 26 U |
| 01-166 | 01-166-12.5 | 12.5 | 25 U |
| ADEC Cleanup Level | | | 230 |

Notes:

- Bolded** values exceed ADEC cleanup level.
- ADEC - Alaska Department of Environmental Conservation
- bgs - below ground surface
- DRO - diesel-range organics
- J - estimated concentration
- mg/kg - milligram per kilogram
- U - not detected above the value given

DRO was not detected at the reporting limit in 24 of the 32 samples as indicated by the “U” qualifier in the samples collected in 2010. DRO was detected in 8 of the 32 samples. Detected concentrations ranged from an estimated 17 mg/kg to 16,000 mg/kg. Concentrations detected in the eight samples were collected from five locations as shown on Figure 7-4 and in Table 7-3.

DRO concentrations exceed the ADEC cleanup level of 230 mg/kg in three samples from three locations (01-154, 01-155, and 01-159). Exceedances were present in 2010 soil samples collected from locations 01-154 at 7.5 feet bgs, 01-155 at 7.5 and 10 feet bgs, and 01-159 at 12.5 feet bgs.

Concentrations of DRO reported in soil samples collected from Former Power Plant during 2010 are summarized in Table 7-3. Historical and 2010 analytical data were used to identify the lateral extent of DRO concentrations, as shown on Figure 7-4. On the west side of Main Road, the farthest west extent of soil containing DRO above the ADEC cleanup level is within approximately 110 feet east of East Canal, directly east of well 01-151. The farthest northern extent of soil containing DRO above the ADEC cleanup level on the west side of Main Road is between locations 01-161 and 01-145. The farthest southern extent of soil containing DRO

above the ADEC cleanup level on the west side of Main Road is between locations 01-154 and 01-148.

Historical and 2010 analytical data were used to identify the vertical extent of DRO concentrations as shown in two cross sections. The orientations of the cross sections are shown on Figure 7-5. Cross section A-A' (Figure 7-6) profiles the extent of the impacted soil on the west side of and parallel to Main Road. Cross section B-B' (Figure 7-7) profiles the extent of impacted soil between East Canal and location 01-118 from west to east. Both cross sections show the reported DRO concentrations for individual sampling intervals.

7.5 PROJECT QUALITY OBJECTIVES ASSESSMENT

This section evaluates how the project quality objectives in the SAP Worksheet #11 (U.S. Navy 2010a) were satisfied. The project quality objectives were identified as seven steps in the SAP and are italicized here. The evaluation of how each step was addressed is provided immediately following each step.

Step 1: State the problem. *This step identifies the issue to be addressed. The overall problem statement is as follows:*

The extent of DRO soil impacts at the site is not fully characterized, and the estimated volume of soil to be excavated to enhance the remedy is not fully constrained.

How Step 1 was addressed: This step was addressed in the SAP as part of the SAP preparation.

Step 2: Identify the decision. *Do the data adequately characterize site conditions? If yes, continue with revising estimate of excavation volume. If no, what additional steps are required to address the problem?*

How Step 2 was addressed: Yes, the data adequately characterize the extent of the soil that contains DRO in excess of ADEC cleanup levels. The estimate of excavation is included in the EE/CA (U.S. Navy 2010b).

Step 3: Identify the inputs to the decision. *Soil samples will be collected as shown on Figure 14 [of the SAP] for DRO analysis. Soil sample results will be compared to soil cleanup levels from ADEC Tables B1 and B2 and Technical Memorandums 01-002 (January 2001), 06-003 (August 2006), and 01-007 (November 2003).*

How Step 3 was addressed: Soil samples were collected from the proposed locations on Figure 14 of the SAP and analyzed for DRO. In addition, several soil borings were drilled to collect analytical data to determine the extent of DRO in soil. This deviation from the SAP is explained in Section 7.3.3. Analytical results of soil samples collected from the site were compared to the ADEC cleanup levels identified in the SAP.

***Step 4: Define the site boundaries.** Soil samples will be collected from seven boring locations. Preliminary sampling locations are shown on Figure 14 [of the SAP]. These locations may need to be adjusted based on field conditions to meet the sampling objectives.*

How Step 4 was addressed: Samples were collected from 15 boring locations, which is more than the planned amount. This deviation from the SAP was approved as FCR No. 4 and is explained in Section 7.3.3.

***Step 5: Develop a decision rule.** If the resultant data bound the extent of soil impacts at the site, characterization is complete. If the data do not bound the lateral extent of impacts in soil, are additional data required? If so, reallocate scope from Area A-06.*

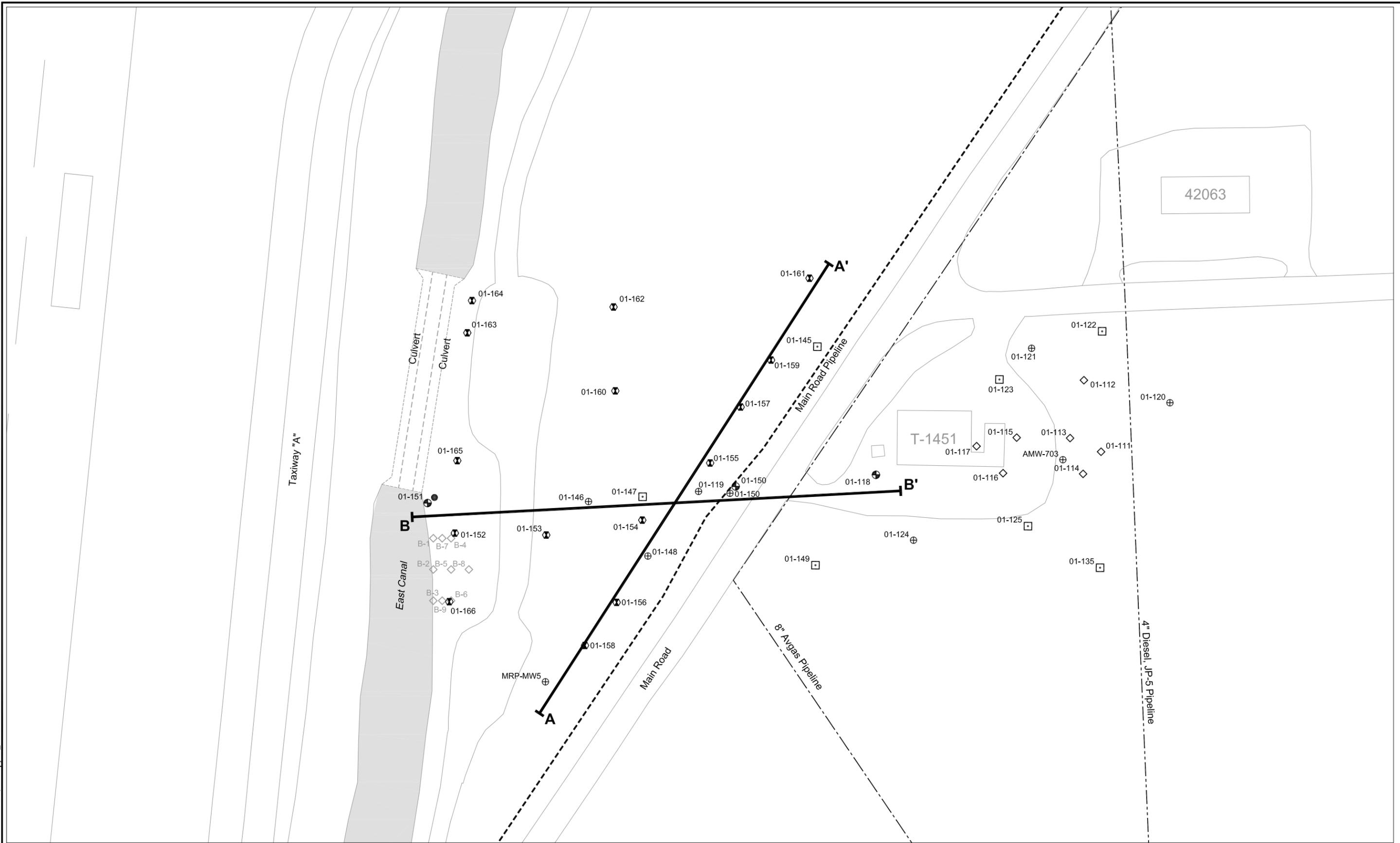
How Step 5 was addressed: After gathering initial data from the site, additional data were required to bound the lateral extent of impacted soil. Soil borings planned for Pipeline Site A-06 were reallocated to Former Power Plant, as explained in Section 7.3.3.

***Step 6: Specify limits on decision errors.** Reporting limits for analytical results must be at least one-half of the ARARs identified in Step 3 or within the parameters of the specified laboratory methods specified on Worksheet #15 [of the SAP]. Quality control requirements for specified analytical methods must be met to ensure data of known quality are produced by the analytical laboratory. Analytical performance criteria are specified on Worksheet #12 [of the SAP]. All data will be verified for completeness and subjected to full, independent validation.*

How Step 6 was addressed: Analytical reporting limits for DRO in soil were less than half of the cleanup levels for soil (230 mg/kg). The analytical performance criteria were met (see data usability assessment in Section 3). All data were subjected to full, independent validation (see the data validation report in Appendix B).

***Step 7: Optimize the sampling design.** The data will be collected during a single sampling event beginning in June 2010. Soil borings will be completed at locations shown on Figure 14 [of the SAP]. Collection of GPS sampling coordinates will be performed for all locations to enhance data reproducibility. One soil field duplicate sample will be collected from one of the seven locations to assess field collection methods.*

T:\ADAK\ID\Sub-Tasks\DO 5\SITE CHARACTER\FIG 7-5 Xsec Locs Fmr Pwr.dwg
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Legend

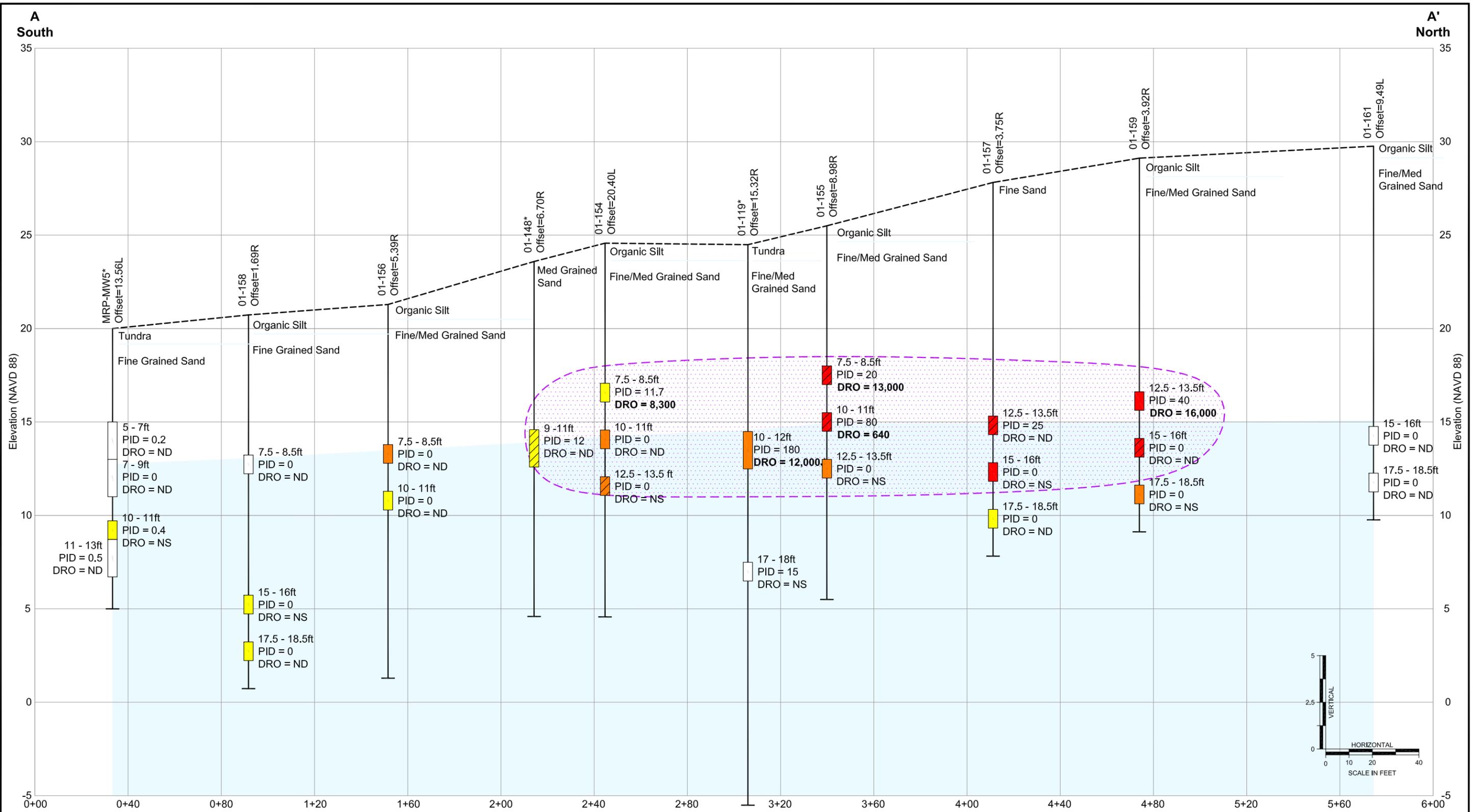
- | | |
|-----------------------------|---|
| ⊕ Monitoring Well | ◇ Hand Auger |
| ⊕ Abandoned Monitoring Well | ◇ 2009 Hand Auger for Visual Inspection |
| □ Geoprobe Boring | ⊗ Hollow Stem Auger |
| ● Pothole | |

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Figure 7-5
Lines of Cross Sections A-A' and B-B'
Former Power Plant, Building T-1451

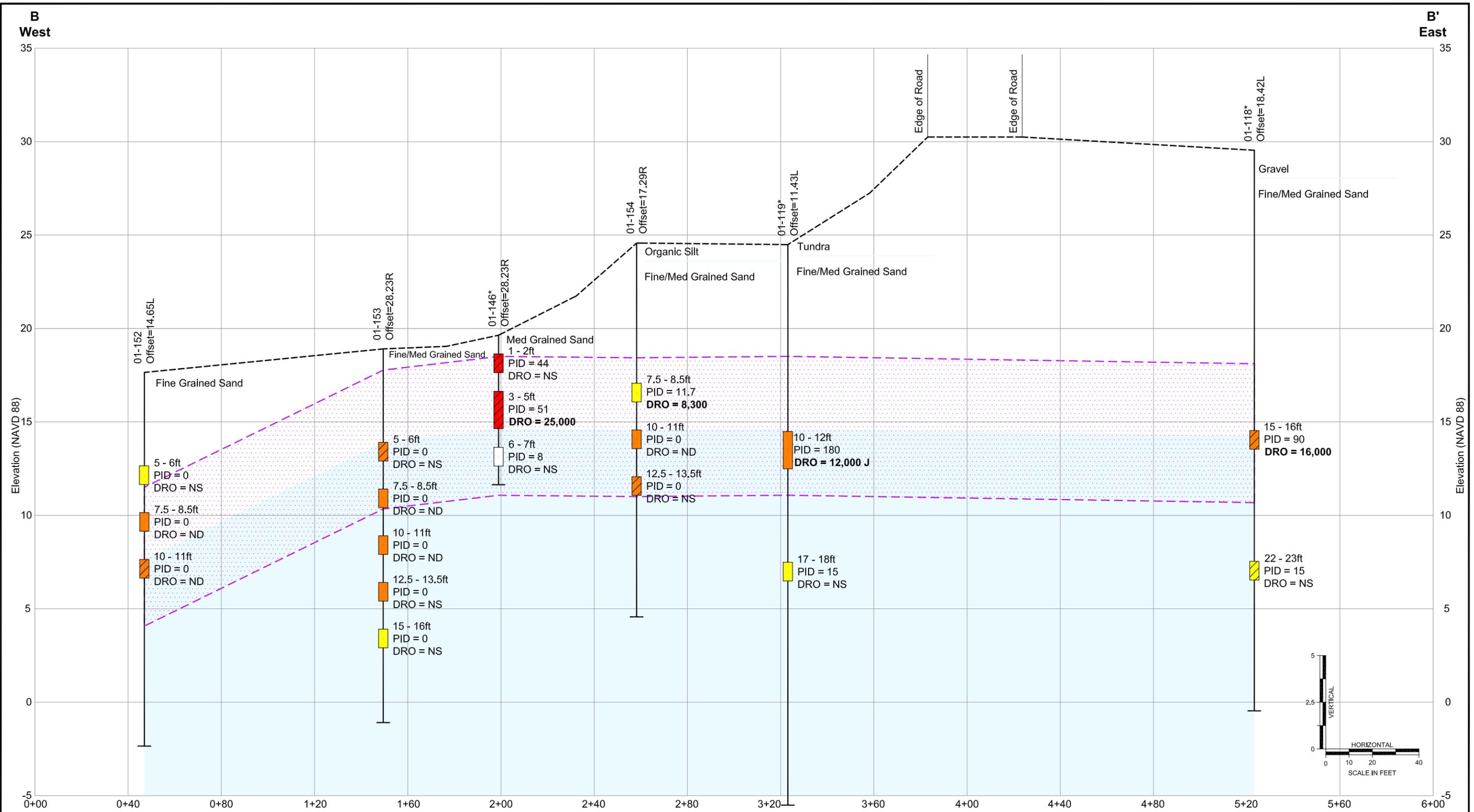


T:\ADAK\ID\Sub-Tasks\DO 5\SITE CHARACTER\Fig 7-6 (Section A).dwg
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| | | | |
|--|--|---|---|
| Legend Approximate Groundwater Level Based on Observed Moisture in Soil Borings Conceptual Location of Apparent DRO Impacted Zone Observed Sheen | | Observed Odor None Light Moderate Strong | Soil Data 10 - 11ft Sample Depth in Feet bgs PID = 0 Photoionization Detector Reading in ppm DRO = 640 Diesel Concentration in mg/kg ND Not Detected NS Not Sampled NA Not Analyzed Bold value denotes greater than soil cleanup level of 230 mg/kg. |
|--|--|---|---|

*Historical Boring Elevations Are Approximate

| | | |
|--|---|--|
| | Delivery Order 0005 Adak Island, AK SITE CHARACTER. REPORT | Figure 7-6 Section A-A' Former Power Plant, Building T-1451 |
|--|---|--|



T:\ADAK\ID\Sub-Tasks\DO 5\SITE CHARACTER\Fig 7.7 (Section B).dwg
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| Legend | | Observed Odor | Soil Data |
|--------|--|---------------|---|
| | Approximate Groundwater Level Based on Observed Moisture in Soil Borings | | 10 - 11ft Sample Depth in Feet bgs |
| | Conceptual Location of Apparent DRO Impacted Zone | | PID = 0 Photolionization Detector Reading in ppm |
| | Observed Sheen | | DRO = 640 Diesel Concentration in mg/kg |
| | | | ND Not Detected |
| | | | NS Not Sampled |
| | | | NA Not Analyzed |
| | | | Bold value denotes greater than soil cleanup level of 230 mg/kg. |

*Historical Boring Elevations Are Approximate

| | | |
|---------------------------------------|---|---|
| <h1 style="margin: 0;">U.S. NAVY</h1> | Delivery Order 0005 Adak Island, AK SITE CHARACTER. REPORT | <h2 style="margin: 0;">Figure 7-7 Section B-B' Former Power Plant, Building T-1451</h2> |
|---------------------------------------|---|---|

How Step 7 was addressed: Field work for the site was completed in 2010. Changes in the planned field work were required to address actual site conditions, as explained under Step 4. Coordinates of the soil borings were surveyed to document exact locations. Two field duplicate soil samples were collected and analyzed.

7.6 SUMMARY AND CONCLUSION

Results of the additional characterization at Former Power Plant, Building T-1451 improved the delineation of the horizontal and vertical extent of petroleum-impacted soils in support of the proposed focused soil excavation adjacent to East Canal.

Fifteen soil borings were completed at the site. Additional soil borings were installed at the site to delineate the extent of impacted soil as explained in Section 7.3.3. DRO concentrations exceeded the ADEC cleanup level of 230 mg/kg in three of the samples collected from three separate locations during the 2010 field season. The remainder of the samples helped define the boundary of the impacted soil.

The analytical results from the 2010 sampling effort were used in combination with existing analytical data to estimate the horizontal and vertical extent of impacted soil. Calculated volumes of impacted soil can be found in the EE/CA (U.S. Navy 2010b) for this site.

8.0 SWMU 61, TANK FARM B

This section describes the purpose, site description, environmental history, 2010 field activities, and results of the site characterization activities at SWMU 61, Tank Farm B. A project quality objectives assessment and summary and conclusion are provided at the end of this section.

8.1 PURPOSE

The objective of the additional characterization at SWMU 61, Tank Farm B was to improve delineation of the lateral extent of petroleum-impacted soils to support a remedy reevaluation in the EE/CA.

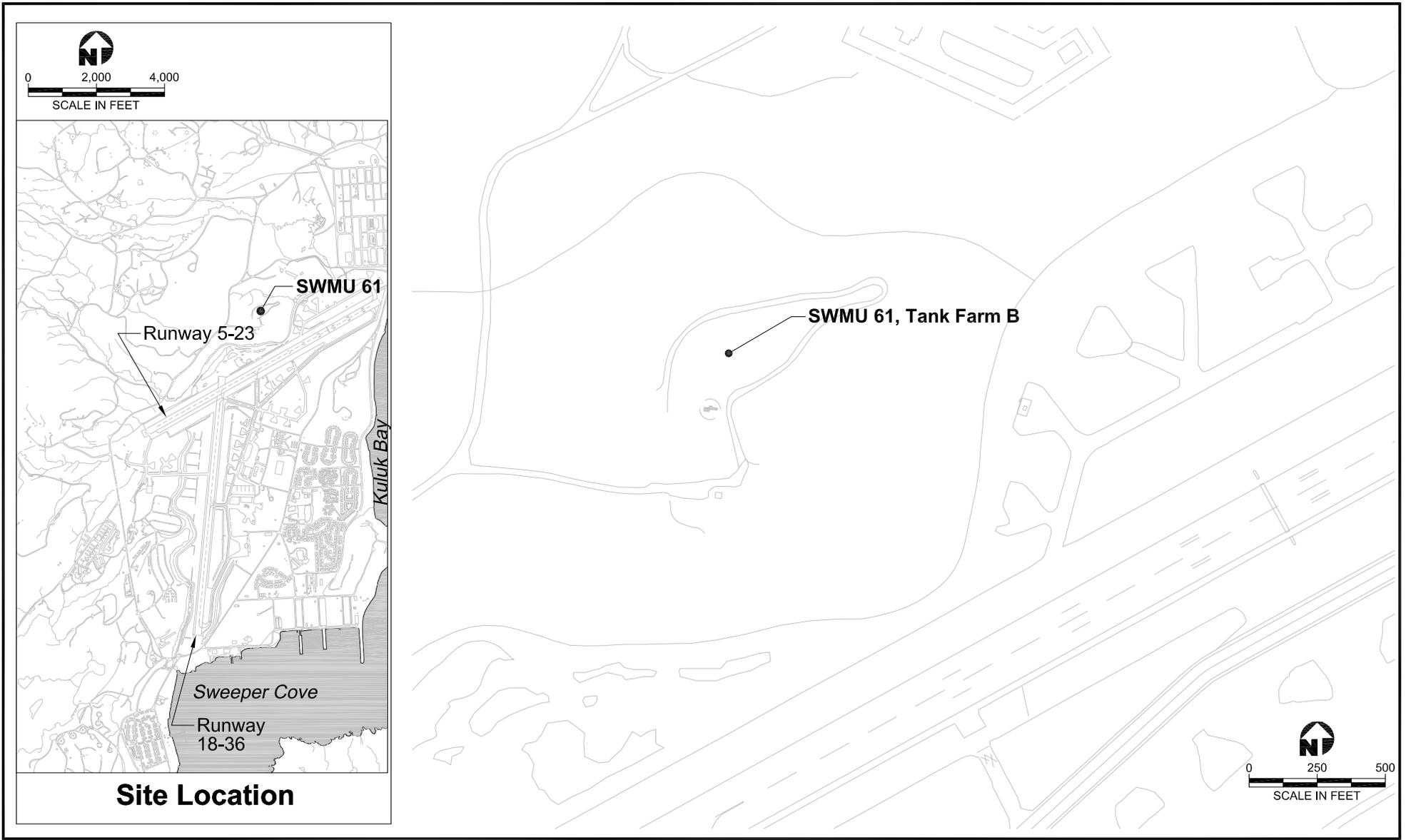
8.2 SITE DESCRIPTION AND ENVIRONMENTAL HISTORY

8.2.1 Location and Setting

Tank Farm B is a former bulk-fuel storage facility located in the upland area next to and north of Runway 5-23 (Figure 8-1). It occupies an area of approximately 40 acres on top of a hill with steeply sloped margins. The site is currently undeveloped and can be accessed from Hillside Boulevard by dirt roads. No electrical power is currently available on the site or in the site vicinity. Tank Farm B is bounded by vacant and undeveloped land to the north and west. North Sweeper Creek is located at the base of a steep hill at the southern and eastern margins of the tank farm. Runway 5-23 and some associated aircraft hardstands are located east and south of the tank farm across North Sweeper Creek.

The hilltop site is situated between 60 and 100 feet above MLLW. The topography within the tank farm and to the west is characterized as uneven upland terrain. Topography at the northern, eastern, and southern margins of Tank Farm B consists of steep slopes where ground surface elevation decreases to less than 10 feet above MLLW. These lowland areas contain North Sweeper Creek, an unnamed creek, and their associated wetland areas (U.S. Navy 1999).

The ground surface at the hilltop portion of the site was reported to consist mainly of unvegetated gravel with a few patches of grass and other soft-stemmed plants typical of the Adak tundra (U.S. Navy 1999). With time, it is expected that the tundra will become reestablished across the site, provided the site remains undeveloped. Nearby streams and marshes/wetlands supply good wildlife habitat.



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**Figure 8-1
Site Location and Vicinity
SWMU 61, Tank Farm B**

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8.2.2 Environmental History

Numerous investigations were performed at Tank Farm B and the surrounding areas together with ongoing compliance monitoring. These investigations and results of groundwater monitoring are summarized in the petroleum summary report (U.S. Navy 2008). More detailed information on previous investigations and groundwater monitoring results can be found in Tetra Tech 1989, Century West 1989, EMCON 1995, U.S. Navy 1999, 2007, and 2009, and Sealaska Environmental 2010.

The estimated extent of soil containing petroleum-related chemicals at concentrations greater than the ADEC Method 2 soil cleanup levels prior to 2010 sampling is shown on Figure 8-2. Samples used to delineate impacted soil on the east side of Tank Farm B near North Sweeper Creek were collected in 1992 and 1999.

The OU A ROD for the former Adak Naval Complex identified MNA as the selected remedy for SWMU 61, Tank Farm B (U.S. Navy, ADEC, and USEPA 2000).

Monitoring at a surface water protection point indicates that groundwater containing GRO, TAH, and TAqH has the potential for future impacts to the adjacent North Sweeper Creek. Surface water samples collected from North Sweeper Creek, adjacent to the site, do not currently contain petroleum constituents at concentrations above cleanup levels. Sediment samples collected from North Sweeper Creek, adjacent to the site, do currently contain petroleum constituents at concentrations above cleanup levels at select locations. An EE/CA was completed in December 2010 (U.S. Navy 2010c).

8.2.3 Geology and Hydrogeology

The geology and hydrogeology at Tank Farm B correspond to either the profile for Tephra Over Glacial Till or the profile for Tephra Over Bedrock, both of which were developed in the Adak groundwater study (U.S. Navy 1995). Because bedrock is exposed at the southern margin of the site and glacial till was encountered at depth in a soil boring drilled at the northern margin of Tank Farm B, both profiles are applicable within the 40-acre tank farm. The Tephra Over Bedrock profile consists of about 8 feet of tephra (volcanic ash) directly overlying low-permeability bedrock. The Tephra Over Glacial Till profile can be described as 8 feet or less of tephra overlying low-permeability glacial till.

Tephra is a relatively impermeable deposit of material formed by aerial expulsion from a volcanic vent. It is a dark brown, clayey silt with little to trace amounts of fine sand. The glacial till is described as unsorted, massive, matrix-supported cobble and boulder gravel. The matrix consists of silt, clay, and fine sand. The underlying bedrock on Adak Island is predominantly

volcanic with relatively minor amounts of marine sandstone, conglomerate, and shale (Coats 1956).

In sloped areas, at the margins of Tank Farm B, precipitation flows on top of the tephra, either as surface water runoff or as shallow throughflow in the vegetative mat above the tephra zone. In flat areas or areas where the tephra is incised by a stream, or in areas where human activities (related to USTs, FCTs, and buried pipelines) have removed the tephra, percolation through the tephra may occur. This water can then migrate downslope along buried erosional surfaces on the underlying till or bedrock. Because there is limited potential groundwater yield from the tephra or underlying till and bedrock, the hydrogeologic profile at the site can be generally characterized as having low to medium water-bearing capacity. For these reasons, groundwater at Tank Farm B is unsuitable as a domestic water source (U.S. Navy 1995).

The depth to groundwater was measured in monitoring wells in the vicinity of Tank Farm B on numerous occasions. Depth to groundwater varied from approximately 2 to 20 feet bgs. The groundwater flow direction ranges from north/northwest to east, toward the unnamed creek and North Sweeper Creek.

8.3 FIELD INVESTIGATION ACTIVITIES

Soil samples were collected from soil borings on July 12 and 13, 2010.

8.3.1 Soil Boring Completion

Seven locations were completed as soil borings (14-704 through 14-710) at the locations shown on Figure 8-3 as planned. Soil borings were hand-augered with a 2.5-inch-diameter auger. Total depths of the soil borings ranged from 3 to 7.5 feet bgs. Rock (possibly bedrock) was encountered in all but one boring. After sampling, the soil borings were abandoned following procedures described in Section 2.2. Boring logs for the Tank Farm B site are in Appendix H.

8.3.2 Soil Sampling

Table 8-1 summarizes the results of the soil screening for organic vapors using the PID. Fourteen soil samples were collected for soil screening from seven locations at depths ranging from 0.5 to 6 feet bgs. The readings ranged from 0 ppm in several sampling intervals to 9,450 ppm in the sample collected at 2 feet bgs at 14-708. Results of the field screening, in addition to odor and visual observations of staining and sheen, were used to select samples for laboratory analysis.

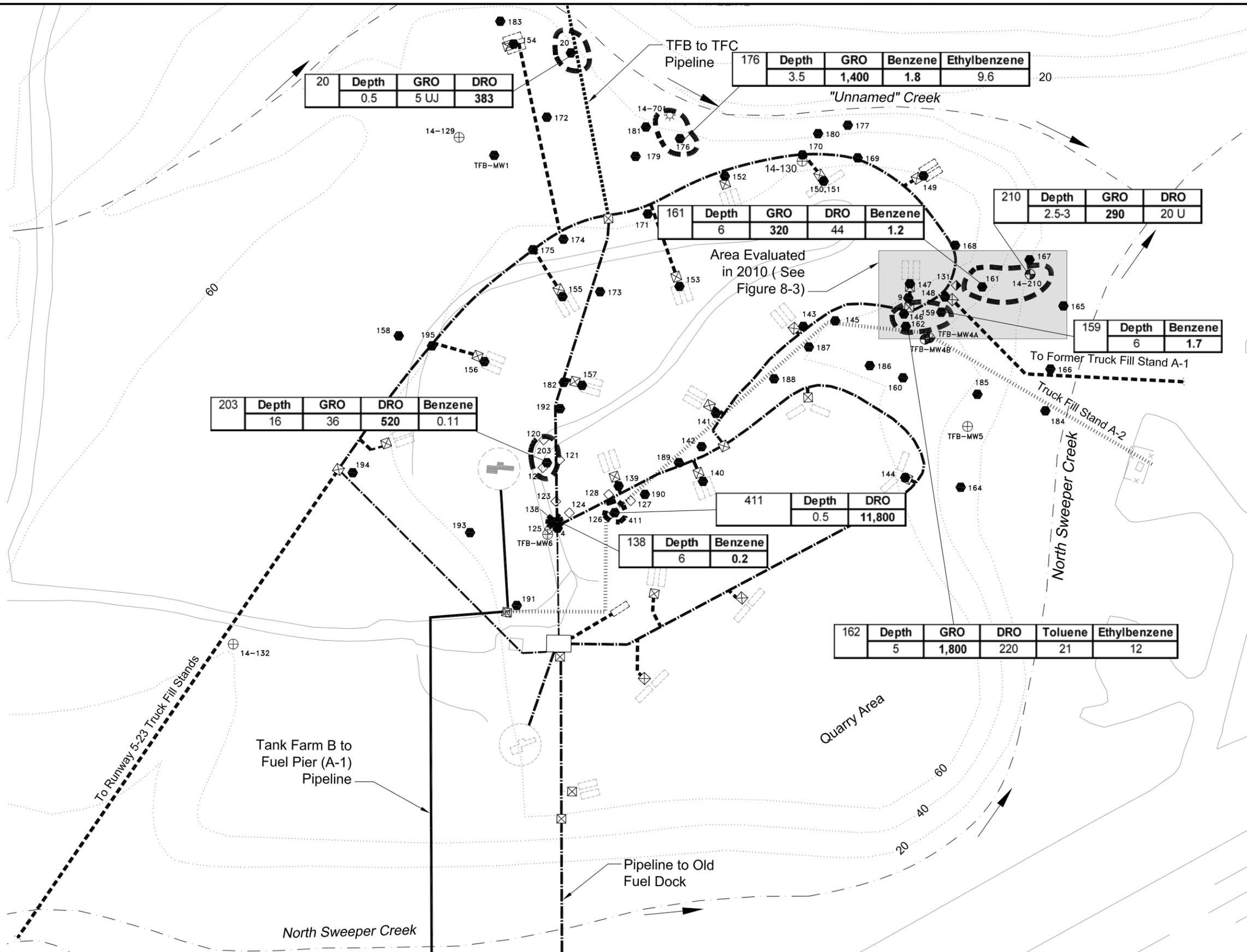
LEGEND:

- 25 Elevation Contour (ft Above MLLW)
- Road
- 4"Ø Avgas Pipeline (Abandoned)
- 6"Ø Avgas Pipeline (Abandoned)
- 8"Ø Avgas Pipeline (Abandoned)
- 10"Ø Mogas Pipeline (Abandoned)
- 6"Ø JP-5 Pipeline (Inactive)
- Valve Pit
- Removed UST
- Removed FCT/Building
- Inactive FCT/Building
- Surface Water Flow Direction
- Monitoring Well
- Abandoned Monitoring Well
- Soil Sample
- Hand Auger
- Sediment Sample
- Creek Centerline
- Estimated Extent of Petroleum Contamination Detected at Concentrations Above ADEC Cleanup Levels

Note: GRO, DRO, or benzene concentrations shown are for locations that exceed ADEC Cleanup Levels. Where no concentration is shown, that location has concentrations below cleanup levels, or concentrations were not detected at the reporting limit.

| | | |
|-----|-------|---------------|
| 411 | Depth | DRO |
| | 0.5 | 11,800 |

Results Reported in mg/kg
 Bolded Value Greater Than Soil Cleanup Level
 U - Not Detected Above Specified Reporting Limit
 J - Value Considered to be an Estimate



| | | | |
|----|-------|------|-----|
| 20 | Depth | GRO | DRO |
| | 0.5 | 5 UJ | 383 |

| | | | | |
|-----|-------|-------|---------|--------------|
| 176 | Depth | GRO | Benzene | Ethylbenzene |
| | 3.5 | 1,400 | 1.8 | 9.6 |

| | | | | |
|-----|-------|-----|-----|---------|
| 161 | Depth | GRO | DRO | Benzene |
| | 6 | 320 | 44 | 1.2 |

| | | | |
|-----|-------|-----|------|
| 210 | Depth | GRO | DRO |
| | 2.5-3 | 290 | 20 U |

| | | |
|-----|-------|---------|
| 159 | Depth | Benzene |
| | 6 | 1.7 |

| | | | | |
|-----|-------|-----|-----|---------|
| 203 | Depth | GRO | DRO | Benzene |
| | 16 | 36 | 520 | 0.11 |

| | | |
|-----|-------|---------------|
| 411 | Depth | DRO |
| | 0.5 | 11,800 |

| | | |
|-----|-------|---------|
| 138 | Depth | Benzene |
| | 6 | 0.2 |

| | | | | | |
|-----|-------|-------|-----|---------|--------------|
| 162 | Depth | GRO | DRO | Toluene | Ethylbenzene |
| | 5 | 1,800 | 220 | 21 | 12 |

U.S. NAVY

DO 0005
 Adak Island, AK
 SITE CHARACTER.
 REPORT

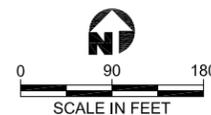


Figure 8-2
Estimated Extent of Petroleum-Related Chemicals in Soil Prior to 2010
SWMU 61, Tank Farm B

Table 8-1
Soil Screening Results From Soil Boring Locations at SWMU 61, Tank Farm B

| Location | Depth Interval (feet bgs) ^a | PID Reading (ppm) | Sample Collected for GRO Analysis |
|----------|---|----------------------|--------------------------------------|
| 14-704 | 0.5 | 0.5 | - |
| 14-704 | 1 | 3.2 | X |
| 14-704 | 1.5 | 0 | - |
| 14-704 | 2 | 8.3 | X |
| 14-704 | 2.5 | 0 | - |
| 14-704 | 3 | 0 | - |
| 14-705 | 0.5 | 2.4 | - |
| 14-705 | 1 | 107 | X |
| 14-705 | 1.5 | 30.6 | - |
| 14-705 | 2 | 61.7 | - |
| 14-705 | 2.5 | 56.8 | - |
| 14-705 | 4.5 | 137 | X |
| 14-706 | 0.5 | 23.9 | - |
| 14-706 | 1 | 31.7 | X |
| 14-706 | 1.5 | 35.9 | X |
| 14-706 | 3 | 20.8 | - |
| 14-706 | 4.5 | 22.8 | - |
| 14-706 | 6 | 16.0 | - |
| 14-706 | 7.5 | 12.0 | - |
| 14-707 | 1 | 226 | - |
| 14-707 | 1.5 | 2,370 | - |
| 14-707 | 2.5 | 3,783 | X |
| 14-707 | 3 | 64.5 | - |
| 14-707 | 4 | 7.1 | - |
| 14-707 | 4.5 | 3.7 | - |
| 14-707 | 5 | 0.0 | - |
| 14-707 | 5.5 | 0.0 | - |
| 14-707 | 6 | 0.0 | - |
| 14-707 | 6.5 | 0.0 | - |
| 14-707 | 7 | 2,455 | X |
| 14-708 | 1 | 6,870 | X |
| 14-708 | 2 | 9,450 | X |
| 14-708 | | 5,670 | - |
| 14-709 | 0.5 | 7.2 | X |
| 14-709 | 1 | 7.6 | X |
| 14-709 | 1.5 | 1.3 | - |
| 14-709 | 3.5 | 4.8 | - |
| 14-709 | 5 | 0.7 | - |
| 14-709 | 6 | 3.5 | - |
| 14-710 | 0.5 | 0 | - |

Table 8-1 (Continued)
Soil Screening Results From Soil Boring Locations at SWMU 61, Tank Farm B

| Location | Depth Interval (feet bgs) ^a | PID Reading (ppm) | Sample Collected for GRO Analysis |
|----------|--|-------------------|-----------------------------------|
| 14-710 | 1 | 0 | - |
| 14-710 | 1.5 | 44 | - |
| 14-710 | 2 | 0 | - |
| 14-710 | 2.5 | 444 | X |
| 14-710 | 3 | 6.1 | - |
| 14-710 | 3.5 | 1.9 | - |
| 14-710 | 4 | 110 | X |

^aValue given is the bottom of the sampled interval.

Notes:

bgs - below ground surface
 GRO - gasoline-range organics
 PID - photoionization detector
 ppm - parts per million

Samples were collected for laboratory analysis from two intervals from all seven locations (plus one duplicate from 14-704 at 2 feet bgs) as listed in Table 8-2. A total of 15 samples were submitted to the laboratory for GRO analysis by Alaska Method AK 101. The analytical results of the soil analyses are discussed in Section 8.4.

Table 8-2
Soil Sample Collection Summary for SWMU 61, Tank Farm B

| Location | Sample Identification | Depth (feet bgs) | GRO (Total Number of Samples) |
|----------|-----------------------|------------------|-------------------------------|
| 14-704 | 14-704-1 | 1 | 1 |
| 14-704 | 14-704-2 | 2 | 1 |
| 14-704 | 14-704D | 2 | 1 |
| 14-705 | 14-705-1 | 1 | 1 |
| 14-705 | 14-705-4.5 | 4.5 | 1 |
| 14-706 | 14-706-1 | 1 | 1 |
| 14-706 | 14-706-1.5 | 1.5 | 1 |
| 14-707 | 14-707-3 | 2.5 | 1 |
| 14-707 | 14-707-6 | 7 | 1 |
| 14-708 | 14-708-1 | 1 | 1 |
| 14-708 | 14-708-2 | 2 | 1 |
| 14-709 | 14-709-0.5 | 0.5 | 1 |

**Table 8-2 (Continued)
Soil Sample Collection Summary for
SWMU 61, Tank Farm B**

| Location | Sample Identification | Depth (feet bgs) | GRO (Total Number of Samples) |
|-----------------|------------------------------|-------------------------|--------------------------------------|
| 14-709 | 14-709-1 | 1 | 1 |
| 14-710 | 14-710-2.5 | 2.5 | 1 |
| 14-710 | 14-710-4 | 4 | 1 |

Notes:

bgs - below ground surface

DRO - diesel-range organics

8.3.3 Deviations from Project Plan

The SAP planned for soil borings to be drilled to 20 feet bgs using the drilling rig and for sampling at 2.5-foot intervals. Because the drilling rig could not access the sampling locations, a hand auger was used for sampling. Hand-augering depth was limited to the depth where rock was encountered, or to the maximum depth possible using the hand auger (approximately 7 to 7.5 feet bgs).

8.4 RESULTS OF SITE CHARACTERIZATION ACTIVITIES

This section presents the results of GRO analyses conducted on the soil samples collected from seven soil borings at Tank Farm B during the 2010 field season. Concentrations of GRO reported in soil samples collected from Tank Farm B during 2010 are summarized in Table 8-3. Results of the soil analyses are evaluated against ADEC cleanup levels that were presented in the SAP. Analytical results from the laboratory reports (Forms 1) are in Appendix C.

The 2010 analytical data were used to identify the lateral extent of GRO concentrations as shown on Figure 8-3. GRO was not detected in 7 of the 14 samples. Detected GRO concentrations ranged from an estimated 3.1 mg/kg to an estimated 590 mg/kg. GRO concentrations in one sample exceeded the ADEC cleanup level of 260 mg/kg. The exceedance was present in sample 14-705-1, which was collected from a depth of 1 foot bgs. The sample collected from the 4.5-foot interval at the same location contained 92 mg/kg of GRO, which is less than the applicable ADEC soil cleanup level.

Table 8-3
Summary of Analytical Results for GRO in 2010 Soil Samples for
SWMU 61, Tank Farm B

| Location ID | Sample Identification | Depth (feet bgs) | GRO (mg/kg) |
|--------------------|------------------------------|-------------------------|--------------------|
| 14-704 | 14-704-1 | 1 | 11 U |
| 14-704 | 14-704-2 | 2 | 4 U |
| 14-704 | 14-704D | 2 | 9.5 U |
| 14-705 | 14-705-1 | 1 | 590 |
| 14-705 | 14-705-4.5 | 4.5 | 92 |
| 14-706 | 14-706-1 | 1 | 4.6 U |
| 14-706 | 14-706-1.5 | 1.5 | 4.5 U |
| 14-707 | 14-707-3 | 2.5 | 5.6 U |
| 14-707 | 14-707-6 | 7 | 140 |
| 14-708 | 14-708-1 | 1 | 110 J |
| 14-708 | 14-708-2 | 2 | 110 J |
| 14-709 | 14-709-0.5 | 0.5 | 3.1 J |
| 14-709 | 14-709-1 | 1 | 55 |
| 14-710 | 14-710-2.5 | 2.5 | 6.5 U |
| 14-710 | 14-710-4 | 4 | 8.8 U |
| ADEC Cleanup Level | | | 260 |

Notes:

- Bolded** values exceed ADEC cleanup level.
- ADEC - Alaska Department of Environmental Conservation
- bgs - below ground surface
- GRO - gasoline-range organics
- J - estimated concentration
- mg/kg - milligram per kilogram
- U - not detected above the value given

The 2010 sampling results (Figure 8-3) collected from the same general area of impacted soils on the east side of Tank Farm B (Figure 8-2), based on sampling conducted in 1992 and 1999, show that GRO concentrations decreased to below ADEC cleanup levels in the same area with the exception of location 14-705. Figure 8-3 shows the results of the sampling prior to 2010 and the results of the 2010 sampling within the eastern portion of Tank Farm B. The estimated area of soil exceeding ADEC cleanup levels has decreased as noted when comparing the inferred extent of impacted soil from before and after the 2010 sampling event. The decrease in concentrations is evidence that natural attenuation is occurring at the site.

8.5 PROJECT QUALITY OBJECTIVES ASSESSMENT

This section evaluates how the project quality objectives in the SAP Worksheet #11 (U.S. Navy 2010a) were satisfied. The project quality objectives were identified as seven steps in the SAP and are italicized here. The evaluation of how each step was addressed is provided immediately following each step.

Step 1: State the problem. *This step identifies the issue to be addressed. The overall problem statement is as follows:*

The extent of GRO soil impact at the site is not fully characterized, and the estimated volume of soil to be excavated for source removal is not fully constrained.

How Step 1 was addressed: This step was addressed in the SAP as part of the SAP preparation.

Step 2: Identify the decision. *Do the data adequately characterize site conditions? If yes, continue with revising estimate of excavation volume. If no, what additional steps are required to address the problem? If additional action is required, what action is appropriate?*

How Step 2 was addressed: Yes, the data adequately characterize the extent of the soil that contains GRO in excess of ADEC cleanup levels. The estimate of excavation volume is included in the EE/CA.

Step 3: Identify the inputs to the decision. *Soil samples will be collected as shown on Figure 18 [of the SAP] for GRO analysis. Soil sample results will be compared to soil cleanup levels from ADEC Tables B1 and B2 and Technical Memorandums 01-002 (January 2001), 06-003 (August 2006), and 01-007 (November 2003).*

How Step 3 was addressed: Soil samples were collected from the proposed locations as shown on Figure 18 of the SAP and analyzed for GRO. Analytical results of soil samples collected from the site were compared to the ADEC cleanup levels identified in the SAP (Table 8-3).

Step 4: Define the site boundaries. *Soil samples will be collected from seven locations. Preliminary sampling locations are shown on Figure 18 [of the SAP]. These locations may need to be adjusted based on field conditions to meet the sampling objectives.*

How Step 4 was addressed: Soil samples were collected from the proposed locations as shown on Figure 18 of the SAP and analyzed for GRO.

Step 5: Develop a decision rule. *If the resultant data bound the extent of soil impacts at the site, characterization is complete. If the data do not bound the lateral extent of impacts in soil, are additional data required? If so, reallocate scope from Area A-06.*

How Step 5 was addressed: The analytical data from samples collected from the soil borings bound the lateral extent of impacts in soil.

Step 6: Specify limits on decision errors. *Reporting limits for analytical results must be at least one-half of the ARARs identified in Step 3 or within the parameters of the specified laboratory methods specified on Worksheet #15 [of the SAP]. Quality control requirements for specified analytical methods must be met to ensure data of known quality are produced by the analytical laboratory. Analytical performance criteria are specified on Worksheet #12. All data will be verified for completeness and subjected to full, independent validation.*

How Step 6 was addressed: Analytical reporting limits for GRO in soil were less than half of the cleanup levels for soil (260 mg/kg). The analytical performance criteria were met (see data usability assessment in Section 3). All data were subjected to full, independent validation (see the data validation report in Appendix B).

Step 7: Optimize the sampling design. *The data will be collected during a single sampling event beginning in June 2010. Soil borings will be completed at locations shown on Figure 18 [of the SAP]. Collection of GPS sampling coordinates will be performed for all locations to enhance data reproducibility. One soil field duplicate sample will be collected from one of the seven locations to assess field collection methods.*

How Step 7 was addressed: Field work for the site was completed in 2010. Soil borings were completed at locations as shown on Figure 18 of the SAP. Coordinates of the soil borings were surveyed to document exact locations. One field duplicate soil sample was collected and analyzed.

8.6 SUMMARY AND CONCLUSION

The results of the additional characterization at SWMU 61, Tank Farm B improved delineation of the lateral extent of petroleum-impacted soils. The 2010 analytical results indicated that GRO concentrations have decreased in the area that was previously delineated as the area of impacted soil. Only one of the 14 sampled intervals from 7 locations exceeded the ADEC cleanup level for GRO.

8.7 RECOMMENDATION

Because an exceedance of the ADEC cleanup level for GRO remains, MNA should continue. The monitoring program should be continued with surface water sampling for DRO, GRO, TAH, and TAqH and sediment sampling for DRO, GRO, and BTEX annually at locations NL-04 and NL-D-04 until sediment concentrations decrease. Additionally, silica gel cleanup should be performed on the sediment samples prior to analysis.

9.0 REFERENCES

- Century West Engineering. 1989. *Report of Findings, Assessment of Petroleum Spill at Naval Air Station (NAS) Adak, Alaska*. April 1989.
- Coats, R. 1956. *Geology of Northern Adak Island, Alaska*. U.S. Geological Survey Bulletin 1028-C. U.S. Government Printing Office. Washington, D.C.
- EMCON Northwest, Inc. 1995. *Tank Farm A Release Investigation Report, Naval Air Station, Adak, Alaska*. EMCON Northwest, Inc. Bothell, Washington. April 1995.
- Environmental Science and Engineering, Inc. (ESE). 1986. *Initial Assessment Study of Naval Air Station, Naval Security Group Activity, and Naval Facility, Adak, Alaska*. April 1986.
- GeoEngineers. 2003. *Draft Closure Report, Cleaning and Closure of Fuel Pipelines, Adak Island, Alaska*. Prepared for Engineering Field Activity Northwest under U.S. Navy EMAC Contract No. N68711-02-D-8306. Bothell, Washington. August 2003.
- Soil Conservation Service (SCS). 1990. *Natural Resources Management Plan, Naval Complex Adak, Alaska*. Prepared by the U.S. Department of Agriculture Soil Conservation Service in cooperation with Western Division Naval Facilities Engineering Command, Natural Resources Management Branch. Code 243. San Bruno, California.
- Sealaska Environmental. 2010. *Final Technical Memorandum, Evaluation of Additional Sampling and Investigation at SWMU 61 Tank Farm B and East Canal, 2009 Long-Term Monitoring, Former Naval Facility, Task Order 02, Adak, Alaska*. Prepared for Naval Facilities Engineering Command Northwest under Contract No. N44255-09-D-4005. January 2010.
- Tetra Tech, Inc. 1989. *Site Inspection Report, Naval Air Station Adak, Adak Island, Alaska*. May 1989.
- U.S. Navy 2010a. *Draft Final Project-Specific Sampling and Analysis Plan, Additional Petroleum Characterization at Antenna Field, SA 79, SWMU 60, Former Power Plant, SWMU 61, and Pipeline Location A-06, Former Adak Naval Complex, Adak, Alaska*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest under Contract No. N44255-09-D-4001, Delivery Order 0005. Silverdale, Washington. June 2010.

- . 2010b. *Final Engineering Evaluation/Cost Analysis, Former Power Plant, Building T-451, Former Adak Naval Complex, Adak Island, Alaska*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest under Contract No. N44255-09-D-5100, Delivery Order 0051. Silverdale, Washington. April 2010.
- . 2010c. *Final Engineering Evaluation/Cost Analysis, SWMU 61, Tank Farm B, Former Adak Naval Complex, Adak Island, Alaska*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest under Contract No. N44255-09-D-5100, Delivery Order 0051. Silverdale, Washington. December 2010.
- . 2010d. *Final Comprehensive Monitoring Plan, Revision 4, Operable Unit A, Former Adak Naval Complex, Adak Island Alaska*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest under Contract No. N44255-09-D-4001, Delivery Order 0003. Silverdale, Washington. August 2010.
- . 2009. *Final Annual Groundwater Monitoring Report, September 2008, Operable Unit A, Former Naval Complex, Adak, Alaska*. Prepared by SES-Tech for Naval Facilities Engineering Command Northwest under Contract No. N44255-05-D-5101, Task Order 51. Silverdale, Washington. August 2009.
- . 2008. *Final Petroleum Summary Report, Antenna Field, SA 79, Former Power Plant, SWMU 60, and SWMU 61*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest, under Contract No. N44255-05-D-5100, Delivery Order 0034. Silverdale, Washington. January 2008.
- . 2007. *Final Comprehensive Monitoring Plan, Revision 3, Operable Unit A, Former Adak Naval Complex, Adak, Alaska*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest under Contract No. N44255-05-D-5100, Delivery Order 0021. Silverdale, Washington. May 2007.
- . 2006. *Final Well Installation, Repair, and Abandonment Report*. Prepared by URS Group, Inc., for Naval Facilities Engineering Command Northwest under Contract No. N44255-05-D-5100, Delivery Order 0011. Silverdale, Washington. January 2011.
- . 2000. *Completion Report, Decommission Monitoring Wells, Naval Air Facility, Adak, Adak Island, Alaska*. Prepared by Bristol Environmental and Engineering Services Corporation for Engineering Field Activity, Northwest under Contact No. N44255-98-D-9951, Delivery Order 0031. September 2000.

———. 1998. *Monitoring Well Decommissioning Report, Naval Facility Adak, Adak Island, Alaska*. Prepared by Bristol Environmental and Engineering Services Corporation for Engineering Field Activity, Northwest under Contract N44255-98-D-9951, Delivery Order 0006. November 1998.

———. 1999. *Final Site Summary Report for Petroleum Sites Exceeding Supplemental Screening Criteria, Adak Naval Complex, Adak Island, Alaska*. Prepared by URS Greiner, Inc., for Engineering Field Activity, Northwest, under CLEAN Contract No. N62474-89-D-9295. Poulsbo, Washington. March 1999.

U.S. Navy, Alaska Department of Environmental Conservation (ADEC), and U.S. Environmental Protection Agency (USEPA). 2000. *Draft Final Record of Decision for Operable Unit A, Former Adak Naval Complex, Adak Island, Alaska*. Prepared by URS Greiner, Inc., for Engineering Field Activity, Northwest, under CLEAN Contract No. N62474-89-D-9295. Poulsbo, Washington. Accepted as final April 2000.

———. 1998. *Final Closure Report, Petroleum Aesthetic Corrective Report, East Airport Ditch, NSGA Heating Plant #6, South Runway Area, Naval Facility Adak, Adak, Alaska*. Prepared by Bristol Environmental Services Corporation for Engineering Field Activity Northwest, under Contract No. N44255-98-D-9951, Delivery Order No. 0004. Poulsbo, Washington. October 1998.

———. 1995. *Final Groundwater Study Report, Naval Air Facility (NAF) Adak, Adak Island, Alaska*. Prepared by URS Group, Inc., for Engineering Field Activity, Northwest, under CLEAN Contract No. N62474-89-D-9295. Poulsbo, Washington. March 1995.

———. 1994. *Final Release Investigation Report: Tank Farm B, Tank Farm D, Main Road Pipeline, and Steam Plant 4 USTs, Naval Air Station Adak, Adak Island, Alaska*. Prepared by URS Group, Inc., for Engineering Field Activity, Northwest, under CLEAN Contract No. N62474-89-D-9295. Poulsbo, Washington. February 1994.

APPENDIX A

Survey Report and Data

Survey Control Statement

Adak Island, Petroleum Additional Site Characterization

Survey work was performed between 7/19/2010 and 7/22/2010. Crew members were Tony Hoffman, Alaska Registered Land Surveyor No. 9020 and Steve Burress, Survey Assistant. Weather was rainy and cool, averaging 50°F.

Antennae Site:

Basis of Horizontal and Vertical Control are NGS Opus GPS occupations on set 12" spikes, utilized as control points ANT 01 and ANT 02. GPS occupations exceeding 2 hours were conducted on 7/19/2010 and 7/20/2010. The data was processed utilizing NGS (National Geodetic Survey) software, and coordinates and elevations were established based on those adjustments. Elevations on the Monitor Wells at the site were established utilizing convention differential survey methods from that control. Horizontal positions for all the features in this site were established from the control with conventional survey procedures.

Tank Farm "A", "B", The Former Power Plant and SA79:

The Basis of Horizontal and Vertical Control for these sites were two recorded Record of Surveys, "State of Alaska, Department of Transportation & Public Facilities, Survey Control Diagram, Record of Survey" performed by Lounsbury and Associates in 2006, recorded as Plat 2006-14, and "Federal Aviation Administration, Record of Survey of Adak Airport" performed by LCMF Incorporated in 1996, recorded as Plat 96-30. The control was found to be in good condition. Using Leica 1200 series RTK GPS survey gear, A GPS RTK network was established using this published control, and the following residuals were determined after surveying through those monuments:

N: 0.04' E: 0.01' Elev: 0.06'

Using the established GPS network, RTK survey methods were used to survey all the horizontal locations in these areas, as well as the vertical values for the soil borings. Elevations for the Monitor Wells in these areas were established utilizing convention differential survey methods, based on Tidal Benchmark No. 18.

All coordinates are expressed in feet, and are Alaska State Plane Zone 10, NAD83 adjustment. Elevations are expressed in feet.

Control Used for this Survey (established or record):

"Bunker Alpha" Found Bass Cap Monument per Plat 2006-14

Lat: 51°53'14.78135"N

Long: 176°38'35.57968"W

N: 324626.93' E: 3135544.08'

Elev: 88.79' (Plat 2006-14)



Survey Control Statement

Adak Island, Petroleum Additional Site Characterization

“Bedrock 1” Found Bass Cap Monument per Plat 2006-14

Lat: 51°52'40.63145"N

Long: 176°38'30.78310"W

N: 321161.60 E: 3135814.11

Elev: 77.04' (Plat 2006-14)

“Tidal Benchmark No.18” Found Bass Cap Monument per Plat 2006-14

Lat: 51°51'41.09356"N

Long: 176°58'28.09107"W

N: 315123.23' E: 3135929.22

Elev: 32.17'(Plat 2006-14)

Control Point “ANT01” Set 12” Spike at Antennae Site

Lat: 51° 54' 46.8306"N

Long: 176° 35' 53.2756"W

N: 333872.39' E: 3145805.13'

Elev: 241.33' (NAVD88)

Control Point “ANT02” Set 12” Spike at Antennae Site

Lat: 51° 54' 45.5827"N

Long: 176° 35' 54.1325"W

N: 333746.31' E: 3145750.34'

Elev: 233.10' (NAVD88)



Control Point "ANT01" Located
at Antennae Site



Tidal Benchmark 18



Survey Data for Additional Site Characterization for Petroleum Sites
July 2010

| Site | URS Location ID | Location Type | Ground Elevation (ft, NAV88) | Top of PVC Casing Elevation (ft, NAV88) | Ground Elevation (ft, NOAA MLLW) | Top of PVC Casing Elevation (ft, NOAA MLLW) | Grid Easting | Grid Northing | Longitude | Latitude | Survey Point Number |
|--------------------------------------|-----------------|---------------|------------------------------|---|----------------------------------|---|--------------|--------------------|--------------------|-------------------|---------------------|
| SWMU 61, Tank Farm B | 14-706 | soil boring | 39.59 | NA | 26.44 | NA | 3136391.34 | 324865.74 | W176° 38' 22.1108" | N51° 53' 17.2110" | 100 |
| | 14-705 | soil boring | 40.11 | NA | 26.96 | NA | 3136369.26 | 324909.68 | W176° 38' 22.4689" | N51° 53' 17.6424" | 101 |
| | 14-709 | soil boring | 46.28 | NA | 33.13 | NA | 3136295.51 | 324889.26 | W176° 38' 23.6414" | N51° 53' 17.4345" | 102 |
| | 14-710 | soil boring | 68.09 | NA | 54.94 | NA | 3136261.94 | 324914.43 | W176° 38' 24.1800" | N51° 53' 17.6798" | 103 |
| | 14-704 | soil boring | 70.85 | NA | 57.70 | NA | 3136340.01 | 324977.27 | W176° 38' 22.9447" | N51° 53' 18.3063" | 104 |
| | 14-707 | soil boring | 34.11 | NA | 20.96 | NA | 3136420.13 | 324965.29 | W176° 38' 21.6661" | N51° 53' 18.1952" | 105 |
| | 14-708 | soil boring | 20.68 | NA | 7.53 | NA | 3136481.31 | 324970.37 | W176° 38' 20.6918" | N51° 53' 18.2507" | 106 |
| Former Power Plant, Building T-1451 | 01-166 | soil boring | 18.43 | NA | 5.28 | NA | 3134308.97 | 316360.98 | W176° 38' 54.0754" | N51° 51' 53.1564" | 200 |
| | 01-164 | soil boring | 18.48 | NA | 5.33 | NA | 3134303.71 | 316324.85 | W176° 38' 54.1540" | N51° 51' 52.7996" | 201 |
| | 01-165 | soil boring | 18.13 | NA | 4.98 | NA | 3134292.47 | 316181.54 | W176° 38' 54.3125" | N51° 51' 51.3854" | 202 |
| | 01-152 | soil boring | 17.65 | NA | 4.50 | NA | 3134289.69 | 316100.35 | W176° 38' 54.3451" | N51° 51' 50.5845" | 203 |
| | 01-162 | soil boring | 19.28 | NA | 6.13 | NA | 3134283.43 | 316023.43 | W176° 38' 54.4338" | N51° 51' 49.8254" | 204 |
| | 01-158 | soil boring | 20.73 | NA | 7.58 | NA | 3134436.03 | 315974.38 | W176° 38' 51.9960" | N51° 51' 49.3552" | 205 |
| | 01-156 | soil boring | 21.29 | NA | 8.14 | NA | 3134471.61 | 316022.67 | W176° 38' 51.4362" | N51° 51' 49.8346" | 206 |
| | 01-153 | soil boring | 18.91 | NA | 5.76 | NA | 3134392.45 | 316098.18 | W176° 38' 52.7080" | N51° 51' 50.5722" | 207 |
| | 01-154 | soil boring | 24.57 | NA | 11.42 | NA | 3134500.44 | 316114.89 | W176° 38' 50.9903" | N51° 51' 50.7466" | 208 |
| | 01-155 | soil boring | 25.50 | NA | 12.35 | NA | 3134576.75 | 316178.93 | W176° 38' 49.7839" | N51° 51' 51.3849" | 209 |
| | 01-157 | soil boring | 27.82 | NA | 14.67 | NA | 3134611.03 | 316241.67 | W176° 38' 49.2469" | N51° 51' 52.0067" | 210 |
| | 01-159 | soil boring | 29.12 | NA | 15.97 | NA | 3134645.22 | 316294.33 | W176° 38' 48.7098" | N51° 51' 52.5290" | 211 |
| | 01-161 | soil boring | 29.76 | NA | 16.61 | NA | 3134688.47 | 316386.04 | W176° 38' 48.0341" | N51° 51' 53.4372" | 212 |
| 01-163 | soil boring | 18.75 | NA | 5.60 | NA | 3134468.1 | 316353.78 | W176° 38' 51.5397" | N51° 51' 53.0996" | 213 | |
| 01-160 | soil boring | 17.18 | NA | 4.03 | NA | 3134470.1 | 316259.8 | W176° 38' 51.4943" | N51° 51' 52.1729" | 214 | |
| SWMU 60, Tank Farm A | 653 | well | 25.46 | 28.29 | 12.31 | 15.14 | 3132665 | 314482.76 | W176° 39' 19.9890" | N51° 51' 34.4872" | 300 |
| | 654 | soil boring | 21.94 | NA | 8.79 | NA | 3132648.18 | 314530.83 | W176° 39' 20.2639" | N51° 51' 34.9597" | 301 |
| | 655 | soil boring | 21.73 | NA | 8.58 | NA | 3132692.68 | 314528.15 | W176° 39' 19.5547" | N51° 51' 34.9373" | 302 |
| | 650 | well | 26.11 | 26.26 | 12.96 | 13.11 | 3132781.13 | 314561.7 | W176° 39' 18.1509" | N51° 51' 35.2761" | 303 |
| | 651 | well | 25.34 | 25.23 | 12.19 | 12.08 | 3132761.21 | 314502.38 | W176° 39' 18.4595" | N51° 51' 34.6893" | 304 |
| | 652 | well | 25.52 | 25.52 | 12.37 | 12.37 | 3132755.86 | 314420.55 | W176° 39' 18.5328" | N51° 51' 33.8819" | 305 |
| | 601 | well | 23.85 | 26.92 | 10.70 | 13.77 | 3132919.22 | 314086 | W176° 39' 15.8825" | N51° 51' 30.5973" | 400 |
| SA 79, Main Road Pipeline, South End | 604 | soil boring | 23.06 | NA | 9.91 | NA | 3132986.34 | 314021.23 | W176° 39' 14.8042" | N51° 51' 29.9646" | 401 |
| | 605 | soil boring | 23.16 | NA | 10.01 | NA | 3132978.24 | 313994.23 | W176° 39' 14.9293" | N51° 51' 29.6976" | 402 |
| | 602 | well | 23.57 | 26.61 | 10.42 | 13.46 | 3132931.29 | 313613.58 | W176° 39' 15.6218" | N51° 51' 25.9396" | 403 |
| | 607 | soil boring | 24.04 | NA | 10.89 | NA | 3132903.82 | 313595.56 | W176° 39' 16.0567" | N51° 51' 25.7594" | 404 |
| | 608 | soil boring | 22.81 | NA | 9.66 | NA | 3132920.7 | 313669.39 | W176° 39' 15.7986" | N51° 51' 26.4890" | 405 |
| | 603 | soil boring | 22.71 | NA | 9.56 | NA | 3133018.93 | 314106.46 | W176° 39' 14.2975" | N51° 51' 30.8080" | 406 |
| | 606 | soil boring | 22.72 | NA | 9.57 | NA | 3133024.18 | 314125.73 | W176° 39' 14.2167" | N51° 51' 30.9986" | 407 |

| Site | URS Location ID | Location Type | Ground Elevation (ft, NAV88) | Top of PVC Casing Elevation (ft, NAV88) | Ground Elevation (ft, NOAA MLLW) | Top of PVC Casing Elevation (ft, NOAA MLLW) | Grid Easting | Grid Northing | Longitude | Latitude | Survey Point Number |
|-----------------|-----------------|---------------|------------------------------|---|----------------------------------|---|--------------|--------------------|--------------------|-------------------|---------------------|
| Antenna Field | ANT-606 | well | 239.85 | 242.42 | 226.70 | 229.27 | 3145799.764 | 333814.3052 | W176° 35' 53.3534" | N51° 54' 46.2574" | 500 |
| | ANT-607 | well | 221.82 | 224.625 | 208.67 | 211.48 | 3145674.232 | 333751.4298 | W176° 35' 55.3468" | N51° 54' 45.6270" | 501 |
| | ANT-602 | well | 228.27 | 231.49 | 215.12 | 218.34 | 3145711.075 | 333794.1498 | W176° 35' 54.7650" | N51° 54' 46.0513" | 502 |
| | ANT-603 | well | 229.38 | 231.555 | 216.23 | 218.41 | 3145714.438 | 333829.2098 | W176° 35' 54.7160" | N51° 54' 46.3973" | 503 |
| | ANT-605 | well | 228.56 | 231.515 | 215.41 | 218.37 | 3145675.016 | 333871.2389 | W176° 35' 55.3502" | N51° 54' 46.8086" | 504 |
| | ANT-604 | well | 229.48 | 232.135 | 216.33 | 218.99 | 3145664.608 | 333918.2854 | W176° 35' 55.5224" | N51° 54' 47.2717" | 505 |
| | ANT-SB608 | soil boring | 243.35 | NA | 230.20 | NA | 3145762.028 | 333930.8903 | W176° 35' 53.9706" | N51° 54' 47.4040" | 506 |
| | ANT-SB617 | soil boring | 241.80 | NA | 228.65 | NA | 3145738.873 | 333891.6584 | W176° 35' 54.3347" | N51° 54' 47.0152" | 507 |
| | ANT-SB613 | soil boring | 240.99 | NA | 227.84 | NA | 3145802.252 | 333857.4875 | W176° 35' 53.3195" | N51° 54' 46.6834" | 508 |
| | ANT-SB614 | soil boring | 240.45 | NA | 227.30 | NA | 3145796.226 | 333842.2404 | W176° 35' 53.4135" | N51° 54' 46.5326" | 509 |
| | ANT-SB618 | soil boring | 239.48 | NA | 226.33 | NA | 3145776.75 | 333839.5624 | W176° 35' 53.7238" | N51° 54' 46.5045" | 510 |
| | ANT-SB611 | soil boring | 229.59 | NA | 216.44 | NA | 3145725.244 | 333822.9664 | W176° 35' 54.5429" | N51° 54' 46.3367" | 511 |
| ANT-SB610 | soil boring | 228.46 | NA | 215.31 | NA | 3145699.642 | 333818.6662 | W176° 35' 54.9506" | N51° 54' 46.2921" | 512 | |
| ANT-SB612 | soil boring | 225.58 | NA | 212.43 | NA | 3145662.8 | 333794.3809 | W176° 35' 55.5348" | N51° 54' 46.0496" | 513 | |
| for survey only | CP ANT 01 | survey only | 241.33 | NA | 228.18 | NA | 3145805.13 | 333872.39 | W176° 35' 53.2756" | N51° 54' 46.8306" | 20 |
| | CP ANT 02 | survey only | 233.10 | NA | 219.95 | NA | 3145750.34 | 333746.31 | W176° 35' 54.1325" | N51° 54' 45.5827" | 21 |
| | CHK | survey only | 32.13 | NA | 18.98 | NA | 3135929.24 | 315123.22 | W176° 38' 28.0907" | N51° 51' 41.0934" | 408 |
| | FD MON | survey only | 30.24 | NA | 17.09 | NA | 3139190.76 | 325147.23 | W176° 37' 37.5352" | N51° 53' 20.2301" | 409 |

APPENDIX B

Data Validation Report

Data Validation Report

Additional Site Characterization Adak, Alaska 2010 Sampling

Naval Facilities Engineering Command Northwest
Contract No. N44255-09-D-4001
Delivery Order 005

Laboratory SDG Numbers:

**10F248, 10F322, 10G031, 10G077
10G078, 10G160, 10G178**

Prepared for:

URS Group, Inc.
1501 Fourth Avenue, Suite 1400
Seattle, WA 98101-1616

Prepared by:

Pyron Environmental, Inc.
3530 32nd Way NW
Olympia, WA 98502

October 13, 2010

ACRONYMS

| | |
|-----------------|---|
| %D | Percent difference |
| %R | Percent recovery |
| %RSD | Percent relative standard deviation |
| ARF | Average response factor |
| BFB | Bromofluorobenzene |
| BTEX | Benzene, toluene, ethylbenzene, and <i>m</i> -, <i>p</i> -, and <i>o</i> -xylenes |
| CCB | Continuing calibration blank |
| CCV | Continuing calibration verification |
| CLP | U.S. EPA Contract Laboratory Program |
| COC | Chain-of-custody |
| DRO | Diesel range organics |
| DFTPP | Decafluorotriphenylphosphine |
| EFA | Engineering Field Activity |
| EPA | U.S. Environmental Protection Agency |
| GC/FID | Gas chromatography/flame ionization detector |
| GC/MS | Gas chromatography/mass spectrometer |
| GRO | Gasoline range organics |
| ICAL | Initial calibration |
| ICB | initial calibration blank |
| ICP/MS | Inductively coupled plasma/mass spectrometer |
| ICV | Initial calibration verification |
| LCS/LCSD | Laboratory control sample/laboratory control sample duplicate |
| µg/kg | Microgram per kilogram |
| µg/L | Microgram per liter |
| mg/kg | Milligram per kilogram |
| mg/L | Milligram per liter |
| MDL | Method detection limit |
| MRL | Method reporting limit |
| MS/MSD | Matrix spike/matrix spike duplicate |
| QA/QC | Quality assurance/quality control |
| RF | Response factor |
| RPD | Relative percent difference |
| SDG | Sample delivery group |

| | |
|--------------|---------------------------------|
| SIM | Selective ion monitoring |
| SVOCs | Semi-volatile organic compounds |
| VOCs | Volatile organic compounds |

INTRODUCTION

This report presents and discusses findings of the data validation performed on analytical data for samples collected during June and July in 2010 for the referenced project. The laboratory reports validated herein were submitted by EMAX Laboratories, Inc. in seven sample delivery groups (SDGs) – 10F248, 10F322, 10G031, 10G077, 10G078, 10G160, and 10G178.

A level IV data validation was performed. The validation followed the procedures specified in USEPA CLP National Functional Guidelines ([NFG], EPA 1999), with modifications to accommodate project and analytical method requirements. The numerical quality assurance/quality control (QA/QC) criteria applied to the validation were in accordance with the current performance-based control limits established by the laboratory (laboratory control limits). Instrument calibration, frequency of QC analyses, and analytical sequence requirements were evaluated against the respective analytical methods.

Validation findings are discussed for each QC parameter pertinent to each type of analyses evaluated. Qualified data with applied data qualifiers are summarized in the **Summary** section at the end of this report. As part of the level IV validation, 10 percent of the initial calibrations, calibration verifications, laboratory QC analyses, and sample results were verified via re-calculation checks. Laboratory report pages (Form-1s) for qualified data with assigned data qualifiers and qualification reasons are included in **Appendix A**. Samples and the associated analyses validated herein are summarized as follows:

| Field Sample ID | Laboratory Sample ID | Sampling Date | Matrix | Analysis | | | |
|-----------------|----------------------|---------------|--------|----------|-------|-----|-----|
| | | | | VOCs | SVOCs | GRO | DRO |
| ANT-605-5 | F248-01 | 6/12/2010 | Soil | | | | X |
| ANT-605-7.5 | F248-02 | 6/12/2010 | Soil | | | | X |
| ANT-604-5 | F248-03 | 6/13/2010 | Soil | | | | X |
| ANT-604-7.5 | F248-04 | 6/13/2010 | Soil | | | | X |
| ANT-606-5 | F248-05 | 6/13/2010 | Soil | | | | X |
| ANT-606-7.5 | F248-06 | 6/13/2010 | Soil | | | | X |
| ANT-SB617-2.5 | F248-07 | 6/16/2010 | Soil | | | | X |
| ANT-SB617-4.5 | F248-08 | 6/16/2010 | Soil | | | | X |
| ANT-SB618-2.5 | F248-09 | 6/17/2010 | Soil | | | | X |
| ANT-SB618-5 | F248-10 | 6/17/2010 | Soil | | | | X |
| ANT-SB611-2.5 | F248-11 | 6/17/2010 | Soil | | | | X |
| ANT-SB611-5 | F248-12 | 6/17/2010 | Soil | | | | X |
| ANT-SB609-5 | F248-13 | 6/17/2010 | Soil | | | | X |
| ANT-SB609-7.5 | F248-14 | 6/17/2010 | Soil | | | | X |
| ANT-SB610-2.5 | F248-15 | 6/17/2010 | Soil | | | | X |

| Field Sample ID | Laboratory Sample ID | Sampling Date | Matrix | Analysis | | | |
|-----------------|----------------------|---------------|---------|----------|-------|-----|-----------|
| | | | | VOCs | SVOCs | GRO | DRO |
| ANT-SB610-5 | F248-16 | 6/17/2010 | Soil | | | | X |
| ANT-602-2.5 | F248-17 | 6/18/2010 | Soil | | | | X |
| ANT-602-7.5 | F248-18 | 6/18/2010 | Soil | | | | X |
| ANT-602D | F248-19 | 6/18/2010 | Soil | | | | X |
| ANT-607-2.5 | F322-01 | 6/20/2010 | Soil | | | | X |
| ANT-607-5 | F322-02 | 6/20/2010 | Soil | | | | X |
| ANT-SB613-2.5 | F322-03 | 6/20/2010 | Soil | | | | X |
| ANT-SB614-2.5 | F322-04 | 6/20/2010 | Soil | | | | X |
| ANT-SB608-2.5 | F322-05 | 6/20/2010 | Soil | | | | X |
| ANT-SB608-5 | F322-06 | 6/20/2010 | Soil | | | | X |
| ANT-SB612-2.5 | F322-07 | 6/20/2010 | Soil | | | | X |
| ANT-SB612-5 | F322-08 | 6/20/2010 | Soil | | | | X |
| ANT-SB612-7.5 | F322-09 | 6/20/2010 | Soil | | | | Hold |
| 606-5 | F322-10 | 6/25/2010 | Soil | | | | X |
| 606-10 | F322-11 | 6/25/2010 | Soil | | | | X |
| 603-5 | F322-12 | 6/25/2010 | Soil | | | | X |
| 603-7.5 | F322-13 | 6/25/2010 | Soil | | | | X |
| 604-5 | F322-14 | 6/26/2010 | Soil | | | | X |
| 604-7.5 | F322-15 | 6/26/2010 | Soil | | | | X |
| 605-5 | F322-16 | 6/26/2010 | Soil | | | | X |
| 605-7.5 | F322-17 | 6/26/2010 | Soil | | | | X |
| 608-10 | F322-18 | 6/27/2010 | Soil | | | | X |
| 608-12.5 | F322-19 | 6/27/2010 | Soil | | | | X |
| 607-10 | F322-20 | 6/27/2010 | Soil | | | | X |
| 607-12.5 | F322-21 | 6/27/2010 | Soil | | | | X |
| Trip Blank | F322-22 | 6/27/2010 | Aqueous | | | | Cancelled |
| 01-158-7.5 | G031-01 | 6/22/2010 | Soil | | | | X |
| 602-7.5 | G031-02 | 6/28/2010 | Soil | | | | X |
| 602-12.5 | G031-03 | 6/28/2010 | Soil | | | | X |
| 01-156A-7.5 | G031-04 | 6/28/2010 | Soil | | | | X |
| 01-156A-10 | G031-05 | 6/28/2010 | Soil | | | | X |
| 01-154-7.5 | G031-06 | 6/28/2010 | Soil | | | | X |
| 01-154-10 | G031-07 | 6/28/2010 | Soil | | | | X |

| Field Sample ID | Laboratory Sample ID | Sampling Date | Matrix | Analysis | | | |
|-----------------|----------------------|---------------|--------|----------|-------|-----|------|
| | | | | VOCs | SVOCs | GRO | DRO |
| T-1542D | G031-08 | 6/28/2010 | Soil | | | | X |
| 01-153-7.5 | G031-09 | 6/29/2010 | Soil | | | | X |
| 01-153-10 | G031-10 | 6/29/2010 | Soil | | | | X |
| 01-152-7.5 | G031-11 | 7/1/2010 | Soil | | | | X |
| 01-152-10 | G031-12 | 7/1/2010 | Soil | | | | X |
| 01-159-12.5 | G077-01 | 7/6/2010 | Soil | | | | X |
| 01-159-15 | G077-02 | 7/6/2010 | Soil | | | | X |
| 01-159D | G077-03 | 7/6/2010 | Soil | | | | X |
| 01-160-5 | G077-04 | 7/6/2010 | Soil | | | | X |
| 01-160-7.5 | G077-05 | 7/6/2010 | Soil | | | | X |
| 01-161-15 | G077-06 | 7/6/2010 | Soil | | | | X |
| 01-161-17.5 | G077-07 | 7/6/2010 | Soil | | | | X |
| 01-162-5 | G077-08 | 7/6/2010 | Soil | | | | X |
| 01-162-12.5 | G077-09 | 7/6/2010 | Soil | | | | X |
| 01-163-5 | G077-10 | 7/7/2010 | Soil | | | | X |
| 01-163-7.5 | G077-11 | 7/7/2010 | Soil | | | | X |
| 01-164-5 | G077-12 | 7/7/2010 | Soil | | | | X |
| 01-164-7.5 | G077-13 | 7/7/2010 | Soil | | | | X |
| 01-166-7.5 | G077-14 | 7/7/2010 | Soil | | | | X |
| 01-166-12.5 | G077-15 | 7/7/2010 | Soil | | | | X |
| 01-166-20 | G077-16 | 7/7/2010 | Soil | | | | Hold |
| 01-165-5 | G077-17 | 7/8/2010 | Soil | | | | X |
| 01-165-7.5 | G077-18 | 7/8/2010 | Soil | | | | X |
| 01-157-12.5 | G078-01 | 7/1/2010 | Soil | | | | X |
| 01-157-17.5 | G078-02 | 7/1/2010 | Soil | | | | X |
| 01-155-7.5 | G078-03 | 7/2/2010 | Soil | | | | X |
| 01-155-10 | G078-04 | 7/2/2010 | Soil | | | | X |
| 01-158A-17.5 | G078-05 | 7/2/2010 | Soil | | | | X |
| 652-7.5 | G078-06 | 7/2/2010 | Soil | | | | X |
| 652-10 | G078-07 | 7/2/2010 | Soil | | | | X |
| 651-10 | G078-08 | 7/3/2010 | Soil | | | | X |
| 651-12.5 | G078-09 | 7/3/2010 | Soil | | | | X |
| 651D | G078-10 | 7/3/2010 | Soil | | | | X |

| Field Sample ID | Laboratory Sample ID | Sampling Date | Matrix | Analysis | | | |
|-----------------|----------------------|---------------|--------|----------|-------|-----|-----|
| | | | | VOCs | SVOCs | GRO | DRO |
| 650-10 | G078-11 | 7/3/2010 | Soil | | | | X |
| 650-12.5 | G078-12 | 7/3/2010 | Soil | | | | X |
| 653-7.5 | G078-13 | 7/3/2010 | Soil | | | | X |
| 653-10 | G078-14 | 7/3/2010 | Soil | | | | X |
| 655-5 | G078-15 | 7/4/2010 | Soil | | | | X |
| 655-7.5 | G078-16 | 7/4/2010 | Soil | | | | X |
| 654-5 | G078-17 | 7/4/2010 | Soil | | | | X |
| 654-7.5 | G078-18 | 7/4/2010 | Soil | | | | X |
| 601-5 | G078-19 | 7/4/2010 | Soil | | | | X |
| 601-7.5 | G078-20 | 7/4/2010 | Soil | | | | X |
| 01-157-12.5 | G078-01 | 7/1/2010 | Soil | | | | X |
| 01-157-17.5 | G078-02 | 7/1/2010 | Soil | | | | X |
| 01-155-7.5 | G078-03 | 7/2/2010 | Soil | | | | X |
| 01-155-10 | G078-04 | 7/2/2010 | Soil | | | | X |
| 01-158A-17.5 | G078-05 | 7/2/2010 | Soil | | | | X |
| 652-7.5 | G078-06 | 7/2/2010 | Soil | | | | X |
| 652-10 | G078-07 | 7/2/2010 | Soil | | | | X |
| 651-10 | G078-08 | 7/3/2010 | Soil | | | | X |
| 651-12.5 | G078-09 | 7/3/2010 | Soil | | | | X |
| 651D | G078-10 | 7/3/2010 | Soil | | | | X |
| 650-10 | G078-11 | 7/3/2010 | Soil | | | | X |
| 650-12.5 | G078-12 | 7/3/2010 | Soil | | | | X |
| 653-7.5 | G078-13 | 7/3/2010 | Soil | | | | X |
| 653-10 | G078-14 | 7/3/2010 | Soil | | | | X |
| 655-5 | G078-15 | 7/4/2010 | Soil | | | | X |
| 655-7.5 | G078-16 | 7/4/2010 | Soil | | | | X |
| 654-5 | G078-17 | 7/4/2010 | Soil | | | | X |
| 654-7.5 | G078-18 | 7/4/2010 | Soil | | | | X |
| 601-5 | G078-19 | 7/4/2010 | Soil | | | | X |
| 601-7.5 | G078-20 | 7/4/2010 | Soil | | | | X |
| 14-708-1 | G160-01 | 7/12/2010 | Soil | | | X | |
| 14-708-2 | G160-02 | 7/12/2010 | Soil | | | X | |
| 14-707-3 | G160-03 | 7/12/2010 | Soil | | | X | |

| Field Sample ID | Laboratory Sample ID | Sampling Date | Matrix | Analysis | | | |
|-----------------|----------------------|---------------|---------|----------|-------|-----|-----|
| | | | | VOCs | SVOCs | GRO | DRO |
| 14-707-6 | G160-04 | 7/12/2010 | Soil | | | X | |
| 14-706-1 | G160-05 | 7/13/2010 | Soil | | | X | |
| 14-706-1.5 | G160-06 | 7/13/2010 | Soil | | | X | |
| 14-709-0.5 | G160-07 | 7/13/2010 | Soil | | | X | |
| 14-709-1 | G160-08 | 7/13/2010 | Soil | | | X | |
| 14-705-1 | G160-09 | 7/13/2010 | Soil | | | X | |
| 14-705-4.5 | G160-10 | 7/13/2010 | Soil | | | X | |
| Trip Blank | G160-11 | 7/13/2010 | Aqueous | | | X | |
| 14-710-2.5 | G160-12 | 7/13/2010 | Soil | | | X | |
| 14-710-4 | G160-13 | 7/13/2010 | Soil | | | X | |
| 14-704-1 | G160-14 | 7/13/2010 | Soil | | | X | |
| 14-704-2 | G160-15 | 7/13/2010 | Soil | | | X | |
| 14-704D | G160-16 | 7/13/2010 | Soil | | | X | |
| ANT-601 | G178-01 | 7/16/2010 | Aqueous | | | | X |
| ANT-601 D | G178-02 | 7/16/2010 | Aqueous | | | | X |
| 602 | G178-03 | 7/16/2010 | Aqueous | X | X | | X |
| 601 | G178-04 | 7/17/2010 | Aqueous | X | X | | X |
| 601 D | G178-05 | 7/17/2010 | Aqueous | X | X | | X |
| MRP-MW8 | G178-06 | 7/17/2010 | Aqueous | X | X | | X |
| 02-230 | G178-07 | 7/17/2010 | Aqueous | X | X | | X |
| 650 | G178-08 | 7/17/2010 | Aqueous | X | X | | X |
| 651 | G178-09 | 7/17/2010 | Aqueous | X | X | | X |
| 652 | G178-10 | 7/17/2010 | Aqueous | X | X | | X |
| LC 5A | G178-11 | 7/17/2010 | Aqueous | X | X | | X |
| Trip Blank | G178-12 | 7/17/2010 | Aqueous | X | | | |

Notes:

X - The analysis was requested and performed on the sample.

VOCs – Volatile Organic Compounds.

SVOCs – Semivolatile Organic Compounds.

GRO – Gasoline range organics.

DRO – Diesel range organics.

The analytical parameters requested for the samples, the respective analytical methods, and the performing laboratory is summarized below:

| Parameter | Analytical Method | Laboratory |
|-----------|--------------------------|---|
| VOCs | SW846 Method 8260B | EMAX Laboratories, Inc. Torrance, California |
| SVOCs | SW846 Method 8270C (SIM) | |
| GRO | Alaska Method AK101 | |
| DRO | Alaska Method AK102 | |

Notes:

- (1) SW846 Methods - *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition, December 1996.
- (2) Alaska Methods – *Underground Storage Tanks Procedures Manual, Appendix D, State of Alaska, Department of Environmental Conservation, November 7, 2002.*

DATA VALIDATION FINDINGS

1. VOCs by GC/MS (EPA Method 8260B)

1.1 Sample Management

Samples were received in the laboratory intact and in consistence with the accompanying chain-of-custody (COC) documentation. No anomalies were identified in relation to sample preservation, handling, and transport.

Water samples should be analyzed within 14 days of collection. The holding time requirements were met.

1.2 GC/MS Instrument Performance Check

The method require that (1) gas chromatograph/mass spectrometer (GC/MS) tuning analysis be performed, using Bromofluorobenzene (BFB), at the beginning of each 12-hour period prior to any analysis, and (2) specific mass ions meet the criteria provided in the method. All required ion abundance ratios met the method requirements.

1.3 Initial Calibration

The method require that (1) Initial calibration standards should be prepared at a minimum of five different concentrations, (2) the percent relative standard deviation (%RSD) be $\leq 30\%$ for calibration check compounds (CCC) and $\leq 15\%$ for all other compounds, (3) the relative response factor (RRF) be ≥ 0.1 (or 0.3) for system performance check compound (SPCC), (4) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) be > 0.995 . The National Functional Guideline (NFG) requires that the average relative response factor (RRF) be > 0.01 for poor response compounds and > 0.05 for all other target compounds. All %RSD values met the QC criterion, except for the following:

| Instrument | Date | Compound | %RSD | Affected Sample | Data Qualification |
|------------|-----------|------------------------|-------|-----------------|--------------------|
| TO94 | 7/22/2010 | Naphthalene | 21.81 | 602 | No action (ND) |
| | | | | 601 | J |
| | | | | 601 D | J |
| | | | | MRP-MW8 | No action (ND) |
| | | | | 02-230 | No action (ND) |
| | | | | 650 | No action (ND) |
| | | | | 651 | J |
| | | | | 652 | J |
| | | | | LC 5A | J |
| | | | | Trip Blank | No action (ND) |
| | | 1,2,3-Trichlorobenzene | 20.29 | 602 | No action (ND) |
| | | | | 601 | |
| | | | | 601 D | |
| | | | | MRP-MW8 | |
| | | | | 02-230 | |
| | | | | 650 | |

| Instrument | Date | Compound | %RSD | Affected Sample | Data Qualification |
|------------|-----------|------------------------|-------|-----------------------------------|--------------------|
| TO94 | 7/22/2010 | 1,2,3-Trichlorobenzene | 20.29 | 651 652 LC 5A Trip Blank | No action (ND) |

Note: ND - The analyte was not detected at or above the MDL.

An initial calibration verification standard (second source standard) was analyzed to verify the calibration curve. The percent difference (%D) value for each target compound is $\leq 20\%$; the initial calibration was valid.

1.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D value be $\leq 20\%$ for CCCs and $\leq 30\%$ for all other compounds, (3) the RRF be ≥ 0.05 for SPCCs. The NFG requires that the RRF be ≥ 0.05 for all target compounds.

Calibration verification analyses were performed at the required frequency. The %D values met the QC criteria.

1.5 Blanks

Method Blank: No target analytes were detected at or above the method detection limits (MDLs) in the method blanks.

Trip Blank: One trip blank was shipped with samples to the laboratory for VOCs analysis. No target analytes were detected at or above the MDLs in the trip blank.

1.6 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The percent recovery (%R) and relative percent difference (RPD) values met the laboratory control limits.

1.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. The %R values were within the laboratory control limits.

1.8 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample 650 as requested. All %R and RPD values met the laboratory control limits, except for naphthalene. The %R values for naphthalene in the MS and MSD (150% and 154% respectively) were greater than the upper control limits (55 – 140%). Naphthalene was not detected in the parent sample (sample 650); no data qualifying action was necessary.

1.9 Internal Standards

Proper internal standards were added to all samples. All internal standard intensity met the method requirement of -50% to +100% of the associated standard. Internal standard retention times were within the ±0.5 minute window (of the associated standard).

1.10 Field Duplicates

One field duplicate pair was submitted for VOCs analyses. The field precision met the advisory criterion. The difference values are presented as follows:

| Analyte | Sample ID and Concentration (µg/L) | | Difference | Data Qualification |
|----------------------------|------------------------------------|--------|------------|--------------------|
| | 601 | 601 D | | |
| 1,2,4-Trimethylbenzene | 1.6 | 1.6 | 0.0 | None |
| 1,3,5-Trimethylbenzene | 1.0 U | 0.22 J | 0.78 | |
| Acetone | 10 U | 5.2 J | 4.8 | |
| Naphthalene | 1.9 J | 2.0 J | 0.1 | |
| <i>p</i> -Isopropylbenzene | 1.4 J | 1.4 | 0.0 | |
| <i>sec</i> -Butylbenzene | 0.42 J | 0.43 J | 0.0 | |

Note:

J – The value is between the MDL and MRL, and considered estimated.

QC Limits - For both results ≥5X MRL, RPD < 20%; for results <5X MRL, absolute difference ≤1X MRL.

1.11 Compound Quantitation and Reporting Limits

Sample results were quantitated within the ICAL linear range. The MRLs were supported with adequate ICAL concentrations. Sample-specific MRLs were adjusted to the dilution factors. Sample 652 required dilution due to high concentrations of *m*- and *p*-xylenes and naphthalene. Results for *m*- and *p*-xylenes and naphthalene should be reported from the dilution analysis for sample 652.

A verification calculation was performed on 10% of the reported calibrations, laboratory QC analysis, and sample results. No anomalies were found in relation to target compound identification. No transcription and calculation anomalies were found.

1.12 Overall Assessment of VOCs Data Usability

VOCs data are of known quality and acceptable for use as qualified, as qualified.

2. SVOC by GC/MS - SIM (EPA Method 8270C)

2.1 Sample Management

Samples were received in the laboratory intact and in consistence with the accompanying COC documentation. No anomalies were identified in relation to sample preservation, handling, and transport.

Water samples should be extracted within 7 days of collection and the extracts analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

2.2 GC/MS Instrument Performance Check

The method requires that (1) gas chromatograph/mass spectrometer (GC/MS) tuning analysis be performed, using DFTPP, at the beginning of each 12-hour period prior to any analysis, and (2) specific mass ions meet the criteria provided in the method. Tuning analyses were performed at the proper frequency and met the method requirements.

2.3 Initial Calibration

The method and project SAP require that (1) Initial calibration standards should be prepared at a minimum of five different concentrations, (2) the %RSD be $\leq 30\%$ for CCCs and $\leq 15\%$ for all other compounds, (3) the RRF be ≥ 0.05 for SPCCs, (4) if least-square linear regression is chosen for quantitation, the correlation coefficient (r) be > 0.995 . The NFG requires that the average RRF be ≥ 0.05 for all target compounds. All %RSD values met the QC criterion, except for the following:

| Instrument | Date | Compound | %RSD | Affected Sample | Data Qualification |
|------------|----------|-------------------|--------|--|--------------------|
| E4 | 6/4/2010 | Benzoic acid | 21.81% | 602 601 601 D MRP-MW8 02-230 650 651 652 LC 5A Trip Blank | No action (ND) |
| | | 2,4-Dinitrophenol | 15.01% | 602 601 601 D MRP-MW8 02-230 650 651 | No action (ND) |
| E4 | 6/4/2010 | 2,4-Dinitrophenol | 15.01% | 652 LC 5A Trip Blank | No action (ND) |

Note: ND - The analyte was not detected at or above the MDL.

An initial calibration verification standard (second source standard) was analyzed to verify the calibration curve. The percent difference for each target compound is $\leq 20\%$; the initial calibration was valid.

2.4 Calibration Verification

The method requires that (1) continuing calibrations be analyzed at the beginning of each 12-hour analysis period prior to the analysis of method blank and samples, (2) the %D value be $\leq 20\%$ for CCCs and $\leq 30\%$ for all other compounds, (3) the RRF be ≥ 0.05 for SPCCs. The NFG requires that the RRF be ≥ 0.05 for all target compounds.

Calibration verification analyses were performed at the required frequency. All QC criteria were met.

2.5 Method Blank

Method blanks were prepared and analyzed as required by the method. Target compounds were not detected at or above the MDLs in the method blank.

2.6 Laboratory Control Sample and LCS Duplicate (LCSD)

LCS and LCSD were prepared and analyzed with each analytical batch. The %R and RPD values met the control limits, with exception of benzoic acid (0%). Since the spiking concentration of benzoic acid was less than the reporting limit, no data qualifying action was necessary.

2.7 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate %R values met the laboratory control limits, except for the following:

| Sample ID | Surrogate | %R | Control Limit | Data Qualification |
|-----------------|-------------------------------------|------------|--------------------|---|
| MRP-MW8 | 2-Fluorobiphenyl Nitrobenzene-d5 | 35% 31% | 50-110% 40-110% | UJ – All base/neutral fraction compounds |
| 650 | 2-Fluorobiphenyl Nitrobenzene-d5 | 36% 36% | 50-110% 40-110% | UJ – All base/neutral fraction compounds |
| 651 | 2-Fluorobiphenyl Nitrobenzene-d5 | 38% 39% | 50-110% 40-110% | UJ – All base/neutral fraction compounds |
| 652 | 2-Fluorobiphenyl Nitrobenzene-d5 | 34% 29% | 50-110% 40-110% | UJ – All base/neutral fraction compounds |
| 02-230 LC 5A | 2-Fluorobiphenyl | 49% 44% | 50-110% | No action. The recovery of two other B/N fraction surrogates was within the control limits. |

2.8 Matrix Spike and Matrix Spike Duplicate

MS/MSD pairs were prepared and analyzed at the required frequency. MS/MSD analyses were performed on sample 650 as requested. The %R and RPD values met the project control limits for all spiked compounds, except for the following:

| Parent Sample ID | Compound | MS %R | MSD %R | RPD | Control Limit |
|------------------|----------------------------|-------|--------|-----|---------------|
| 650 | 2,4,6-Trichlorophenol | 41% | -- | -- | 50-115% |
| | 2,4-Dichlorophenol | 33% | 45% | 31% | 50-105%/30% |
| | 2-Chloronaphthalene | 35% | 45% | -- | 50-105% |
| | 2-Methylnaphthalene | 39% | -- | -- | 45-105% |
| | 2-Methylphenol | 38% | -- | -- | 40-110% |
| | 2-Nitrophenol | 37% | -- | -- | 40-115% |
| | 3,3'-Dichlorobenzidine | 13% | 18% | -- | 20-110% |
| | Acenaphthene | 39% | -- | -- | 45-110% |
| | Acenaphthylene | 38% | -- | -- | 50-105% |
| | Benzoic acid | 0% | 0% | -- | 0-125% |
| | bis(2-Chloroethoxy)methane | 37% | 41% | -- | 45-105% |
| | Dibenzofuran | 45% | -- | -- | 55-105% |
| | Isophorone | 34% | 47% | 31% | 50-110%/30% |
| | Naphthalene | 37% | 39% | -- | 40-100% |
| | Nitrobenzene | 39% | 41% | -- | 45-110% |

Since the spiking concentration of benzoic acid was less than the reporting limit, no data qualifying action was necessary. All other compounds were not detect in the parent sample 650 and non-detect results were flagged UJ.

2.9 Internal Standards

Proper internal standards were added to all samples. All internal standard intensity met the method requirement of -50% - +100% of the associated standard. Internal standard retention times were within the ±0.5 minute window (of the associated standard).

2.10 Field Duplicates

One field duplicate pair was submitted for SVOCs analyses. The RPD value and data qualification are presented as follows:

| Analyte | Sample ID and Concentration (µg/L) | | RPD (%) | Data Qualification |
|---------|------------------------------------|--------|---------|--------------------|
| | 601 | 601 D | | |
| SVOCs | All ND | All ND | NC | None |

Notes: ND – The analyte was not detected at or above the MDL. NC – The RPD value could not be calculated and the criterion of concentration difference of 1xMRL applied.

2.11 Compound Quantitation and Reporting Limits

Sample results were quantitated within the ICAL linear ranges. The MRLs were supported with adequate ICAL concentrations.

A verification calculation was performed on 10% of the reported calibrations, laboratory QC analysis, and sample results. No anomalies were found in relation to target compound identification. No transcription and calculation anomalies were found.

2.12 Overall Assessment of SVOCs Data Usability

SVOCs data are of known quality and acceptable for use, as qualified.

3. GRO by GC/FID (Alaska Method AK101)

3.1 Sample Management

Samples were received in the laboratory intact and in consistence with the accompanying COC documentation. No anomalies were identified in relation to sample preservation, handling, and transport.

Water and soil samples should be analyzed within 14 days of collection. All samples were analyzed within the required holding times.

3.2 Initial Calibration

A minimum of 5-point calibration was performed. The average response factor %RSD was <25%. In cases where linear regression approach was applied, the coefficients of determination (R^2) were all >0.995, as required by the method.

An initial calibration verification standard (second source standard) was analyzed to verify the calibration curve. The %D value for target compound is $\leq 25\%$; the initial calibration was valid.

3.3 Calibration Verification

Calibration verification was performed at the required frequency for all analytical sequences. The %D values for the calibration verifications met the method criterion ($\pm 25\%$).

3.4 Blanks

Method Blank: GRO was not detected at or above the MDLs in the method blanks.

Trip Blank: One trip blank was shipped with samples to the laboratory for GRO analysis. GRO was not detected at or above the MDLs in the trip blank.

3.5 Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCS and LCSD analyses were performed as required. The %R and RPD values met the laboratory control limits.

3.6 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate %R values met the laboratory control limits, except for samples 14-708-1 (46%) and 14-708-2 (42%). The surrogate %R values for 1,1,1-trifluorotoluene were less than the lower control limit of 50%. GRO results for samples 14-708-1 and 14-708-2 were qualified (J) as estimated.

3.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on sample 14-706-1 as requested. The %R and RPD values were met the control limits.

3.8 Field Duplicates

One field duplicate pair was submitted for GRO analyses with this SDG. The RPD values are presented as follows:

| Analyte | Sample ID and Concentration (µg/L) | | RPD (%) | Data Qualification |
|---------|------------------------------------|---------|---------|--------------------|
| | 14-704-1 | 14-704D | | |
| GRO | 11 U | 9.5 U | NC | None |

Note: NC – The RPD value was not calculated because both the duplicate analyses obtained values below the MRL, and the field precision is considered acceptable.

3.9 Analyte Quantitation and Reporting Limits

Sample results were quantitated within the ICAL linear range. The MRLs were supported with adequate ICAL concentrations. Sample-specific MRLs were adjusted to the dilution factors.

A verification calculation was performed on 10% of the reported calibrations, laboratory QC analysis, and sample results. No anomalies were found in relation to target compound identification. No transcription and calculation anomalies were found.

3.10 Overall Assessment of GRO Data Usability

GRO data are of known quality and acceptable for use, as qualified.

4. DRO by GC/FID (Alaska Methods AK102)

4.1 Sample Management

Samples were received in the laboratory intact and in consistence with the accompanying COC documentation. No anomalies were identified in relation to sample preservation, handling, and transport.

Aqueous samples should be extracted within seven days of collection. Soil samples should be extracted within 14 days of collection. Extracts should be analyzed within 40 days of extraction. All samples were extracted and analyzed within the required holding times.

4.2 Initial Calibration

A minimum of 5-point calibration was performed. The average response factor %RSD value was <25%, as required by the method. In cases where linear regression approach was applied, the coefficients of determination (R^2) were all >0.995, as required by the method.

An initial calibration verification standard (second source standard) was analyzed to verify the calibration curve. The percent difference for target compound is $\leq 25\%$; the initial calibration was valid.

4.3 Calibration Verification

Calibration verification analyses were performed at the required frequency. The %D values either met the criteria or at levels that had no effects on data quality (e.g., biased high %D values and the compounds were surrogates). No data qualifying action was deemed necessary.

4.4 Method Blanks

DRO was not detected at or above the MDL in the method blanks.

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

LCS and LCSD analyses were performed as required. The %R and RPD values met the laboratory control limits.

4.6 Surrogate Spikes

Surrogate spikes were added to all samples as required by the method. All surrogate %R values were within the project control limit or the spikes were diluted below the reporting limits due to high levels of target analytes, except for the following:

| SDG # | Sample ID | Surrogate | %R | Control Limit | Affected Compound | Data Qualification |
|--------|---------------|---------------------------|------|---------------|-------------------|--------------------|
| 10F248 | ANT-SB609-7.5 | <i>o</i> -Terphenyl | 235% | 50-150% | DRO | J |
| 10G077 | 01-161-15 | <i>n</i> -Triacontane-d12 | 49% | 50-150% | DRO | UJ |

4.7 Matrix Spike and Matrix Spike Duplicate (MS/MSD)

MS/MSD analyses were performed on samples ANT-605-5, 604-7.5, 01-152-10, 01-162-5, 01-155-10, 653-7.5, and 650. The %R and RPD values met the project control limits for all spiked compounds, except for the following:

| Parent Sample ID | Compound | MS %R | MSD %R | Control Limit | Data Qualification |
|------------------|----------|-------|--------|---------------|--------------------|
| ANT-605-5 | DRO | 72% | -- | 75-125% | J |
| 604-7.5 | DRO | -- | 70% | 75-125% | J |
| 01-155-10 | DRO | 11% | 32% | 75-125% | J |

4.8 Field Duplicates

Five pairs of field duplicates were submitted for DRO analyses. The RPD and absolute difference values and data qualification are presented as follows:

| Analyte | Sample ID and Concentration (mg/kg) | | RPD (%) | Data Qualification |
|---------|-------------------------------------|-----------|------------|--------------------|
| | ANT-602-7.5 | ANT-602D | | |
| DRO | 950 | 260 | 114 | J |
| Analyte | Sample ID and Concentration (mg/kg) | | RPD (%) | Data Qualification |
| | 01-154-7.5 | T-1451D | | |
| DRO | 8300 | 9500 | 11 | None |
| Analyte | Sample ID and Concentration (mg/kg) | | Difference | Data Qualification |
| | 01-159-15 | 01-195D | | |
| DRO | 17 J | 26 U | 9 | None |
| Analyte | Sample ID and Concentration (mg/kg) | | Difference | Data Qualification |
| | 651-10 | 651D | | |
| DRO | 21 J | 19 J | 2 | None |
| Analyte | Sample ID and Concentration (µg/L) | | Difference | Data Qualification |
| | ANT-601 | ANT-601 D | | |
| DRO | 830 | 1100 | 270 | None |
| Analyte | Sample ID and Concentration (µg/L) | | Difference | Data Qualification |
| | 601 | 601 D | | |
| DRO | 2500 | 2400 | 100 | None |

4.9 Reporting Limits and Analyte Quantitation

Sample results were quantitated within the ICAL linear range. The MRLs were supported with adequate ICAL concentrations. Sample-specific MRLs were adjusted to the dilution factors and sample amounts.

A verification calculation was performed on 10% of the reported calibrations, laboratory QC analysis, and sample results. No anomalies were found in relation to target compound identification. No transcription and calculation anomalies were found.

4.10 Overall Assessment of DRO Data Usability

DRO data are of known quality and acceptable for use, as qualified.

SUMMARY

Data qualification and assigned qualification codes are summarized as follows:

| Sample ID | Analyte | Data Qualifier | Reason | Report Section |
|-------------------------------------|---|-----------------------|--|----------------|
| 601 601 D 651 652 LC 5A | Naphthalene | J J J J J | Initial calibration %RSD anomalies | 1.3 |
| MRP-MW8 650 651 652 | All base/neutral fraction compounds | UJ | Low bias – surrogate recoveries | 2.7 |
| 650 | 2,4,6-Trichlorophenol 2,4-Dichlorophenol 2-Chloronaphthalene 2-Methylnaphthalene 2-Methylphenol 2-Nitrophenol 3,3'-Dichlorobenzidine Acenaphthene Acenaphthylene bis(2-Chloroethoxy)methane Dibenzofuran Isophorone Naphthalene Nitrobenzene | UJ | The MS/MSD %R values were below the lower control limits. | 2.8 |
| 14-708-1 14-708-2 | GRO | J | Low bias – surrogate recoveries | 3.6 |
| ANT-SB609-7.5 | DRO | J | High bias – surrogate recoveries | 4.6 |
| 01-161-15 | DRO | UJ | Low bias – surrogate recoveries | 4.6 |
| ANT-605-5 604-7.5 01-155-10 | DRO | J | The MS/MSD %R values were below the lower control limits. | 4.7 |
| ANT-602-7.5 ANT-602D | DRO | J | Field duplicate RPD value exceeded the advisory control criterion. | 4.8 |

Data affected by associated blanks (qualification code "B") are qualified as follows:

| Sample ID | Analyte | Original Result | Adjusted Result | Unit | Report Section |
|---|---------|-----------------|-----------------|------|----------------|
| No data were qualified due to blank detections. | | | | | |

Data Qualifiers are defined as follows:

| Qualifier | Definition |
|-----------|---|
| U | The analyte was analyzed for, but was not detected above the reported sample quantitation limit. |
| J | The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. |
| N | The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification." |
| NJ | The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. |
| UJ | The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. |
| R | The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified. |

Approved by:



Date:

10/13/2010

Mingta Lin

REFERENCE

- U.S. EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review*, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, October 1999, EPA540/R-99/008.
- U.S. EPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Third Edition and Updates. December 1996.
- U.S. Department of Defense (DoD) Quality Systems Manual for Environmental Laboratories. Final Version 4.1*, DoD Environmental Data Quality Workgroup. April 2009.
- U.S. Navy Naval Facilities Engineering Command Northwest (NAVFAC NW) Standard Operation Procedure (SOP): Field Standard Operating Procedures, Version 4.0*. August, 2006.
- State of Alaska Underground Storage Tanks Procedures Manual, Appendix D*, State of Alaska, Department of Environmental Conservation, November 7, 2002.

APPENDIX A

Form-1s for Qualified Data

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP INC
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 106178
Sample ID  : 601
Lab Samp ID: G178-04
Lab File ID: RGD362
Ext Bch ID : VQ94620
Calib. Ref.: RGD362
Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 01:21
Date Analyzed: 07/24/10 01:21
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-094
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|----------------|-----------|------------|
| 1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,1,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,1,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 1.6 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 10 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 5.0 |
| ACETONE | ND | 1.0 | 0.20 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.20 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.20 |
| BROMOFORM | ND | 1.0 | 0.20 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.20 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROFORM | ND | 1.0 | 0.20 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.20 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | ND | 1.0 | 0.20 |
| M, P-XYLENES | ND | 2.0 | 0.20 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 10 | 5.0 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | 1.94 | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | ND | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 1.7 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 0.424 | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.20 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 111 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 99 | 75-120 | |
| DIBROMOFLUOROMETHANE | 103 | 85-115 | |
| TOLUENE-DB | 107 | 85-120 | |

with 10/12/10

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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Client      : URS GROUP INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 106178
Sample ID   : 601 0
Lab Smp ID  : G178-05
Lab File ID : RG0390
Ext Btch ID : V094620
Calib. Ref. : RG0362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 01:58
Date Analyzed: 07/24/10 01:58
Dilution Factor: 1
Matrix: WATER
% Moisture: NA
Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|----------------|-----------|------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3,5-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,4-TRIMETHYLBENZENE | 1.6 | 2.0 | 0.30 |
| 1,5-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.30 |
| 1,5-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | 0.22J | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 0.20 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 0.20 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | 5.2J | 1.0 | 0.20 |
| BENZENE | ND | 1.0 | 0.30 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.30 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLOROFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.30 |
| ISOPROPYL BENZENE | ND | 2.0 | 0.30 |
| M-P-XYLENES | ND | 1.0 | 0.30 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.30 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.30 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.30 |
| NAPHTHALENE | 2.0J | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | 1.2 | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 0.23J | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | ND | 1.0 | 0.30 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.30 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.20 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| 1,2-DICHLOROETHANE-D4 | 111 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 100 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 105 | 85-120 | |

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METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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Client   : URS GROUP, INC.
Project  : 2010 ADD PET CHAR ADAK
Batch No.: 106178
Sample ID: 651
Lab Samp ID: G178-09
Lab File ID: RGD393
Ext Btch ID: V094620
Calib. Ref.: RGD362
Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/23/10 03:48
Date Analyzed: 07/24/10 03:48
Dilution Factor: 1
Matrix : WATER
% Moisture : NA
Instrument ID : T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | NDL (ug/L) |
|--------------------------------|----------------|-----------|------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 38 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.50 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | 8.6 | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 0.50 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 0.50 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.50 |
| ACETONE | ND | 1.0 | 0.20 |
| BENZENE | 1.8 | 1.0 | 0.50 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.50 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROTHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 5.1 | 1.0 | 0.50 |
| M-P-XYLENES | 69 | 2.0 | 0.30 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.20 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | 23 | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 3.7 | 1.0 | 0.20 |
| O-XYLENE | 1.8 | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 0.90 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | ND | 1.0 | 0.30 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | 1.0 | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.50 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.20 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 107 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 102 | 75-120 | |
| DIBROMOFLUOROMETHANE | 101 | 85-115 | |
| TOLUENE-D8 | 104 | 85-120 | |

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MTH 10/12/10

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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Client   : URS GROUP INC.           Date Collected: 07/17/10
Project  : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.: 10G178                   Date Extracted: 07/24/10 12:32
Sample ID: 652                       Date Analyzed: 07/24/10 12:32
Lab Samp ID: G178-10R                Dilution Factor: 1
Lab File ID: RSD406                  Matrix: WATER
Ext Btch ID: V094621                % Moisture: NA
Catib. Ref.: RSD322                 Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RI (ug/L) | MDL (ug/L) |
|--------------------------------|----------------|-----------|------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | 81 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | 0.40J | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | NR | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 0.20 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 0.20 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | 4.0 | 1.0 | 0.20 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOPROPANE | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.30 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROPROPANE | ND | 1.0 | 0.20 |
| CHLOROMETHANE | 0.94J | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.20 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | 4.7 | 1.0 | 0.20 |
| HEXACHLOROCYCLOHEPTADIENE | 8.1 | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 110E | 2.0 | 0.20 |
| M,P-XYLENES | ND | 1.0 | 0.20 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.20 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 2.0 | 0.20 |
| NAPHTHALENE | 130E | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 8.1 | 1.0 | 0.20 |
| O-XYLENE | 7.2 | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 4.9 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 1.9 | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | 2.9 | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.20 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| 1,2-DICHLOROETHANE-D4 | 110 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 100 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 108 | 85-120 | |

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METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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|----------------------------------|--------------------------------|
| Client : URS GROUP INC. | Date Collected: 07/17/10 |
| Project : 2010 ADD PET CHAR ADAK | Date Received: 07/19/10 |
| Batch No. : 106178 | Date Extracted: 07/24/10 13:46 |
| Sample ID: 03201 | Date Analyzed: 07/24/10 13:46 |
| Lab Semp ID: 0178-10T | Dilution Factor: 10 |
| Lab File ID: RGD408 | Matrix : WATER |
| Ext Btch ID: V094G21 | % Moisture : NA |
| Calib. Ref: RGD362 | Instrument ID : T-094 |

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|----------------|-----------|------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 10 | 2.0 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 10 | 1.0 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 10 | 1.0 |
| 1,1,2-TRICHLOROETHANE | ND | 10 | 1.0 |
| 1,1-DICHLOROETHANE | ND | 10 | 1.0 |
| 1-DICHLOROETHENE | ND | 10 | 1.0 |
| 1-DICHLOROPROPENE | ND | 10 | 1.0 |
| 1,2,3-TRICHLOROBENZENE | ND | 10 | 1.0 |
| 1,2,3-TRICHLOROPROPANE | ND | 10 | 1.0 |
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 1.0 |
| 1,2,4-TRIMETHYLBENZENE | 100 | 10 | 1.0 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 20 | 1.0 |
| 1,2-DIBROMOETHANE (EDB) | ND | 10 | 1.0 |
| 1,2-DICHLOROBENZENE | ND | 10 | 1.0 |
| 1,2-DICHLOROETHANE (EDC) | ND | 10 | 1.0 |
| 1,2-DICHLOROPROPANE | 30 | 10 | 1.0 |
| 1,2,3-TRIMETHYLBENZENE | ND | 10 | 1.0 |
| 1,3-DICHLOROBENZENE | ND | 10 | 1.0 |
| 1,3-DICHLOROPROPANE | ND | 10 | 1.0 |
| 1,4-DICHLOROBENZENE | ND | 10 | 1.0 |
| 1,2-DICHLOROPROPANE | ND | 10 | 1.0 |
| 2-BUTANONE (MEK) | ND | 100 | 1.0 |
| 2-CHLOROTOLUENE | ND | 10 | 1.0 |
| 2-HEXANONE | ND | 100 | 1.0 |
| 4-CHLOROTOLUENE | ND | 100 | 1.0 |
| ACETONE | 3.9J | 10 | 1.0 |
| BENZENE | ND | 10 | 1.0 |
| BROMOBENZENE | ND | 10 | 1.0 |
| BROMOCHLOROMETHANE | ND | 10 | 1.0 |
| BROMODICHLOROMETHANE | ND | 10 | 1.0 |
| BROMOFORM | ND | 10 | 1.0 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 10 | 1.0 |
| CARBON DISULFIDE | ND | 10 | 1.0 |
| CARBON TETRACHLORIDE | ND | 10 | 1.0 |
| CHLOROBENZENE | ND | 10 | 1.0 |
| CHLOROETHANE | ND | 10 | 1.0 |
| CHLOROFORM | ND | 10 | 1.0 |
| CHLOROMETHANE | ND | 10 | 1.0 |
| CIS-1,2-DICHLOROETHENE | ND | 10 | 1.0 |
| CIS-1,3-DICHLOROPROPENE | ND | 10 | 1.0 |
| DIBROMOCHLOROMETHANE | ND | 10 | 1.0 |
| DIBROMOMETHANE | ND | 10 | 1.0 |
| DICHLOROFLUOROMETHANE | ND | 10 | 1.0 |
| ETHYLBENZENE | 46 | 10 | 1.0 |
| HEXACHLOROBUTADIENE | ND | 10 | 1.0 |
| ISOPROPYL BENZENE | 8.3J | 20 | 1.0 |
| M, P-XYLENES | 150 | 20 | 1.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 100 | 1.0 |
| METHYLENE CHLORIDE | ND | 10 | 1.0 |
| METHYL TERT-BUTYL ETHER (MTBE) | 100 | 20 | 1.0 |
| NAPHTHALENE | ND | 10 | 1.0 |
| N-BUTYLBENZENE | 8.1J | 10 | 1.0 |
| N-PROPYLBENZENE | 3.0J | 10 | 1.0 |
| O-XYLENE | 3.7J | 10 | 1.0 |
| P-ISOPROPYLTOLUENE | ND | 10 | 1.0 |
| SEC-BUTYLBENZENE | ND | 10 | 1.0 |
| STYRENE | ND | 10 | 1.0 |
| TERT-BUTYLBENZENE | ND | 10 | 1.0 |
| TETRACHLOROETHENE (PCE) | ND | 10 | 1.0 |
| TOLUENE | 2.9J | 10 | 1.0 |
| TRANS-1,2-DICHLOROETHENE | ND | 10 | 1.0 |
| TRANS-1,3-DICHLOROPROPENE | ND | 10 | 1.0 |
| TRICHLOROETHENE (TCE) | ND | 10 | 1.0 |
| TRICHLOROFLUOROMETHANE | ND | 10 | 1.0 |
| VINYL CHLORIDE | ND | 10 | 1.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|-----------------------|------------|----------|
| 1,2-DICHLOROETHANE-D4 | 107 | 70-120 |
| 4-BROMOFLUOROBENZENE | 102 | 75-120 |
| DIBROMOFLUOROMETHANE | 103 | 85-115 |
| TOLUENE-D8 | 107 | 85-120 |

R

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WTA 10/12/10

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID   : LC 5A
Lab Samp ID: 6178-11
Lab File ID: RGD407
Ext Btch ID: V094621
Calib. Ref.: RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 13:09
Date Analyzed: 07/24/10 13:09
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID: I-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|----------------|-----------|------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,3,5-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3,5-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | 49 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | 19 | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | 2.4 | 1.0 | 5.0 |
| ACETONE | ND | 1.0 | 0.20 |
| BENZENE | 0.78J | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.20 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.20 |
| BROMOFORM | ND | 1.0 | 0.20 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.20 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROFORM | ND | 1.0 | 0.20 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.20 |
| DICHLORODIFLUOROMETHANE | 19 | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROCYCLOHEPTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 6.3 | 2.0 | 0.20 |
| M-P-XYLENES | 4.1 | 2.0 | 0.20 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.20 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | 62 | 1.0 | 0.20 |
| NAPHTHALENE | ND | 1.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 8.4 | 1.0 | 0.20 |
| O-XYLENE | 1.0J | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 1.5 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 2.5 | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | 1.2 | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFUOROMETHANE | ND | 1.0 | 0.20 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| 1,2-DICHLOROETHANE-D4 | 120 | 70-120 | |
| 4-BROMOFUOROBENZENE | 103 | 75-120 | |
| DIBROMOFUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 107 | 85-120 | |

J
MWA 10/12/10

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client : URS GROUP INC Date Collected: 07/17/10
 Project : 2010 ADD PET CHAR ADAK Date Received: 07/19/10
 Batch No. : 10G178 Date Extracted: 07/21/10 18:00
 Sample ID: MRP-HM8 Date Analyzed: 07/23/10 20:29
 Lab Samp ID: G178-06 Dilution Factor: 1.02
 Lab File ID: RGJ286 Matrix: WATER
 Ext. Btch ID: SV6031W % Moisture: NA
 Calib. Ref.: RFJ014 Instrument ID: T-0E4

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 0.1 |
| 1,2-DICHLOROBENZENE | ND | 10 | 0.1 |
| 1,4-DIPHENYLHYDRAZINE | ND | 10 | 0.1 |
| 1,3-DICHLOROBENZENE | ND | 10 | 0.1 |
| 1,4-DICHLOROBENZENE | ND | 10 | 0.1 |
| 2,2,5-TRICHLOROPHENOL | ND | 10 | 0.1 |
| 2,4,6-TRICHLOROPHENOL | ND | 10 | 0.1 |
| 2,4-DICHLOROPHENOL | ND | 10 | 0.1 |
| 2,6-DICHLOROPHENOL | ND | 10 | 0.1 |
| 2,4-DIMETHYLPHENOL | ND | 10 | 0.1 |
| 2,6-DIMETHYLPHENOL | ND | 10 | 0.1 |
| 2,4-DINITROPHENOL | ND | 10 | 0.1 |
| 2,6-DINITROPHENOL | ND | 10 | 0.1 |
| 2,4-DINITROTOLUENE | ND | 10 | 0.1 |
| 2,6-DINITROTOLUENE | ND | 10 | 0.1 |
| 2-CHLORONAPHTHALENE | ND | 10 | 0.1 |
| 2-CHLOROPHENOL | ND | 10 | 0.1 |
| 2-METHYLNAPHTHALENE | ND | 10 | 0.1 |
| 2-METHYLPHENOL | ND | 10 | 0.1 |
| 2-NITROANILINE | ND | 10 | 0.1 |
| 2-NITROPHENOL | ND | 10 | 0.1 |
| 3-NITROANILINE | ND | 10 | 0.1 |
| 3-NITROPHENOL | ND | 10 | 0.1 |
| 4-CHLORO-3-METHYLPHENOL | ND | 10 | 0.1 |
| 4-CHLORO-5-METHYLPHENOL | ND | 10 | 0.1 |
| 4-CHLOROANILINE | ND | 10 | 0.1 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 10 | 0.1 |
| 4-METHYLPHENOL (1) | ND | 10 | 0.1 |
| 4-NITROANILINE | ND | 10 | 0.1 |
| 4-NITROPHENOL | ND | 10 | 0.1 |
| ACENAPHTHENE | ND | 10 | 0.1 |
| ACENAPHTHYLENE | ND | 10 | 0.1 |
| ANTHRACENE | ND | 10 | 0.1 |
| BENZOA)ANTHRACENE | ND | 10 | 0.1 |
| BENZOA)PYRENE | ND | 10 | 0.1 |
| BENZOB)FLUORANTHENE | ND | 10 | 0.1 |
| BENZOK)G,H,I)PERYLENE | ND | 10 | 0.1 |
| BENZOK)F)FLUORANTHENE | ND | 10 | 0.1 |
| BENZOIC ACID | ND | 100 | 0.1 |
| BENZYL ALCOHOL | ND | 10 | 0.1 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 10 | 0.1 |
| BIS(2-CHLOROETHYL)ETHER | ND | 10 | 0.1 |
| BIS(2-CHLORISOPROPYL)ETHER | ND | 10 | 0.1 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 10 | 0.1 |
| BUTYLBENZYLPHTHALATE | ND | 10 | 0.1 |
| CARBAZOLE | ND | 10 | 0.1 |
| CHRYSENE | ND | 10 | 0.1 |
| DI-BENZO(A,H)ANTHRACENE | ND | 10 | 0.1 |
| DI-BENZOPURAN | ND | 10 | 0.1 |
| DIETHYLPHTHALATE | ND | 10 | 0.1 |
| DIMETHYLPHTHALATE | ND | 10 | 0.1 |
| DI-N-BUTYLPHTHALATE | ND | 10 | 0.1 |
| DI-N-OCTYLPHTHALATE | ND | 10 | 0.1 |
| FLUORANTHENE | ND | 10 | 0.1 |
| FLUORENE | ND | 10 | 0.1 |
| HEXACHLOROBENZENE | ND | 10 | 0.1 |
| HEXACHLOROCYCLOPENTADIENE | ND | 10 | 0.1 |
| HEXACHLOROETHANE | ND | 10 | 0.1 |
| INDENO(1,2,3-CD)PYRENE | ND | 10 | 0.1 |
| ISOPHORONE | ND | 10 | 0.1 |
| NAPHTHALENE | ND | 10 | 0.1 |
| NITROBENZENE | ND | 10 | 0.1 |
| N-NITROSODIMETHYLAMINE | ND | 10 | 0.1 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 10 | 0.1 |
| N-NITROSODIPHENYLAMINE (2) | ND | 10 | 0.1 |
| PENTACHLOROPHENOL | ND | 10 | 0.1 |
| PHENANTHRENE | ND | 10 | 0.1 |
| PHENOL | ND | 10 | 0.1 |
| PYRENE | ND | 10 | 0.1 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 35* | 50-110 | |
| 1ERPHENYL-D14 | 63 | 50-130 | |
| 2,2,6-TRIBROMOPHENOL | 64 | 40-120 | |
| 2-FLUOROPHENOL | 31 | 20-110 | |
| PHENOL-D5 | 34 | 10-110 | |
| NITROBENZENE-D5 | 31* | 40-110 | |

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(1): Cannot be separated from 3-Methylphenol
 (2): Cannot be separated from Diphenylamine

with 10/12/10

METHOD 3520C/B270C
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 106178
Sample ID   : 651
Lab Samp ID: G178-09
Lab File ID: RGJ289
Ext Btch ID: SVG031W
Calib. Ref : RFJ014
Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 21:25
Dilution Factor: 1.02
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-0E4
=====
  
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) | |
|-----------------------------|----------------|-----------|------------|----|
| 1,2,4-TRICHLOROBENZENE | ND | 11 | 5.4 | |
| 1,2-DICHLOROBENZENE | ND | 11 | 5.4 | UJ |
| 1,2-DIPHENYLHYDRAZINE | ND | 11 | 5.4 | |
| 1,3-DICHLOROBENZENE | ND | 11 | 5.4 | |
| 1,4-DICHLOROBENZENE | ND | 11 | 5.4 | |
| 2,3-DICHLOROPHENOL | ND | 11 | 5.4 | |
| 2,4-DICHLOROPHENOL | ND | 11 | 5.4 | |
| 2,6-DICHLOROPHENOL | ND | 11 | 5.4 | |
| 2,4-DIMETHYLPHENOL | ND | 11 | 5.4 | |
| 2,4-DINITROPHENOL | ND | 11 | 5.4 | |
| 2,4-DINITROTOLUENE | ND | 11 | 5.4 | UJ |
| 2,6-DINITROTOLUENE | ND | 11 | 5.4 | |
| 2-CHLORONAPHTHALENE | ND | 11 | 5.4 | |
| 2-CHLOROPHENOL | ND | 11 | 5.4 | |
| 2-METHYLNAPHTHALENE | 8.1 | 11 | 5.4 | J |
| 2-METHYLPHENOL | ND | 11 | 5.4 | UJ |
| 2-NITROANILINE | ND | 11 | 5.4 | |
| 2-NITROPHENOL | ND | 11 | 5.4 | |
| 3,3'-DICHLOROBENZIDINE | ND | 11 | 5.4 | UJ |
| 3-NITROANILINE | ND | 11 | 5.4 | |
| 4,4-DINITRO-2-METHYLPHENOL | ND | 11 | 5.4 | |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 11 | 5.4 | UJ |
| 4-CHLORO-3-METHYLPHENOL | ND | 11 | 5.4 | |
| 4-CHLOROANILINE | ND | 11 | 5.4 | UJ |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 11 | 5.4 | |
| 4-METHYLPHENOL (1) | ND | 11 | 5.4 | UJ |
| 4-NITROANILINE | ND | 11 | 5.4 | |
| 4-NITROPHENOL | ND | 11 | 5.4 | |
| ACENAPHTHENE | ND | 11 | 5.4 | |
| ACENAPHTHYLENE | ND | 11 | 5.4 | |
| ANTHRACENE | ND | 11 | 5.4 | UJ |
| BENZO(A)ANTHRACENE | ND | 11 | 5.4 | |
| BENZO(A)PYRENE | ND | 11 | 5.4 | |
| BENZO(B)FLUORANTHENE | ND | 11 | 5.4 | |
| BENZO(G,H,I)PERYLENE | ND | 11 | 5.4 | |
| BENZO(K)FLUORANTHENE | ND | 11 | 5.4 | |
| BENZOIC ACID | ND | 110 | 5.4 | |
| BENZYL ALCOHOL | ND | 11 | 5.4 | |
| BIS(2-CHLOROETHOXY)METHANE | ND | 11 | 5.4 | |
| BIS(2-CHLOROETHYL)ETHER | ND | 11 | 5.4 | |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 11 | 5.4 | |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 11 | 5.4 | |
| BUTYLBENZYLPHTHALATE | ND | 11 | 5.4 | |
| CARBAZOLE | ND | 11 | 5.4 | |
| CHRYSENE | ND | 11 | 5.4 | |
| DIBENZO(A,H)ANTHRACENE | ND | 11 | 5.4 | |
| DIBENZOPURAN | ND | 11 | 5.4 | |
| DIETHYLPHTHALATE | ND | 11 | 5.4 | UJ |
| DIMETHYLPHTHALATE | ND | 11 | 5.4 | |
| DI-N-BUTYLPHTHALATE | ND | 11 | 5.4 | |
| DI-N-OCTYLPHTHALATE | ND | 11 | 5.4 | |
| FLUORANTHENE | ND | 11 | 5.4 | |
| FLUORENE | ND | 11 | 5.4 | |
| HEXACHLOROBENZENE | ND | 11 | 5.4 | |
| HEXACHLOROBUTADIENE | ND | 11 | 5.4 | |
| HEXACHLOROETHANE | ND | 11 | 5.4 | |
| INDENO(1,2,3-CD)PYRENE | ND | 11 | 5.4 | |
| ISOPHORONE | ND | 11 | 5.4 | |
| NAPHTHALENE | 11J | 11 | 5.4 | |
| NITROBENZENE | ND | 11 | 5.4 | |
| N-NITROSDIMETHYLAMINE | ND | 11 | 5.4 | |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 11 | 5.4 | |
| N-NITROSO-DIPHENYLAMINE (2) | ND | 11 | 5.4 | |
| BENZYLCHLOROPHENOL | ND | 11 | 5.4 | UJ |
| PHENANTHRENE | ND | 11 | 5.4 | |
| PHENOL | ND | 11 | 5.4 | UJ |
| PYRENE | ND | 11 | 5.4 | |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | | |
| 2-FLUOROBIPHENYL | 38* | 50-110 | | |
| TERPHEHYL-D14 | 65 | 20-125 | | |
| 2,4,6-TRIBROMOPHENOL | 40 | 20-110 | | |
| 2-FLUOROPHENOL | 42 | 10-115 | | |
| PHENOL-D5 | 39* | 40-110 | | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

with 10/12/10

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

Client : URS GROUP, INC. Date Collected: 07/17/10
 Project : 2010 ADD PET CHAR ADAK Date Received: 07/19/10
 Batch No. : 10G178 Date Extracted: 07/21/10 18:00
 Sample ID : 652 Date Analyzed: 07/23/10 21:44
 Lab Samp ID : G178-10 Dilution Factor: 1.02
 Lab File ID : RGJ290 Matrix : WATER
 Ext Btch ID : SV6031W % Moisture : NA
 Calib. Ref. : RFD014 Instrument ID : I-0E4

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) | |
|-----------------------------|----------------|-----------|------------|----|
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 1.0 | |
| 1,2-DICHLOROBENZENE | ND | 10 | 1.0 | |
| 1,2-DIPHENYLHYDRAZINE | ND | 10 | 1.0 | UJ |
| 1,3-DICHLOROBENZENE | ND | 10 | 1.0 | |
| 1,4-DICHLOROBENZENE | ND | 10 | 1.0 | |
| 2,3,5-TRICHLOROPHENOL | ND | 10 | 1.0 | |
| 2,3,6-TRICHLOROPHENOL | ND | 10 | 1.0 | |
| 2,4-DICHLOROPHENOL | ND | 10 | 1.0 | |
| 2,4-DIMETHYLPHENOL | ND | 10 | 1.0 | |
| 2,4-DINITROPHENOL | ND | 37 | 1.0 | |
| 2,4-DINITROTOLUENE | ND | 10 | 1.0 | |
| 2,6-DINITROTOLUENE | ND | 10 | 1.0 | UJ |
| 2-CHLORONAPHTHALENE | ND | 10 | 1.0 | |
| 2-CHLOROPHENOL | ND | 10 | 1.0 | J |
| 2-METHYLNAPHTHALENE | 25 | 10 | 1.0 | |
| 2-METHYLPHENOL | ND | 10 | 1.0 | UJ |
| 2-NITROANILINE | ND | 10 | 1.0 | |
| 2-NITROBIOI | ND | 10 | 1.0 | UJ |
| 3-NITROANILINE | ND | 10 | 1.0 | |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 37 | 1.0 | |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 10 | 1.0 | UJ |
| 4-CHLORO-3-METHYLPHENOL | ND | 10 | 1.0 | |
| 4-CHLORANILINE | ND | 10 | 1.0 | UJ |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 10 | 1.0 | |
| 4-METHYLPHENOL (1) | ND | 10 | 1.0 | UJ |
| 4-NITROANILINE | ND | 10 | 1.0 | |
| 4-NITROPHENOL | ND | 10 | 1.0 | |
| ACENAPHTHENE | ND | 10 | 1.0 | |
| ACENAPHTHYLENE | ND | 10 | 1.0 | |
| ANTHRACENE | ND | 10 | 1.0 | |
| BENZO(A)ANTHRACENE | ND | 10 | 1.0 | UJ |
| BENZO(A)PYRENE | ND | 10 | 1.0 | |
| BENZO(B)FLUORANTHENE | ND | 10 | 1.0 | |
| BENZO(G,H,I)PERYLENE | ND | 10 | 1.0 | |
| BENZO(K)FLUORANTHENE | ND | 10 | 1.0 | |
| BENZOIC ACID | ND | 100 | 1.0 | |
| BENZYL ALCOHOL | ND | 10 | 1.0 | |
| BIS(2-CHLOROETHOXY)METHANE | ND | 10 | 1.0 | |
| BIS(2-CHLOROETHYL)ETHER | ND | 10 | 1.0 | |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 10 | 1.0 | |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 10 | 1.0 | |
| BUTYLBENZYLPHTHALATE | ND | 10 | 1.0 | |
| CARBAZOLE | ND | 10 | 1.0 | |
| CHRYSENE | ND | 10 | 1.0 | UJ |
| DIBENZO(A,H)ANTHRACENE | ND | 10 | 1.0 | |
| DIBENZOFURAN | ND | 10 | 1.0 | |
| DIETHYLPHTHALATE | ND | 10 | 1.0 | |
| DIMETHYLPHTHALATE | ND | 10 | 1.0 | |
| DI-N-BUTYLPHTHALATE | ND | 10 | 1.0 | |
| DI-N-OCTYLPHTHALATE | ND | 10 | 1.0 | |
| FLUORANTHENE | ND | 10 | 1.0 | |
| FLUORENE | ND | 10 | 1.0 | |
| HEXACHLOROBENZENE | ND | 10 | 1.0 | |
| HEXACHLOROBUTADIENE | ND | 10 | 1.0 | |
| HEXACHLOROETHANE | ND | 10 | 1.0 | |
| INDENO(1,2,3-CD)PYRENE | ND | 10 | 1.0 | |
| ISOPHORONE | ND | 10 | 1.0 | |
| NAPHTHALENE | 25 | 10 | 1.0 | |
| NITROBENZENE | ND | 10 | 1.0 | |
| N-NITROSODIMETHYLAMINE | ND | 10 | 1.0 | |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 10 | 1.0 | |
| N-NITROSODIPHENYLAMINE (2) | ND | 10 | 1.0 | |
| PENTACHLOROPHENOL | ND | 37 | 1.0 | UJ |
| PHENANTHRENE | ND | 10 | 1.0 | |
| PHENOL | ND | 10 | 5.1 | UJ |
| PYRENE | ND | 10 | 5.1 | |
| SURROGATE PARAMETERS | % RECOVERY | OC LIMIT | | |
| 2-FLUOROBIPHENYL | 34* | 50-110 | | |
| TERPHENYL-D14 | 60 | 50-132 | | |
| 2,4,6-TRIBROMOPHENOL | 65 | 50-125 | | |
| 2-FLUOROPHENOL | 48* | 10-115 | | |
| PHENOL-D5 | 29* | 40-110 | | |
| NITROBENZENE-D5 | | | | |

NOTA 10/12/10

(1): Cannot be separated from 3-Methylphenol
 (2): Cannot be separated from Diphenylamine

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/12/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/16/10
Batch No.   : 10G160                   Date Extracted: 07/19/10 16:18
Sample ID: 14-708-1                   Date Analyzed: 07/19/10 16:18
Lab Samp ID: G160-01                  Dilution Factor: 1.07
Lab File ID: EG19009A                 Matrix          : SOIL
Ext Btch ID: VMG007S                  % Moisture     : 66.8
Calib. Ref.: EG19002A                 Instrument ID  : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 110 <i>J</i> | 6.4 | 1.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 124 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 46* | 50-150 |

MTA 10/12/10

Parameter R-C Range
GRO C6-C10

*: Out of QC limits due to matrix interference

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/12/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/16/10
Batch No.   : 10G160                   Date Extracted: 07/19/10 16:55
Sample ID   : 14-708-2                 Date Analyzed: 07/19/10 16:55
Lab Samp ID : G160-02                  Dilution Factor: 0.99
Lab File ID : EG19010A                 Matrix          : SOIL
Ext Btch ID : VMG007S                  % Moisture     : 49.2
Calib. Ref. : EG19002A                 Instrument ID   : SCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 110 J | 3.9 | 0.97 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 135 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 42* | 50-150 |

mta 10/12/10

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

*: Out of QC limits due to matrix interference

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.  : 10F248                    Date Extracted: 06/25/10 15:30
Sample ID  : ANT-S8609-7.5             Date Analyzed: 07/07/10 00:14
Lab Samp ID: F248-14T                  Dilution Factor: 2
Lab File ID: LG06021A                  Matrix          : SOIL
Ext Btch ID: DSF038S                   % Moisture      : 17.9
Calib. Ref.: LG06017A                  Instrument ID   : GCI105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | 2900 J | 49 | 12 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 235* | 50-150 | |
| N-TRIACONTANE-D62 | 95 | 50-150 | |

MTA 10/12/10

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL
- *: Out of QC limit due to matrix interference.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.           Date Collected: 07/06/10
Project      : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.    : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID    : 01-161-15                Date Analyzed: 07/14/10 02:03
Lab Samp ID  : G077-06                  Dilution Factor: 1
Lab File ID  : LG13036A                 Matrix           : SOIL
Ext Btch ID  : DSG015S                   % Moisture      : 23.4
Calib. Ref. : LG13030A                  Instrument ID    : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | ND UJ | 26 | 6.5 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | GC LIMIT | |
| O-TERPHENYL | 99 | 50-150 | |
| N-TRIACONTANE-D62 | 49* | 50-150 | |

with 10/12/10

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/12/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-605-5                Date Analyzed: 07/07/10 21:13
Lab Samp ID: F248-01W                  Dilution Factor: 1
Lab File ID: LG07008A                  Matrix           : SOIL
Ext Btch ID: DSF038S                   % Moisture       : 33.7
Calib. Ref.: LG07003A                  Instrument ID    : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 17J | 30 | 7.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 80 | 50-150 |
| N-TRIACONTANE-D62 | 99 | 50-150 |

Parameter H-C Range
DRO C10-C25

mtl 10/12/10

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/26/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID: 604-7.5                     Date Analyzed: 07/03/10 10:42
Lab Samp ID: F322-15                   Dilution Factor: 1
Lab File ID: LG02063A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture      : 19.3
Calib. Ref.: LG02055A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | 270 J | 25 | 6.2 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 128 | 50-150 | |
| N-TRIACONTANE-D62 | 88 | 50-150 | |

with 10/12/10

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.           Date Collected: 07/02/10
Project      : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.    : 10G078                    Date Extracted: 07/13/10 15:30
Sample ID    : 01-155-10                 Date Analyzed: 07/14/10 20:41
Lab Samp ID  : 6078-D4                   Dilution Factor: 1
Lab File ID  : LG14010A                  Matrix          : SOIL
Ext Btch ID  : DSG016S                   % Moisture      : 23.6
Calib. Ref. : LG14003A                   Instrument ID    : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 640 J | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| 0-TERPHENYL | 97 J | 50-150 |
| N-TRIACONTANE-D62 | 72 | 50-150 |

MTA 10/12/10

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
 TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/18/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F24B                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-602-7.5              Date Analyzed: 06/26/10 09:15
Lab Samp ID: F248-18                   Dilution Factor: 1
Lab File ID: LF25072A                  Matrix          : SOIL
Ext Btch ID: DSF038S                   % Moisture      : 44.3
Calib. Ref.: LF25070A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | 950 <i>J</i> | 36 | 9.0 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 113 | 50-150 | |
| N-TRIACONTANE-D62 | 106 | 50-150 | |

MTA 10/12/10

Parameter H-C Range
 DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/18/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.  : 10F248                    Date Extracted: 06/25/10 15:30
Sample ID  : ANT-602D                  Date Analyzed: 06/26/10 09:31
Lab Samp ID: F248-19                   Dilution Factor: 1
Lab File ID: LF25073A                  Matrix          : SOIL
Ext Btch ID: DSFD38S                   % Moisture     : 52.9
Calib. Ref.: LF25070A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 260 J | 42 | 11 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 115 | 50-150 |
| N-TRIACONTANE-D62 | 108 | 50-150 |

MTI 10/12/10

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

APPENDIX C

Analytical Data, Forms 1



LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-15-2010
EMAX Batch No.: 10F248

Attn: Josie Smith

URS Group, Inc.
1501 4th Ave., Suite 1400
Seattle WA 98101

Subject: Laboratory Report
Project: 2010 Add Pet Char Adak

Enclosed is the Laboratory report for samples received on 06/21/10.
The data reported relate only to samples listed below :

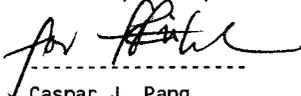
| Sample ID | Control # | Col Date | Matrix | Analysis |
|---------------|-----------|----------|--------|--------------|
| ANT-605-5 | F248-01 | 06/12/10 | SOIL | DRO BY AK102 |
| ANT-605-7.5 | F248-02 | 06/12/10 | SOIL | DRO BY AK102 |
| ANT-604-5 | F248-03 | 06/13/10 | SOIL | DRO BY AK102 |
| ANT-604-7.5 | F248-04 | 06/13/10 | SOIL | DRO BY AK102 |
| ANT-606-5 | F248-05 | 06/13/10 | SOIL | DRO BY AK102 |
| ANT-606-7.5 | F248-06 | 06/13/10 | SOIL | DRO BY AK102 |
| ANT-SB617-2.5 | F248-07 | 06/16/10 | SOIL | DRO BY AK102 |
| ANT-SB617-4.5 | F248-08 | 06/16/10 | SOIL | DRO BY AK102 |
| ANT-SB618-2.5 | F248-09 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB618-5 | F248-10 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB611-2.5 | F248-11 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB611-5 | F248-12 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB609-5 | F248-13 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB609-7.5 | F248-14 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB610-2.5 | F248-15 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-SB610-5 | F248-16 | 06/17/10 | SOIL | DRO BY AK102 |
| ANT-602-2.5 | F248-17 | 06/18/10 | SOIL | DRO BY AK102 |
| ANT-602-7.5 | F248-18 | 06/18/10 | SOIL | DRO BY AK102 |
| ANT-602D | F248-19 | 06/18/10 | SOIL | DRO BY AK102 |

| Sample ID | Control # | Col Date | Matrix | Analysis |
|---------------|-----------|----------|--------|----------|
| ANT-SB609-2.5 | F248-20 | 06/17/10 | SOIL | HOLD |

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that the results included in this report meet all NELAC requirements unless noted in the Case Narrative.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/12/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-605-5                Date Analyzed: 07/07/10 21:13
Lab Samp ID : F248-01W                 Dilution Factor: 1
Lab File ID : LG07008A                 Matrix          : SOIL
Ext Btch ID : DSF038S                  % Moisture      : 33.7
Calib. Ref. : LG07003A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 17J | 30 | 7.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 80 | 50-150 |
| N-TRIACONTANE-D62 | 99 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/12/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-605-7.5              Date Analyzed: 06/26/10 03:41
Lab Samp ID : F248-02                   Dilution Factor: 1
Lab File ID : LF25052A                  Matrix      : SOIL
Ext Btch ID : DSF038S                   % Moisture  : 27.1
Calib. Ref.: LF25043A                   Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND / | 27 | 6.9 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 86 | 50-150 |
| N-TRIACONTANE-D62 | 103 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/13/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                  Date Extracted: 06/25/10 15:30
Sample ID:  ANT-604-5                 Date Analyzed: 06/26/10 03:58
Lab Samp ID: F248-03                 Dilution Factor: 1
Lab File ID: LF25053A                Matrix          : SOIL
Ext Btch ID: DSF038S                 % Moisture      : 28.8
Calib. Ref.: LF25043A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 28 | 7.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 81 | 50-150 |
| N-TRIACONTANE-D62 | 102 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/13/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID:  ANT-604-7.5                Date Analyzed: 06/26/10 04:14
Lab Samp ID: F248-04                   Dilution Factor: 1
Lab File ID: LF25054A                  Matrix      : SOIL
Ext Btch ID: DSF038S                   % Moisture  : 36.3
Calib. Ref.: LF25043A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 31 | 7.8 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 79 | 50-150 |
| N-TRIACONTANE-D62 | 99 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/13/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-606-5                 Date Analyzed: 06/26/10 05:38
Lab Samp ID: F248-05                     Dilution Factor: 1
Lab File ID: LF25059A                     Matrix      : SOIL
Ext Btch ID: DSF038S                       % Moisture  : 16.3
Calib. Ref.: LF25056A                       Instrument ID: GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 47 ✓ | 24 | 6.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 84 | 50-150 |
| N-TRIACONTANE-D62 | 111 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/13/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-606-7.5              Date Analyzed: 06/26/10 05:55
Lab Samp ID: F248-06                   Dilution Factor: 1
Lab File ID: LF25060A                  Matrix          : SOIL
Ext Btch ID: DSF038S                   % Moisture     : 7.5
Calib. Ref.: LF25056A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 10J | 22 | 5.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 90 | 50-150 |
| N-TRIACONTANE-D62 | 108 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/16/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                  Date Extracted: 06/25/10 15:30
Sample ID:  ANT-SB617-2.5             Date Analyzed: 07/13/10 23:46
Lab Samp ID: F248-07W                 Dilution Factor: 1
Lab File ID: LG13028A                 Matrix      : SOIL
Ext Btch ID: DSF038S                  % Moisture   : 54.1
Calib. Ref.: LG13017A                 Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 44 | 11 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 92 | 50-150 |
| N-TRIACONTANE-D62 | 104 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/16/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-SB617-4.5           Date Analyzed: 06/26/10 06:11
Lab Samp ID : F248-08                  Dilution Factor: 1
Lab File ID : LF25061A                 Matrix      : SOIL
Ext Btch ID : DSF038S                  % Moisture  : 66.9
Calib. Ref. : LF25056A                 Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 60 | 15 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 80 | 50-150 |
| N-TRIACONTANE-D62 | 94 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-SB618-2.5            Date Analyzed: 06/26/10 06:28
Lab Samp ID : F248-09                  Dilution Factor: 1
Lab File ID : LF25062A                  Matrix      : SOIL
Ext Btch ID : DSF038S                   % Moisture  : 33.7
Calib. Ref. : LF25056A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 30 | 7.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 81 | 50-150 |
| N-TRIACONTANE-D62 | 94 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID:  ANT-SB618-5                 Date Analyzed: 06/26/10 06:45
Lab Samp ID: F248-10                   Dilution Factor: 1
Lab File ID: LF25063A                  Matrix       : SOIL
Ext Btch ID: DSF038S                   % Moisture   : 41.3
Calib. Ref.: LF25056A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 34 | 8.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 77 | 50-150 |
| N-TRIACONTANE-D62 | 91 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID:  ANT-SB611-2.5              Date Analyzed: 06/26/10 07:01
Lab Samp ID: F248-11                   Dilution Factor: 1
Lab File ID: LF25064A                  Matrix      : SOIL
Ext Btch ID: DSF038S                   % Moisture   : 26.5
Calib. Ref.: LF25056A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 27 | 6.8 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 80 | 50-150 |
| N-TRIACONTANE-D62 | 96 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                  Date Extracted: 06/25/10 15:30
Sample ID   : ANT-SB611-5             Date Analyzed: 06/26/10 07:18
Lab Samp ID : F248-12                 Dilution Factor: 1
Lab File ID : LF25065A                Matrix       : SOIL
Ext Btch ID : DSF038S                 % Moisture   : 28.3
Calib. Ref. : LF25056A                Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 28 | 7.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 86 | 50-150 |
| N-TRIACONTANE-D62 | 98 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-SB609-5              Date Analyzed: 07/06/10 23:57
Lab Samp ID: F248-13T                  Dilution Factor: 5
Lab File ID: LG06020A                  Matrix          : SOIL
Ext Btch ID: DSF038S                   % Moisture     : 59.6
Calib. Ref.: LG06017A                  Instrument ID  : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 12000 | 250 | 62 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 855* | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL
- *: Out of QC limit due to matrix interference.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.           Date Collected: 06/17/10
Project      : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.    : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID    : ANT-SB609-7.5            Date Analyzed: 07/07/10 00:14
Lab Samp ID  : F248-14T                 Dilution Factor: 2
Lab File ID  : LG06021A                 Matrix          : SOIL
Ext Btch ID  : DSF038S                  % Moisture      : 17.9
Calib. Ref.  : LG06017A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 2900 | 49 | 12 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 235* | 50-150 |
| N-TRIACONTANE-D62 | 95 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL
- *: Out of QC limit due to matrix interference.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-SB610-2.5            Date Analyzed: 07/13/10 23:29
Lab Samp ID : F248-15W                 Dilution Factor: 1
Lab File ID : LG13027A                 Matrix          : SOIL
Ext Btch ID : DSF038S                  % Moisture      : 51.0
Calib. Ref. : LG13017A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 41 | 10 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 86 | 50-150 |
| N-TRIACONTANE-D62 | 84 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/17/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID:  ANT-SB610-5                 Date Analyzed: 06/26/10 08:08
Lab Samp ID: F248-16                    Dilution Factor: 1
Lab File ID: LF25068A                   Matrix          : SOIL
Ext Btch ID: DSF038S                    % Moisture      : 19.0
Calib. Ref.: LF25056A                   Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.2 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 87 | 50-150 |
| N-TRIACONTANE-D62 | 102 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/18/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-602-2.5              Date Analyzed: 07/06/10 23:41
Lab Samp ID : F248-171                  Dilution Factor: 10
Lab File ID : LG06019A                  Matrix          : SOIL
Ext Btch ID : DSF038S                   % Moisture      : 51.3
Calib. Ref. : LG06017A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 18000 ✓ | 410 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL
DO:Diluted Out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/18/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.   : 10F248                   Date Extracted: 06/25/10 15:30
Sample ID   : ANT-602-7.5              Date Analyzed: 06/26/10 09:15
Lab Samp ID : F248-18                   Dilution Factor: 1
Lab File ID : LF25072A                  Matrix      : SOIL
Ext Btch ID : DSF038S                   % Moisture  : 44.3
Calib. Ref. : LF25070A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 950 | 36 | 9.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 113 | 50-150 |
| N-TRIACONTANE-D62 | 106 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/18/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/21/10
Batch No.  : 10F248                    Date Extracted: 06/25/10 15:30
Sample ID  : ANT-602D                  Date Analyzed: 06/26/10 09:31
Lab Samp ID: F248-19                   Dilution Factor: 1
Lab File ID: LF25073A                  Matrix      : SOIL
Ext Btch ID: DSF038S                  % Moisture  : 52.9
Calib. Ref.: LF25070A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 260 | 42 | 11 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 115 | 50-150 |
| N-TRIACONTANE-D62 | 108 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL



LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-16-2010
EMAX Batch No.: 10F322

Attn: Josie Smith

URS Group, Inc.
1501 4th Ave., Suite 1400
Seattle WA 98101

Subject: Laboratory Report
Project: 2010 Add Pet Char Adak

Enclosed is the Laboratory report for samples received on 06/28/10.
The data reported relate only to samples listed below :

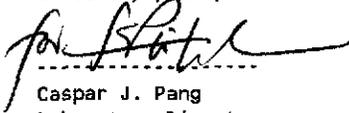
| Sample ID | Control # | Col Date | Matrix | Analysis |
|---------------|-----------|----------|--------|--------------|
| ANT-607-2.5 | F322-01 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-607-5 | F322-02 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB613-2.5 | F322-03 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB614-2.5 | F322-04 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB608-2.5 | F322-05 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB608-5 | F322-06 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB612-2.5 | F322-07 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB612-5 | F322-08 | 06/20/10 | SOIL | DRO BY AK102 |
| ANT-SB612-7.5 | F322-09 | 06/20/10 | SOIL | HOLD |
| 606-5 | F322-10 | 06/25/10 | SOIL | DRO BY AK102 |
| 606-10 | F322-11 | 06/25/10 | SOIL | DRO BY AK102 |
| 603-5 | F322-12 | 06/25/10 | SOIL | DRO BY AK102 |
| 603-7.5 | F322-13 | 06/25/10 | SOIL | DRO BY AK102 |
| 604-5 | F322-14 | 06/26/10 | SOIL | DRO BY AK102 |
| 604-7.5 | F322-15 | 06/26/10 | SOIL | DRO BY AK102 |
| 605-5 | F322-16 | 06/26/10 | SOIL | DRO BY AK102 |
| 605-7.5 | F322-17 | 06/26/10 | SOIL | DRO BY AK102 |
| 608-10 | F322-18 | 06/27/10 | SOIL | DRO BY AK102 |
| 608-12.5 | F322-19 | 06/27/10 | SOIL | DRO BY AK102 |

| Sample ID | Control # | Col Date | Matrix | Analysis |
|------------|-----------|----------|--------|--------------|
| 607-10 | F322-20 | 06/27/10 | SOIL | DRO BY AK102 |
| 607-12.5 | F322-21 | 06/27/10 | SOIL | DRO BY AK102 |
| TRIP BLANK | F322-22 | 06/27/10 | SOIL | CANCELLED |
| 604-7.5MS | F322-15M | 06/26/10 | SOIL | DRO BY AK102 |
| 604-7.5MSD | F322-15S | 06/26/10 | SOIL | DRO BY AK102 |

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that the results included in this report meet all NELAC requirements unless noted in the Case Narrative.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                  Date Extracted: 07/02/10 14:15
Sample ID   : ANT-607-2.5             Date Analyzed: 07/03/10 06:15
Lab Samp ID : F322-01                 Dilution Factor: 1
Lab File ID : LG02047A                Matrix          : SOIL
Ext Btch ID : DSG006S                 % Moisture     : 45.2
Calib. Ref. : LG02042A                Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRD | ND | 36 | 9.1 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 91 | 50-150 |
| N-TRIACONTANE-D62 | 79 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRD | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : ANT-607-5                 Date Analyzed: 07/03/10 06:32
Lab Samp ID : F322-02                   Dilution Factor: 1
Lab File ID : LG02048A                  Matrix      : SOIL
Ext Btch ID : DSG006S                   % Moisture  : 46.9
Calib. Ref. : LG02042A                  Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 38 | 9.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 96 | 50-150 |
| N-TRIACONTANE-062 | 81 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.  : 10F322                    Date Extracted: 07/02/10 14:15
Sample ID  : ANT-SB613-2.5             Date Analyzed: 07/03/10 06:48
Lab Samp ID: F322-03                   Dilution Factor: 1
Lab File ID: LG02049A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture      : 48.7
Calib. Ref.: LG02042A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 39 | 9.7 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 96 | 50-150 |
| N-TRIACONTANE-D62 | 83 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : ANT-SB614-2.5            Date Analyzed: 07/03/10 07:05
Lab Samp ID: F322-04                   Dilution Factor: 1
Lab File ID: LG02050A                  Matrix      : SOIL
Ext Btch ID: DSG006S                   % Moisture  : 62.6
Calib. Ref.: LG02042A                  Instrument ID: GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 53 | 13 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 103 | 50-150 |
| N-TRIACONTANE-D62 | 90 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : ANT-SB608-2.5            Date Analyzed: 07/03/10 07:22
Lab Samp ID: F322-05                   Dilution Factor: 1
Lab File ID: LG02051A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture      : 34.7
Calib. Ref.: LG02042A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 31 | 7.7 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 104 | 50-150 |
| N-TRIACONTANE-D62 | 87 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : ANT-SB608-5              Date Analyzed: 07/03/10 07:38
Lab Samp ID: F322-06                   Dilution Factor: 1
Lab File ID: LG02052A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture      : 10.6
Calib. Ref.: LG02042A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | ND | 22 | 5.6 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 108 | 50-150 | |
| N-TRIACONTANE-D62 | 90 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.  : 10F322                    Date Extracted: 07/02/10 14:15
Sample ID  : ANT-SB612-2.5             Date Analyzed: 07/03/10 07:55
Lab Samp ID: F322-07                   Dilution Factor: 1
Lab File ID: LG02053A                  Matrix      : SOIL
Ext Btch ID: DSG006S                   % Moisture  : 48.7
Calib. Ref.: LG02042A                  Instrument ID: GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 39 | 9.7 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 94 | 50-150 |
| N-TRIACONTANE-D62 | 81 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/20/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : ANT-S8612-5              Date Analyzed: 07/03/10 09:18
Lab Samp ID: F322-08                   Dilution Factor: 1
Lab File ID: LG02058A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture     : 63.3
Calib. Ref.: LG02055A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 54 | 14 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| D-TERPHENYL | 102 | 50-150 |
| N-TRIACONTANE-D62 | 85 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/25/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.  : 10F322                    Date Extracted: 07/02/10 14:15
Sample ID  : 606-5                      Date Analyzed: 07/03/10 09:35
Lab Samp ID: F322-10                    Dilution Factor: 1
Lab File ID: LG02059A                   Matrix          : SOIL
Ext Btch ID: DSG006S                    % Moisture      : 8.2
Calib. Ref.: LG02055A                   Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 47 | 22 | 5.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 104 | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/25/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : 606-10                   Date Analyzed: 07/03/10 09:52
Lab Samp ID : F322-11                   Dilution Factor: 1
Lab File ID : LG02060A                  Matrix          : SOIL
Ext Btch ID : DSG006S                   % Moisture      : 22.2
Calib. Ref. : LG02055A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 107 | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/25/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : 603-5                     Date Analyzed: 07/07/10 22:19
Lab Samp ID: F322-12T                  Dilution Factor: 10
Lab File ID: LG07012A                  Matrix           : SOIL
Ext Btch ID: DSG006S                   % Moisture      : 9.7
Calib. Ref.: LG07003A                  Instrument ID    : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 6700 ✓ | 220 | 55 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL
DO:Diluted out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/25/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.  : 10F322                    Date Extracted: 07/02/10 14:15
Sample ID  : 603-7.5                   Date Analyzed: 07/07/10 22:03
Lab Samp ID: F322-13W                  Dilution Factor: 1
Lab File ID: LG07011A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture     : 20.2
Calib. Ref.: LG07003A                  Instrument ID  : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 94 | 50-150 | |
| N-TRIACONTANE-D62 | 91 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/26/10
Project    : 2010 ADD'PET CHAR ADAK    Date Received: 06/28/10
Batch No.  : 10F322                    Date Extracted: 07/02/10 14:15
Sample ID  : 604-5                     Date Analyzed: 07/07/10 22:36
Lab Samp ID: F322-14T                  Dilution Factor: 50
Lab File ID: LG07013A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture      : 9.3
Calib. Ref.: LG07003A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 26000 / | 1100 | 280 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL
DO:Diluted out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/26/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                  Date Extracted: 07/02/10 14:15
Sample ID   : 604-7.5                 Date Analyzed: 07/03/10 10:42
Lab Samp ID : F322-15                 Dilution Factor: 1
Lab File ID : LG02063A                Matrix          : SOIL
Ext Btch ID : DSG006S                 % Moisture      : 19.3 /
Calib. Ref. : LG02055A                Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 270 | 25 | 6.2 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 128 | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/26/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.  : 10F322                    Date Extracted: 07/02/10 14:15
Sample ID  : 605-5                     Date Analyzed: 07/07/10 22:53
Lab Samp ID: F322-16T                  Dilution Factor: 10
Lab File ID: LG07014A                  Matrix          : SOIL
Ext Btch ID: DSG006S                   % Moisture     : 10.7
Calib. Ref.: LG07003A                  Instrument ID  : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 16000 ✓ | 220 | 56 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL
DO: Diluted out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/26/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : 605-7.5                  Date Analyzed: 07/03/10 12:38
Lab Samp ID : F322-17                  Dilution Factor: 1
Lab File ID : LG02070A                 Matrix          : SOIL
Ext Btch ID : DSG006S                  % Moisture     : 20.3
Calib. Ref. : LG02068A                 Instrument ID   : GCI105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 220 | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 131 | 50-150 |
| N-TRIACONTANE-D62 | 90 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/27/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.   : 10F322                  Date Extracted: 07/02/10 14:15
Sample ID   : 608-10                  Date Analyzed: 07/03/10 12:55
Lab Samp ID: F322-18                  Dilution Factor: 1
Lab File ID: LG02071A                 Matrix           : SOIL
Ext Btch ID: DSG006S                  % Moisture      : 21.8
Calib. Ref.: LG02068A                 Instrument ID    : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 110 | 50-150 |
| N-TRIACONTANE-D62 | 87 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.           Date Collected: 06/27/10
Project      : 2010 ADD PET CHAR ADAK   Date Received: 06/28/10
Batch No.    : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID    : 608-12.5                 Date Analyzed: 07/03/10 13:12
Lab Samp ID  : F322-19                  Dilution Factor: 1
Lab File ID  : LG02072A                 Matrix          : SOIL
Ext Btch ID  : OSG006S                  % Moisture     : 22.1
Calib. Ref.  : LG02068A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 111 | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10F322
Sample ID   : 607-10
Lab Samp ID: F322-20
Lab File ID: LG02073A
Ext Btch ID: DSG006S
Calib. Ref.: LG02068A
Date Collected: 06/27/10
Date Received: 06/28/10
Date Extracted: 07/02/10 14:15
Date Analyzed: 07/03/10 13:28
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 19.9
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.2 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 105 | 50-150 |
| N-TRIACONTANE-D62 | 87 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/27/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 06/28/10
Batch No.   : 10F322                   Date Extracted: 07/02/10 14:15
Sample ID   : 607-12.5                  Date Analyzed: 07/03/10 13:45
Lab Samp ID: F322-21                    Dilution Factor: 1
Lab File ID: LG02074A                   Matrix          : SOIL
Ext Btch ID: DSG006S                    % Moisture      : 22.0
Calib. Ref.: LG02068A                   Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 106 | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL



LABORATORIES, INC.
 1835 W. 205th Street
 Torrance, CA 90501
 Tel: (310) 618-8889
 Fax: (310) 618-0818

Date: 07-21-2010
 EMAX Batch No.: 10G031

Attn: Josie Smith

URS Group, Inc.
 1501 4th Ave., Suite 1400
 Seattle WA 98101

Subject: Laboratory Report
 Project: 2010 Add Pet Char Adak

 Enclosed is the Laboratory report for samples received on 07/02/10.
 The data reported relate only to samples listed below :

| Sample ID | Control # | Col Date | Matrix | Analysis |
|-------------|-----------|----------|--------|--------------|
| 01-158-7.5 | G031-01 | 06/22/10 | SOIL | DRO BY AK102 |
| 602-7.5 | G031-02 | 06/28/10 | SOIL | DRO BY AK102 |
| 602-12.5 | G031-03 | 06/28/10 | SOIL | DRO BY AK102 |
| 01-156A-7.5 | G031-04 | 06/28/10 | SOIL | DRO BY AK102 |
| 01-156A-10 | G031-05 | 06/28/10 | SOIL | DRO BY AK102 |
| 01-154-7.5 | G031-06 | 06/28/10 | SOIL | DRO BY AK102 |
| 01-154-10 | G031-07 | 06/28/10 | SOIL | DRO BY AK102 |
| T-1451D | G031-08 | 06/28/10 | SOIL | DRO BY AK102 |
| 01-153-7.5 | G031-09 | 06/29/10 | SOIL | DRO BY AK102 |
| 01-153-10 | G031-10 | 06/29/10 | SOIL | DRO BY AK102 |
| 01-152-7.5 | G031-11 | 07/01/10 | SOIL | DRO BY AK102 |
| 01-152-10 | G031-12 | 07/01/10 | SOIL | DRO BY AK102 |

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
 Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that the results included in this report meet all NELAC requirements unless noted in the Case Narrative.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.                Date Collected: 06/22/10
Project      : 2010 ADD PET CHAR ADAK         Date Received: 07/02/10
Batch No.    : 10G031                         Date Extracted: 07/06/10 14:30
Sample ID    : 01-158-7.5                    Date Analyzed: 07/07/10 01:22
Lab Samp ID  : G031-01                       Dilution Factor: 1
Lab File ID  : LG06025A                      Matrix          : SOIL
Ext Btch ID  : DSG007S                       % Moisture      : 24.1
Calib. Ref.  : LG06017A                      Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 104 | 50-150 |
| N-TRIACONTANE-D62 | 61 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/28/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/02/10
Batch No.   : 1DG031                   Date Extracted: 07/06/10 14:30
Sample ID   : 602-7.5                   Date Analyzed: 07/07/10 01:38
Lab Samp ID: G031-02                    Dilution Factor: 1
Lab File ID: LG06026A                   Matrix          : SOIL
Ext Btch ID: DSG007S                    % Moisture      : 20.4
Calib. Ref.: LG06017A                   Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 100 | 50-150 |
| N-TRIACONTANE-D62 | 61 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range[#]
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.
Project      : 2010 ADD PET CHAR ADAK
Batch No.    : 10G031
Sample ID    : 602-12.5
Lab Samp ID  : G031-03
Lab File ID  : LG06027A
Ext Btch ID  : DSG007S
Calib. Ref. : LG06017A

Date Collected: 06/28/10
Date Received: 07/02/10
Date Extracted: 07/06/10 14:30
Date Analyzed: 07/07/10 01:55
Dilution Factor: 1
Matrix       : SOIL
% Moisture   : 20.4
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRG | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 99 | 50-150 |
| N-TRIACONTANE-D62 | 57 | 50-150 |

Parameter H-C Range
DRG C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/28/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/02/10
Batch No.   : 10G031                  Date Extracted: 07/06/10 14:30
Sample ID: 01-156A-7.5                Date Analyzed: 07/07/10 02:12
Lab Samp ID: G031-04                  Dilution Factor: 1
Lab File ID: LG06028A                 Matrix          : SOIL
Ext Btch ID: DSG007S                  % Moisture      : 22.8
Calib. Ref.: LG06017A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 97 | 50-150 |
| N-TRIACONTANE-D62 | 61 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/28/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/02/10
Batch No.   : 10G031                   Date Extracted: 07/06/10 14:30
Sample ID: 01-156A-10                  Date Analyzed: 07/07/10 03:02
Lab Samp ID: G031-05                    Dilution Factor: 1
Lab File ID: LG06031A                   Matrix           : SOIL
Ext Btch ID: DSG007S                    % Moisture       : 24.9
Calib. Ref.: LG06030A                   Instrument ID    : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 27 | 6.7 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 95 | 50-150 |
| N-TRIACONTANE-D62 | 55 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G031
Sample ID   : 01-154-7.5
Lab Samp ID : G031-06T
Lab File ID : LG06039A
Ext Btch ID : DSG007S
Calib. Ref. : LG06030A

Date Collected: 06/28/10
Date Received: 07/02/10
Date Extracted: 07/06/10 14:30
Date Analyzed: 07/07/10 05:17
Dilution Factor: 5
Matrix      : SOIL
% Moisture  : 22.1
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| ORO | 8300 | 130 | 32 |
| ----- | | | |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 406* | 50-150 | |
| N-TRIACONTANE-D62 | 70 | 50-150 | |

Parameter H-C Range
ORO C10-C25

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL
- *: Out of QC limit due to matrix interference.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/28/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/02/10
Batch No.   : 10G031                   Date Extracted: 07/06/10 14:30
Sample ID: 01-154-10                   Date Analyzed: 07/07/10 03:19
Lab Samp ID: G031-07                   Dilution Factor: 1
Lab File ID: LG06032A                  Matrix          : SOIL /
Ext Btch ID: DSG007S                   % Moisture      : 22.9
Calib. Ref.: LG06030A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 98 | 50-150 |
| N-TRIACONTANE-D62 | 54 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G031
Sample ID   : T-1451D
Lab Samp ID : G031-08T
Lab File ID : LG06040A
Ext Btch ID : DSG007S
Calib. Ref. : LG06030A

Date Collected: 06/28/10
Date Received: 07/02/10
Date Extracted: 07/06/10 14:30
Date Analyzed: 07/07/10 05:34
Dilution Factor: 5
Matrix      : SOIL
% Moisture  : 22.6
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 9300 | 130 | 32 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 415* | 50-150 |
| N-TRIACONTANE-D62 | 92 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

- E: Exceeding calibration range"
- J: Result is between the RL and MDL
- *: Out of QC limit due to matrix interference.

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 06/29/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/02/10
Batch No.   : 106031                   Date Extracted: 07/06/10 14:30
Sample ID   : 01-153-7.5               Date Analyzed: 07/07/10 03:36
Lab Samp ID: G031-09                   Dilution Factor: 1
Lab File ID: LG06033A                  Matrix          : SOIL
Ext Btch ID: DSG007S                   % Moisture      : 23.2
Calib. Ref.: LG06030A                  Instrument ID   : GC1105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 105 | 50-150 | |
| N-TRIACONTANE-D62 | 59 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G031
Sample ID   : 01-153-10
Lab Samp ID: G031-10
Lab File ID: LG06034A
Ext Btch ID: DSG007S
Calib. Ref.: LG06030A

Date Collected: 06/29/10
Date Received: 07/02/10
Date Extracted: 07/06/10 14:30
Date Analyzed: 07/07/10 03:53
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 24.3
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| D-TERPHENYL | 106 | 50-150 |
| N-TRIACONTANE-D62 | 75 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G031
Sample ID   : 01-152-7.5
Lab Samp ID: G031-11
Lab File ID: LG06035A
Ext Btch ID: DSG007S
Calib. Ref.: LG06030A

Date Collected: 07/01/10
Date Received: 07/02/10
Date Extracted: 07/06/10 14:30
Date Analyzed: 07/07/10 04:10
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 21.3
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 95 | 50-150 |
| N-TRIACONTANE-D62 | 59 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.                Date Collected: 07/01/10
Project      : 2010 ADD PET CHAR ADAK         Date Received: 07/02/10
Batch No.    : 10G031                         Date Extracted: 07/06/10 14:30
Sample ID    : 01-152-10                     Date Analyzed: 07/07/10 04:26
Lab Samp ID  : G031-12                       Dilution Factor: 1
Lab File ID  : LG06036A                     Matrix          : SOIL
Ext Btch ID  : DSG007S                       % Moisture     : 21.5
Calib. Ref. : LG06030A                     Instrument ID  : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 100 | 50-150 |
| N-TRIACONTANE-D62 | 60 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range"
J: Result is between the RL and MDL



LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-28-2010
EMAX Batch No.: 10G077

Attn: Josie Smith

URS Group, Inc.
1501 4th Ave., Suite 1400
Seattle WA 98101

Subject: Laboratory Report
Project: 2010 Add Pet Char Adak

Enclosed is the Laboratory report for samples received on 07/09/10.
The data reported relate only to samples listed below :

| Sample ID | Control # | Col Date | Matrix | Analysis |
|-------------|-----------|----------|--------|--------------|
| 01-159-12.5 | G077-01 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-159-15 | G077-02 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-159D | G077-03 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-160-5 | G077-04 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-160-7.5 | G077-05 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-161-15 | G077-06 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-161-17.5 | G077-07 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-162-5 | G077-08 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-162-12.5 | G077-09 | 07/06/10 | SOIL | DRO BY AK102 |
| 01-163-5 | G077-10 | 07/07/10 | SOIL | DRO BY AK102 |
| 01-163-7.5 | G077-11 | 07/07/10 | SOIL | DRO BY AK102 |
| 01-164-5 | G077-12 | 07/07/10 | SOIL | DRO BY AK102 |
| 01-164-7.5 | G077-13 | 07/07/10 | SOIL | DRO BY AK102 |
| 01-166-7.5 | G077-14 | 07/07/10 | SOIL | DRO BY AK102 |
| 01-166-12.5 | G077-15 | 07/07/10 | SOIL | DRO BY AK102 |
| 01-166-20 | G077-16 | 07/07/10 | SOIL | HOLD |
| 01-165-5 | G077-17 | 07/08/10 | SOIL | DRO BY AK102 |
| 01-165-7.5 | G077-18 | 07/08/10 | SOIL | DRO BY AK102 |
| 01-162-5MS | G077-08M | 07/06/10 | SOIL | DRO BY AK102 |

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/06/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G077                  Date Extracted: 07/13/10 11:30
Sample ID   : 01-159-12.5            Date Analyzed: 07/15/10 03:12
Lab Samp ID: G077-01T                Dilution Factor: 10
Lab File ID: LG14033A                Matrix          : SOIL
Ext Btch ID: DSG015S                 % Moisture      : 12.1
Calib. Ref.: LG14030A                Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRD | 16000 | 230 | 57 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRD | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL
 DO: Diluted out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client       : URS GROUP, INC.           Date Collected: 07/06/10
Project      : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.    : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID    : 01-159-15                Date Analyzed: 07/13/10 23:12
Lab Samp ID  : G077-02                  Dilution Factor: 1
Lab File ID  : LG13026A                 Matrix          : SOIL
Ext Btch ID  : DSG015S                  % Moisture      : 23.8
Calib. Ref.  : LG13017A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 17J | 26 | 6.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 105 | 50-150 |
| N-TRIACONTANE-D62 | 56 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID   : 01-1590
Lab Samp ID: G077-03
Lab File ID: LG13033A
Ext Btch ID: DSG015S
Calib. Ref.: LG13030A

Date Collected: 07/06/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 01:12
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 23.2
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 104 | 50-150 |
| N-TRIACONTANE-D62 | 57 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project    : 2010 ADD PET CHAR ADAK
Batch No.  : 10G077
Sample ID  : 01-160-5
Lab Samp ID: G077-04
Lab File ID: LG13034A
Ext Btch ID: DSG015S
Calib. Ref.: LG13030A

Date Collected: 07/06/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 01:29
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 23.4
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 101 | 50-150 |
| N-TRIACONTANE-D62 | 61 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/06/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID: 01-160-7.5                  Date Analyzed: 07/14/10 01:46
Lab Samp ID: G077-05                   Dilution Factor: 1
Lab File ID: LG13035A                  Matrix          : SOIL
Ext Btch ID: DSG015S                   % Moisture     : 23.8
Calib. Ref.: LG13030A                  Instrument ID  : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| Q-TERPHENYL | 101 | 50-150 |
| N-TRIACONTANE-D62 | 50 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID   : 01-161-15
Lab Samp ID: G077-06
Lab File ID: LG13036A
Ext Btch ID: DSG015S
Calib. Ref.: LG13030A

Date Collected: 07/06/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 02:03
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 23.4
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRD | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 99 | 50-150 |
| N-TRIACONTANE-D62 | 49* | 50-150 |

Parameter H-C Range
DRD C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID   : 01-161-17.5
Lab Samp ID : G077-07
Lab File ID : LG13037A
Ext Btch ID : DSG015S
Calib. Ref.: LG13030A

Date Collected: 07/06/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 02:20
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 24.0
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRD | ND | 26 | 6.6 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| Q-TERPHENYL | 99 | 50-150 | |
| N-TRIACONTANE-D62 | 75 | 50-150 | |

Parameter H-C Range
DRD C10-C25

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID   : 01-162-5
Lab Samp ID: G077-08
Lab File ID: LG13038A
Ext Btch ID: DSG015S
Calib. Ref.: LG13030A

Date Collected: 07/06/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 02:37
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 21.0
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 102 | 50-150 |
| N-TRIACONTANE-D62 | 93 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/06/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.   : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID:  Q1-162-12.5                Date Analyzed: 07/14/10 03:27
Lab Samp ID: G077-09                   Dilution Factor: 1
Lab File ID: LG13041A                  Matrix          : SOIL
Ext Btch ID: DSG015S                   % Moisture      : 23.3
Calib. Ref.: LG13030A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 107 | 50-150 |
| N-TRIACONTANE-D62 | 134 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID: 01-163-5
Lab Samp ID: G077-10
Lab File ID: LG13044A
Ext Btch ID: DSG015S
Calib. Ref.: LG13043A

Date Collected: 07/07/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 04:18
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 22.5
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 102 | 50-150 |
| N-TRIACONTANE-D62 | 108 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/07/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID   : 01-163-7.5               Date Analyzed: 07/14/10 04:35
Lab Samp ID : G077-11                   Dilution Factor: 1
Lab File ID : LG13045A                  Matrix          : SOIL
Ext Btch ID : DSG015S                   % Moisture      : 19.7
Calib. Ref. : LG13043A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.2 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 101 | 50-150 |
| N-TRIACONTANE-D62 | 62 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID   : 01-164-5
Lab Samp ID: G077-12
Lab File ID: LG13046A
Ext Btch ID: DSG015S
Calib. Ref.: LG13043A

Date Collected: 07/07/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 04:52
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 21.3
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| Q-TERPHENYL | 104 | 50-150 |
| N-TRIACONTANE-D62 | 73 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/07/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID   : 01-164-7.5               Date Analyzed: 07/14/10 05:08
Lab Samp ID: G077-13                    Dilution Factor: 1
Lab File ID: LG13047A                   Matrix      : SOIL
Ext Btch ID: DSG015S                     % Moisture  : 20.1
Calib. Ref.: LG13043A                    Instrument ID: GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 102 | 50-150 |
| N-TRIACONTANE-D62 | 57 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G077
Sample ID:  : 01-166-7.5
Lab Samp ID: G077-14
Lab File ID: LG13048A
Ext Btch ID: DSG015S
Calib. Ref.: LG13043A

Date Collected: 07/07/10
Date Received: 07/09/10
Date Extracted: 07/13/10 11:30
Date Analyzed: 07/14/10 05:25
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 22.5
Instrument ID : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 103 | 50-150 | |
| N-TRIACONTANE-D62 | 60 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/07/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G077                  Date Extracted: 07/13/10 11:30
Sample ID: 01-166-12.5               Date Analyzed: 07/14/10 05:42
Lab Samp ID: G077-15                 Dilution Factor: 1
Lab File ID: LG13049A                Matrix      : SOIL
Ext Btch ID: DSG015S                 % Moisture  : 21.0
Calib. Ref.: LG13043A                Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 109 | 50-150 |
| N-TRIACONTANE-D62 | 73 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/08/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.   : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID   : 01-165-5                 Date Analyzed: 07/14/10 05:59
Lab Samp ID: G077-17                   Dilution Factor: 1
Lab File ID: LG13050A                  Matrix          : SOIL
Ext Btch ID: DSG015S                   % Moisture     : 21.5
Calib. Ref.: LG13043A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 25J | 25 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 111 | 50-150 |
| N-TRIACONTANE-D62 | 64 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/08/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.  : 10G077                   Date Extracted: 07/13/10 11:30
Sample ID  : 01-165-7.5               Date Analyzed: 07/14/10 06:16
Lab Samp ID: G077-18                  Dilution Factor: 1
Lab File ID: LG13051A                 Matrix          : SOIL
Ext Btch ID: DSG015S                  % Moisture      : 23.6
Calib. Ref.: LG13043A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 103 | 50-150 |
| N-TRIACONTANE-D62 | 58 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL



LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 07-28-2010
EMAX Batch No.: 10G078

Attn: Josie Smith

URS Group, Inc.
1501 4th Ave., Suite 1400
Seattle WA 98101

Subject: Laboratory Report
Project: 2010 Add Pet Char Adak

Enclosed is the Laboratory report for samples received on 07/09/10.
The data reported relate only to samples listed below :

| Sample ID | Control # | Col Date | Matrix | Analysis |
|--------------|-----------|----------|--------|--------------|
| 01-157-12.5 | G078-01 | 07/01/10 | SOIL | DRO BY AK102 |
| 01-157-17.5 | G078-02 | 07/01/10 | SOIL | DRO BY AK102 |
| 01-155-7.5 | G078-03 | 07/02/10 | SOIL | DRO BY AK102 |
| 01-155-10 | G078-04 | 07/02/10 | SOIL | DRO BY AK102 |
| 01-158A-17.5 | G078-05 | 07/02/10 | SOIL | DRO BY AK102 |
| 652-7.5 | G078-06 | 07/02/10 | SOIL | DRO BY AK102 |
| 652-10 | G078-07 | 07/02/10 | SOIL | DRO BY AK102 |
| 651-10 | G078-08 | 07/03/10 | SOIL | DRO BY AK102 |
| 651-12.5 | G078-09 | 07/03/10 | SOIL | DRO BY AK102 |
| 651D | G078-10 | 07/03/10 | SOIL | DRO BY AK102 |
| 650-10 | G078-11 | 07/03/10 | SOIL | DRO BY AK102 |
| 650-12.5 | G078-12 | 07/03/10 | SOIL | DRO BY AK102 |
| 653-7.5 | G078-13 | 07/03/10 | SOIL | DRO BY AK102 |
| 653-10 | G078-14 | 07/03/10 | SOIL | DRO BY AK102 |
| 655-5 | G078-15 | 07/04/10 | SOIL | DRO BY AK102 |
| 655-7.5 | G078-16 | 07/04/10 | SOIL | DRO BY AK102 |
| 654-5 | G078-17 | 07/04/10 | SOIL | DRO BY AK102 |
| 654-7.5 | G078-18 | 07/04/10 | SOIL | DRO BY AK102 |
| 601-5 | G078-19 | 07/04/10 | SOIL | DRO BY AK102 |

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/01/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 01-157-12.5              Date Analyzed: 07/14/10 20:08
Lab Samp ID: G078-01                   Dilution Factor: 1
Lab File ID: LG14008A                  Matrix          : SOIL
Ext Btch ID: DSG016S                   % Moisture      : 22.9
Calib. Ref.: LG14003A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 22J | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 104 | 50-150 |
| N-TRIACONTANE-D62 | 65 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/01/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                  Date Extracted: 07/13/10 15:30
Sample ID   : 01-157-17.5             Date Analyzed: 07/14/10 20:24
Lab Samp ID : G078-02                 Dilution Factor: 1
Lab File ID : LG14009A                Matrix          : SOIL
Ext Btch ID : DSG016S                 % Moisture      : 21.5
Calib. Ref. : LG14003A                Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 99 | 50-150 |
| N-TRIACONTANE-D62 | 79 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/02/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                  Date Extracted: 07/13/10 15:30
Sample ID   : 01-155-7.5              Date Analyzed: 07/18/10 20:17
Lab Samp ID: G078-03T                 Dilution Factor: 10
Lab File ID: LG17161A                 Matrix          : SOIL
Ext Btch ID: DSG016S                  % Moisture      : 9.2
Calib. Ref.: LG17155A                 Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 13000 J | 220 | 55 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL
 DO: Diluted out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/02/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 01-155-10                Date Analyzed: 07/14/10 20:41
Lab Samp ID : G078-04                   Dilution Factor: 1
Lab File ID : LG14010A                  Matrix          : SOIL
Ext Btch ID : DSG016S                   % Moisture      : 23.6
Calib. Ref. : LG14003A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 640 | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 97 ✓ | 50-150 |
| N-TRIACONTANE-D62 | 72 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/02/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                  Date Extracted: 07/13/10 15:30
Sample ID   : 01-158A-17.5           Date Analyzed: 07/14/10 21:31
Lab Samp ID: G078-05                 Dilution Factor: 1
Lab File ID: LG14013A               Matrix          : SOIL
Ext Btch ID: DSG016S                % Moisture      : 22.5
Calib. Ref.: LG14003A               Instrument ID    : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 99 | 50-150 |
| N-TRIACONTANE-D62 | 79 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/02/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.  : 10G078                    Date Extracted: 07/13/10 15:30
Sample ID  : 652-7.5                   Date Analyzed: 07/18/10 20:34
Lab Samp ID: G078-06T                  Dilution Factor: 20
Lab File ID: LG17162A                  Matrix          : SOIL
Ext Btch ID: DSG016S                   % Moisture     : 9.4
Calib. Ref.: LG17155A                   Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 22000 | 440 | 110 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | DO | 50-150 |
| N-TRIACONTANE-D62 | DO | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL
OO: Diluted out

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/02/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.  : 10G078                    Date Extracted: 07/13/10 15:30
Sample ID  : 652-10                     Date Analyzed: 07/14/10 21:48
Lab Samp ID: G078-07                    Dilution Factor: 1
Lab File ID: LG14014A                   Matrix      : SOIL
Ext Btch ID: DSG016S                     % Moisture  : 21.3
Calib. Ref.: LG14003A                    Instrument ID : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 150 | 25 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 121 | 50-150 |
| N-TRIACONTANE-D62 | 78 ✓ | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/03/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 651-10                   Date Analyzed: 07/14/10 22:05
Lab Samp ID: G078-08                   Dilution Factor: 1
Lab File ID: LG14015A                  Matrix           : SOIL
Ext Btch ID: DSG016S                   % Moisture       : 20.3
Calib. Ref.: LG14003A                  Instrument ID    : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 21J | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 105 | 50-150 |
| N-TRIACONTANE-D62 | 71 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G078
Sample ID   : 651-12.5
Lab Samp ID: G078-09
Lab File ID: LG14038A
Ext Btch ID: DSG016S
Calib. Ref.: LG14030A

Date Collected: 07/03/10
Date Received: 07/09/10
Date Extracted: 07/13/10 15:30
Date Analyzed: 07/15/10 04:37
Dilution Factor: 1
Matrix      : SOIL
% Moisture  : 20.4
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 102 | 50-150 |
| N-TRIACONTANE-D62 | 72 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/03/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 651D                      Date Analyzed: 07/14/10 23:14
Lab Samp ID: G078-10                   Dilution Factor: 1
Lab File ID: LG14019A                  Matrix          : SOIL
Ext Btch ID: DSG016S                   % Moisture      : 20.7
Calib. Ref.: LG14017A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 19J | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 103 | 50-150 |
| N-TRIACONTANE-D62 | 67 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/03/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 650-10                   Date Analyzed: 07/15/10 03:46
Lab Samp ID: G078-11                   Dilution Factor: 1
Lab File ID: LG14035A                  Matrix          : SOIL
Ext Btch ID: DSG016S                   % Moisture      : 16.1
Calib. Ref.: LG14030A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 23J | 24 | 6.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 105 | 50-150 |
| N-TRIACONTANE-D62 | 69 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/03/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.  : 10G078                    Date Extracted: 07/13/10 15:30
Sample ID  : 650-12.5                  Date Analyzed: 07/14/10 23:31
Lab Samp ID: G078-12                   Dilution Factor: 1
Lab File ID: LG14020A                  Matrix          : SOIL
Ext Btch ID: DSG016S                   % Moisture     : 21.8
Calib. Ref.: LG14017A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | ND | 26 | 6.4 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 102 | 50-150 | |
| N-TRIACONTANE-D62 | 62 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/03/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                  Date Extracted: 07/13/10 15:30
Sample ID   : 653-7.5                 Date Analyzed: 07/18/10 19:27
Lab Samp ID : G078-13T                Dilution Factor: 5
Lab File ID : LG17158A                Matrix          : SOIL
Ext Btch ID : DSG016S                 % Moisture      : 14.1
Calib. Ref.: LG17155A                 Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 4100 | 120 | 29 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 105 | 50-150 |
| N-TRIACONTANE-D62 | 70 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/03/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.  : 10G078                    Date Extracted: 07/13/10 15:30
Sample ID  : 653-10                     Date Analyzed: 07/14/10 23:48
Lab Samp ID: G078-14                    Dilution Factor: 1
Lab File ID: LG14021A                   Matrix          : SOIL
Ext Btch ID: DSG016S                     % Moisture      : 21.0
Calib. Ref.: LG14017A                    Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | ND | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 105 | 50-150 |
| N-TRIACONTANE-D62 | 63 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/04/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 655-5                     Date Analyzed: 07/15/10 00:05
Lab Samp ID: G078-15                    Dilution Factor: 1
Lab File ID: LG14022A                   Matrix          : SOIL
Ext Btch ID: DSG016S                    % Moisture      : 20.8
Calib. Ref.: LG14017A                    Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 21J / | 25 | 6.3 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 108 | 50-150 |
| N-TRIACONTANE-D62 | 54 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/04/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                  Date Extracted: 07/13/10 15:30
Sample ID   : 655-7.5                 Date Analyzed: 07/15/10 03:29
Lab Samp ID: G078-16                  Dilution Factor: 1
Lab File ID: LG14034A                 Matrix          : SOIL
Ext Btch ID: DSG016S                  % Moisture      : 22.0
Calib. Ref.: LG14030A                 Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 62 | 26 | 6.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 114 | 50-150 |
| N-TRIACONTANE-D62 | 63 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/04/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/09/10
Batch No.  : 10G078                    Date Extracted: 07/13/10 15:30
Sample ID  : 654-5                     Date Analyzed: 07/15/10 00:21
Lab Samp ID: G078-17                   Dilution Factor: 1
Lab File ID: LG14023A                  Matrix          : SOIL
Ext Btch ID: DSG016S                   % Moisture     : 19.8
Calib. Ref.: LG14017A                  Instrument ID  : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|----------------------|--------------------|---------------|----------------|
| DRO | 44 J | 25 | 6.2 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 109 | 50-150 | |
| N-TRIACONTANE-D62 | 77 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/04/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 654-7.5                   Date Analyzed: 07/15/10 00:38
Lab Samp ID: G078-18                    Dilution Factor: 1
Lab File ID: LG14024A                   Matrix          : SOIL
Ext Btch ID: DSG016S                    % Moisture      : 18.5
Calib. Ref.: LG14017A                    Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 14J | 25 | 6.1 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 107 | 50-150 |
| N-TRIACONTANE-D62 | 79 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/04/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                   Date Extracted: 07/13/10 15:30
Sample ID   : 601-5                     Date Analyzed: 07/15/10 04:54
Lab Samp ID: G078-19T                   Dilution Factor: 5
Lab File ID: LG14039A                   Matrix          : SOIL /
Ext Btch ID: DSG016S                    % Moisture      : 7.9
Calib. Ref.: LG14030A                   Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRD | 7900 | 110 | 27 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 93 | 50-150 |
| N-TRIACONTANE-D62 | 74 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRD | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/04/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/09/10
Batch No.   : 10G078                  Date Extracted: 07/13/10 15:30
Sample ID   : 601-7.5                 Date Analyzed: 07/18/10 19:10
Lab Samp ID: G078-20T                Dilution Factor: 5
Lab File ID: LG17157A                Matrix       : SOIL
Ext Btch ID: DSG016S                 % Moisture   : 20.9
Calib. Ref.: LG17155A                 Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| DRO | 4100 | 130 | 32 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 107 ✓ | 50-150 |
| N-TRIACONTANE-D62 | 88 ✓ | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-04-2010
EMAX Batch No.: 10G160

Attn: Josie Smith

URS Group, Inc.
1501 4th Ave., Suite 1400
Seattle WA 98101

Subject: Laboratory Report
Project: 2010 Add Pet Char Adak

Enclosed is the Laboratory report for samples received on 07/16/10.
The data reported relate only to samples listed below :

| Sample ID | Control # | Col Date | Matrix | Analysis |
|-------------|-----------|----------|--------|--------------|
| 14-708-1 | G160-01 | 07/12/10 | SOIL | GRO BY AK101 |
| 14-708-2 | G160-02 | 07/12/10 | SOIL | GRO BY AK101 |
| 14-707-3 | G160-03 | 07/12/10 | SOIL | GRO BY AK101 |
| 14-707-6 | G160-04 | 07/12/10 | SOIL | GRO BY AK101 |
| 14-706-1 | G160-05 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-706-1.5 | G160-06 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-709-0.5 | G160-07 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-709-1 | G160-08 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-705-1 | G160-09 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-705-4.5 | G160-10 | 07/13/10 | SOIL | GRO BY AK101 |
| TRIP BLANK | G160-11 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-710-2.5 | G160-12 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-710-4 | G160-13 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-704-1 | G160-14 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-704-2 | G160-15 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-704D | G160-16 | 07/13/10 | SOIL | GRO BY AK101 |
| 14-706-1MS | G160-05M | 07/13/10 | SOIL | GRO BY AK101 |
| 14-706-1MSD | G160-05S | 07/13/10 | SOIL | GRO BY AK101 |

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that the results included in this report meet all NELAC requirements unless noted in the Case Narrative.

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/12/10
Project     : 2010 ADD PET CHAR ADAK        Date Received: 07/16/10
Batch No.   : 10G160                        Date Extracted: 07/19/10 16:18
Sample ID: 14-708-1                         Date Analyzed: 07/19/10 16:18
Lab Samp ID: G160-01                         Dilution Factor: 1.07
Lab File ID: EG19009A                       Matrix          : SOIL
Ext Btch ID: VMG007S                        % Moisture     : 66.8
Calib. Ref.: EG19002A                       Instrument ID  : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 110 | 6.4 | 1.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 124 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 46* | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

*: Out of QC limits due to matrix interference

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/12/10
Project    : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.  : 10G160                         Date Extracted: 07/19/10 16:55
Sample ID  : 14-708-2                       Date Analyzed: 07/19/10 16:55
Lab Samp ID: G160-02                        Dilution Factor: 0.99
Lab File ID: EG19010A                       Matrix          : SOIL
Ext Btch ID: VMG007S                         % Moisture     : 49.2
Calib. Ref.: EG19002A                       Instrument ID   : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 110 | 3.9 | 0.97 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 135 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 42* | 50-150 |

Parameter H-C Range
GRO C6-C10

*: Out of QC limits due to matrix interference

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client       : URS GROUP, INC.           Date Collected: 07/12/10
Project      : 2010 ADD PET CHAR ADAK   Date Received: 07/16/10
Batch No.    : 10G160                   Date Extracted: 07/19/10 17:33
Sample ID    : 14-707-3                 Date Analyzed: 07/19/10 17:33
Lab Samp ID  : G160-03                 Dilution Factor: 1.3
Lab File ID  : EG19011A                Matrix          : SOIL
Ext Btch ID  : VMG007S                 % Moisture     : 53.7
Calib. Ref.  : EG19002A                Instrument ID   : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 5.6 | 1.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 107 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 72 | 50-150 |

Parameter H-C Range
GRO C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/12/10
Project     : 2010 ADD PET CHAR ADAK        Date Received: 07/16/10
Batch No.   : 10G160                        Date Extracted: 07/19/10 18:10
Sample ID: 14-707-6                         Date Analyzed: 07/19/10 18:10
Lab Samp ID: G160-04                        Dilution Factor: 1.06
Lab File ID: EG19012A                       Matrix          : SOIL
Ext Btch ID: VMG007S                         % Moisture     : 47.6
Calib. Ref.: EG19002A                       Instrument ID  : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 140 | 4.0 | 1.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 114 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 95 | 50-150 |

Parameter GRO H-C Range C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/13/10
Project     : 2010 ADD PET CHAR ADAK        Date Received: 07/16/10
Batch No.   : 10G160                        Date Extracted: 07/19/10 19:25
Sample ID: 14-706-1                         Date Analyzed: 07/19/10 19:25
Lab Samp ID: G160-05                        Dilution Factor: 1.16
Lab File ID: EG19014A                       Matrix          : SOIL
Ext Btch ID: VMG007S                         % Moisture     : 49.9
Calib. Ref.: EG19013A                       Instrument ID  : GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 4.6 | 1.2 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 103 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 67 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/13/10
Project    : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.  : 10G160                         Date Extracted: 07/19/10 21:18
Sample ID  : 14-706-1.5                    Date Analyzed: 07/19/10 21:18
Lab Samp ID: G160-06                       Dilution Factor: 1.24
Lab File ID: EG19017A                      Matrix       : SOIL
Ext Btch ID: VMG007S                       % Moisture  : 44.8
Calib. Ref.: EG19013A                      Instrument ID: GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 4.5 | 1.1 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 103 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 79 | 50-150 |

Parameter H-C Range
GRO C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/13/10
Project     : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.   : 10G160                         Date Extracted: 07/19/10 21:55
Sample ID   : 14-709-0.5                     Date Analyzed: 07/19/10 21:55
Lab Samp ID: G160-07                         Dilution Factor: 1.01
Lab File ID: EG19018A                       Matrix          : SOIL
Ext Btch ID: VMG007S                        % Moisture     : 42.5
Calib. Ref.: EG19013A                       Instrument ID   : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 3.1J | 3.5 | 0.88 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 107 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 58 | 50-150 |

Parameter H-C Range
GRO C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/13/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/16/10
Batch No.  : 10G160                    Date Extracted: 07/19/10 22:33
Sample ID  : 14-709-1                  Date Analyzed: 07/19/10 22:33
Lab Samp ID: G160-08                   Dilution Factor: 1.23
Lab File ID: EG19019A                  Matrix          : SOIL
Ext Btch ID: VMG007S                   % Moisture     : 60.2
Calib. Ref.: EG19013A                  Instrument ID  : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 55 | 6.2 | 1.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 120 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 77 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/13/10
Project    : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.  : 10G160                         Date Extracted: 07/20/10 18:02
Sample ID  : 14-705-1                       Date Analyzed: 07/20/10 18:02
Lab Samp ID: G160-09T                       Dilution Factor: 3.02
Lab File ID: EG20014A                       Matrix          : SOIL
Ext Btch ID: VMG007S                         % Moisture     : 72.5
Calib. Ref.: EG20012A                       Instrument ID  : GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 590 | 22 | 5.5 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 106 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 103 | 50-150 |

```

Parameter      H-C Range
GRO             C6-C10
  
```

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/13/10
Project     : 2010 ADD PET CHAR ADAK        Date Received: 07/16/10
Batch No.   : 10G160                        Date Extracted: 07/19/10 23:48
Sample ID   : 14-705-4.5                    Date Analyzed: 07/19/10 23:48
Lab Samp ID : G160-10                       Dilution Factor: 1.11
Lab File ID : EG19021A                      Matrix          : SOIL
Ext Btch ID : VMG007S                       % Moisture      : 44.4
Calib. Ref. : EG19013A                      Instrument ID   : GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | 92 | 4.0 | 1.0 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 114 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 78 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/13/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/16/10
Batch No.  : 10G160                    Date Extracted: 07/19/10 15:40
Sample ID  : TRIP BLANK                 Date Analyzed: 07/19/10 15:40
Lab Samp ID: G160-11                    Dilution Factor: 1
Lab File ID: EG19008A                   Matrix          : SOIL
Ext Btch ID: VMG007S                     % Moisture      : NA
Calib. Ref.: EG19002A                    Instrument ID   : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 2.0 | 0.50 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 107 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 103 | 50-150 |

Parameter H-C Range
GRO C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.                Date Collected: 07/13/10
Project    : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.  : 10G160                         Date Extracted: 07/20/10 00:26
Sample ID  : 14-710-2.5                    Date Analyzed: 07/20/10 00:26
Lab Samp ID: G160-12                       Dilution Factor: 1.3
Lab File ID: EG19022A                      Matrix       : SOIL
Ext Btch ID: VMG007S                       % Moisture   : 60.1
Calib. Ref.: EG19013A                     Instrument ID : GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 6.5 | 1.6 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 107 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 57 | 50-150 |

Parameter GRO H-C Range C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/13/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/16/10
Batch No.   : 10G160                  Date Extracted: 07/20/10 01:04
Sample ID: 14-710-4                  Date Analyzed: 07/20/10 01:04
Lab Samp ID: G160-13                 Dilution Factor: 1.33
Lab File ID: EG19023A                Matrix          : SOIL
Ext Btch ID: VMG007S                 % Moisture     : 69.6
Calib. Ref.: EG19013A                Instrument ID  : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 8.8 | 2.2 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 105 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 60 | 50-150 |

Parameter H-C Range
GRO C6-C10

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client       : URS GROUP, INC.                Date Collected: 07/13/10
Project      : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.    : 10G160                         Date Extracted: 07/20/10 02:19
Sample ID:   14-704-1                         Date Analyzed: 07/20/10 02:19
Lab Samp ID: G160-14                          Dilution Factor: 1.63
Lab File ID: EG19025A                          Matrix          : SOIL
Ext Btch ID: VMG007S                           % Moisture      : 70.1
Calib. Ref.: EG19024A                          Instrument ID   : GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 11 | 2.7 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 104 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 69 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

*: Out of QC limits

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client       : URS GROUP, INC.                Date Collected: 07/13/10
Project      : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.    : 10G160                         Date Extracted: 07/20/10 02:57
Sample ID    : 14-704-2                       Date Analyzed: 07/20/10 02:57
Lab Samp ID  : G160-15                        Dilution Factor: 1.06
Lab File ID  : EG19026A                       Matrix          : SOIL
Ext Btch ID  : VMG007S                        % Moisture     : 46.7
Calib. Ref.  : EG19024A                       Instrument ID   : GCT039
=====
  
```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 4.0 | 0.99 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 102 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 55 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| GRO | C6-C10 |

METHOD AK101
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client       : URS GROUP, INC.                Date Collected: 07/13/10
Project      : 2010 ADD PET CHAR ADAK         Date Received: 07/16/10
Batch No.    : 10G160                         Date Extracted: 07/20/10 03:35
Sample ID    : 14-704D                        Date Analyzed: 07/20/10 03:35
Lab Samp ID  : G160-16                       Dilution Factor: 1.49
Lab File ID  : EG19027A                      Matrix          : SOIL
Ext Btch ID  : VMG007S                       % Moisture      : 68.7
Calib. Ref.  : EG19024A                      Instrument ID   : GCT039
=====

```

| PARAMETERS | RESULTS (mg/kg) | RL (mg/kg) | MDL (mg/kg) |
|------------|--------------------|---------------|----------------|
| GRO | ND | 9.5 | 2.4 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|------------------------|------------|----------|
| 4-BROMOFLUOROBENZENE | 102 | 50-150 |
| 1,1,1-TRIFLUOROTOLUENE | 76 | 50-150 |

Parameter H-C Range
GRO C6-C10



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 08-11-2010
EMAX Batch No.: 10G178

Attn: Josie Smith

URS Group, Inc.
1501 4th Ave., Suite 1400
Seattle WA 98101

Subject: Laboratory Report
Project: 2010 Add Pet Char Adak

Enclosed is the Laboratory report for samples received on 07/19/10.
The data reported relate only to samples listed below :

| Sample ID | Control # | Col Date | Matrix | Analysis |
|-----------|-----------|----------|--------|---|
| ANT-601 | G178-01 | 07/16/10 | WATER | DRO BY AK102 |
| ANT-601 D | G178-02 | 07/16/10 | WATER | DRO BY AK102 |
| 602 | G178-03 | 07/16/10 | WATER | SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS DRO BY AK102 |
| 601 | G178-04 | 07/17/10 | WATER | SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS DRO BY AK102 |
| 601 D | G178-05 | 07/17/10 | WATER | SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS DRO BY AK102 |
| MRP-MW8 | G178-06 | 07/17/10 | WATER | SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS DRO BY AK102 |
| 02-230 | G178-07 | 07/17/10 | WATER | SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS DRO BY AK102 |
| 650 | G178-08 | 07/17/10 | WATER | SEMIVOLATILE ORGANICS BY GCMS VOLATILE ORGANICS BY GC/MS |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

```

=====
Client       : URS GROUP, INC.           Date Collected: 07/16/10
Project      : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.    : 10G178                   Date Extracted: 07/24/10 00:45
Sample ID    : 602                       Date Analyzed: 07/24/10 00:45
Lab Samp ID  : G178-03                   Dilution Factor: 1
Lab File ID  : RGD388                     Matrix : WATER
Ext Btch ID  : V094G20                   % Moisture : NA
Calib. Ref.  : RGD362                     Instrument ID : T-094
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1,2-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.50 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | ND | 1.0 | 5.0 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.30 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.30 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | ND | 2.0 | 0.50 |
| M,P-XYLENES | ND | 1.0 | 5.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.50 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.50 |
| NAPHTHALENE | ND | 2.0 | 0.50 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | ND | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | ND | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | ND | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| ----- | | | |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 110 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 108 | 75-120 | |
| DIBROMOFLUOROMETHANE | 103 | 85-115 | |
| TOLUENE-D8 | 109 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.
Project    : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID  : 601
Lab Samp ID: G178-04
Lab File ID: RGD389
Ext Btch ID: V094G20
Calib. Ref.: RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 01:21
Date Analyzed: 07/24/10 01:21
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-094
=====

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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 1.6 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | ND | 1.0 | 5.0 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.50 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.50 |
| ISOPROPYL BENZENE | ND | 2.0 | 0.50 |
| M, P-XYLENES | ND | 1.0 | 5.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 5.0 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | 1.9J | 2.0 | 0.30 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | ND | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 1.4 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 0.42J | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 111 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 99 | 75-120 | |
| DIBROMOFLUOROMETHANE | 103 | 85-115 | |
| TOLUENE-D8 | 107 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 106178
Sample ID   : 601 D
Lab Samp ID: G178-05
Lab File ID: RGD390
Ext Btch ID: VO94620
Calib. Ref.: RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 01:58
Date Analyzed: 07/24/10 01:58
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 1.6 | 1.0 | 0.20 |
| 2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.50 |
| 2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 3,5-TRIMETHYLBENZENE | 0.22J | 1.0 | 0.20 |
| 3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 10 | 5.0 |
| 2-CHLOROTOLUENE | ND | 10 | 5.0 |
| 2-HEXANONE | ND | 10 | 5.0 |
| 4-CHLOROTOLUENE | 5.2J | 10 | 5.0 |
| ACETONE | ND | 10 | 5.0 |
| BENZENE | ND | 1.0 | 0.30 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | ND | 2.0 | 0.50 |
| M,P-XYLENES | ND | 10 | 5.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 10 | 0.50 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.50 |
| NAPHTHALENE | 2.0J | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | ND | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 1.4 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 0.43J | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 111 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 100 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 105 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project     : 2010_ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.   : 10G178                   Date Extracted: 07/24/10 02:35
Sample ID   : MRP-MW8                   Date Analyzed: 07/24/10 02:35
Lab Samp ID: G178-06                   Dilution Factor: 1
Lab File ID: RGD391                     Matrix: WATER
Ext Btch ID: V094G20                   % Moisture: NA
Calib. Ref.: RGD362                     Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | ND | 1.0 | 5.0 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.30 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROETHENE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.30 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | ND | 1.0 | 0.20 |
| M,P-XYLENES | ND | 2.0 | 0.50 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 5.0 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.50 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.50 |
| NAPHTHALENE | ND | 2.0 | 0.50 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | ND | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | ND | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | ND | 1.0 | 0.50 |
| STYRENE | ND | 1.0 | 0.50 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 110 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 102 | 75-120 | |
| DIBROMOFLUOROMETHANE | 103 | 85-115 | |
| TOLUENE-D8 | 107 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client       : URS GROUP, INC.
Project      : 2010 ADD PET CHAR ADAK
Batch No.    : 10G178
Sample ID    : 02-230
Lab Samp ID  : G178-07
Lab File ID  : RGD392
Ext Btch ID : V094G20
Calib. Ref. : RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 03:11
Date Analyzed: 07/24/10 03:11
Dilution Factor: 1
Matrix       : WATER
% Moisture   : NA
Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | 0.35 J | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 0.35 J | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 0.20 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 0.20 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | 8.2 J | 1.0 | 0.20 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.20 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.20 |
| BROMOFORM | ND | 1.0 | 0.20 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.20 |
| CARBON DISULFIDE | 0.30 J | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.20 |
| CHLOROFORM | ND | 1.0 | 0.20 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.20 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | 0.51 J | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 0.57 J | 2.0 | 0.20 |
| M,P-XYLENES | ND | 1.0 | 0.20 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.20 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | ND | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 0.64 J | 1.0 | 0.20 |
| O-XYLENE | 0.29 J | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | ND | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 0.42 J | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.20 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 107 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 99 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 108 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID   : 650
Lab Samp ID: G178-08
Lab File ID: RGD405
Ext Btch ID: V094G21
Calib. Ref.: RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 11:55
Date Analyzed: 07/24/10 11:55
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-094
    
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 8.2 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | 0.22J | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | 1.1 | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 10 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 10 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | ND | 10 | 5.0 |
| BENZENE | 7.0 | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | 0.92J | 1.0 | 0.20 |
| HEXACHLOROBTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 0.49J | 2.0 | 0.20 |
| M, P-XYLENES | 0.73J | 1.0 | 5.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.20 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.50 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | ND | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 1.0 | 1.0 | 0.20 |
| O-XYLENE | 0.44J | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 0.61J | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 0.33J | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | 0.31J | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | | | |
| 1,2-DICHLOROETHANE-D4 | % RECOVERY | QC LIMIT | |
| 4-BROMOFLUOROBENZENE | 104 | 70-120 | |
| DIBROMOFLUOROMETHANE | 101 | 75-120 | |
| TOLUENE-D8 | 100 | 85-115 | |
| | 108 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID   : 651
Lab Samp ID: G178-09
Lab File ID: RGD393
Ext Btch ID: V094G20
Calib. Ref.: RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 03:48
Date Analyzed: 07/24/10 03:48
Dilution Factor: 1
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 38 | 2.0 | 0.50 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | 8.6 | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 0.50 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 0.50 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | ND | 1.0 | 0.50 |
| BENZENE | 1.8 | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | 23 | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 5.1 | 1.0 | 0.50 |
| M, P-XYLENES | 69 | 2.0 | 0.50 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.50 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.50 |
| NAPHTHALENE | 43 | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 3.7 | 1.0 | 0.20 |
| O-XYLENE | 1.0 | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 1.5 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 0.90J | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.20 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | 1.0 | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 107 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 102 | 75-120 | |
| DIBROMOFLUOROMETHANE | 101 | 85-115 | |
| TOLUENE-D8 | 104 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.
Project     : 2010_ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID   : 652
Lab Smp ID : G178-10R
Lab File ID : RGD406
Ext Btch ID : V094G21
Calib. Ref : RGD362

Date Collected: 07/17/10
Date Received  : 07/19/10
Date Extracted : 07/24/10 12:32
Date Analyzed  : 07/24/10 12:32
Dilution Factor: 1
Matrix        : WATER
% Moisture    : NA
Instrument ID  : T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 81 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | 0.40J | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | 32 | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| ACETONE | ND | 1.0 | 5.0 |
| BENZENE | 4.0 | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.30 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.20 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.30 |
| CIS-1,2-DICHLOROETHENE | 0.94J | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | 47 | 1.0 | 0.20 |
| ETHYLBENZENE | 47 | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 8.1 | 2.0 | 0.50 |
| M,P-XYLENES | 110E | 1.0 | 0.50 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.50 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.50 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.50 |
| NAPHTHALENE | 130E | 2.0 | 0.50 |
| N-BUTYLBENZENE | ND | 1.0 | 0.50 |
| N-PROPYLBENZENE | 8.1 | 1.0 | 0.20 |
| O-XYLENE | 3.0 | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 4.2 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 1.9 | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | 2.9 | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 110 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 100 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 108 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.
Project    : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID  : 652DL
Lab Smp ID: G178-10T
Lab File ID: RGD408
Ext Btch ID: V094G21
Calib. Ref.: RGD362

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/24/10 13:46
Date Analyzed: 07/24/10 13:46
Dilution Factor: 10
Matrix      : WATER
% Moisture  : NA
Instrument ID : T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 10 | 2.0 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 10 | 2.0 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 10 | 2.0 |
| 1,1,2-TRICHLOROETHANE | ND | 10 | 2.0 |
| 1,1-DICHLOROETHANE | ND | 10 | 2.0 |
| 1,1-DICHLOROETHENE | ND | 10 | 2.0 |
| 1,1-DICHLOROPROPENE | ND | 10 | 2.0 |
| 1,2,3-TRICHLOROBENZENE | ND | 10 | 2.0 |
| 1,2,3-TRICHLOROPROPANE | ND | 10 | 2.0 |
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 2.0 |
| 1,2,4-TRIMETHYLBENZENE | 100 | 10 | 2.0 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 20 | 2.0 |
| 1,2-DIBROMOETHANE (EDB) | ND | 10 | 2.0 |
| 1,2-DICHLOROBENZENE | ND | 10 | 2.0 |
| 1,2-DICHLOROETHANE (EDC) | ND | 10 | 2.0 |
| 1,2-DICHLOROPROPANE | 30 | 10 | 2.0 |
| 1,3,5-TRIMETHYLBENZENE | ND | 10 | 2.0 |
| 1,3-DICHLOROBENZENE | ND | 10 | 2.0 |
| 1,3-DICHLOROPROPANE | ND | 10 | 2.0 |
| 1,4-DICHLOROBENZENE | ND | 10 | 2.0 |
| 2,2-DICHLOROPROPANE | ND | 10 | 2.0 |
| 2-BUTANONE (MEK) | ND | 100 | 2.0 |
| 2-CHLOROTOLUENE | ND | 10 | 2.0 |
| 2-HEXANONE | ND | 100 | 2.0 |
| 4-CHLOROTOLUENE | ND | 10 | 2.0 |
| ACETONE | ND | 100 | 2.0 |
| BENZENE | 3.9J | 10 | 2.0 |
| BROMOBENZENE | ND | 10 | 2.0 |
| BROMOCHLOROMETHANE | ND | 10 | 2.0 |
| BROMODICHLOROMETHANE | ND | 10 | 2.0 |
| BROMOFORM | ND | 10 | 2.0 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 10 | 2.0 |
| CARBON DISULFIDE | ND | 10 | 2.0 |
| CARBON TETRACHLORIDE | ND | 10 | 2.0 |
| CHLOROBENZENE | ND | 10 | 2.0 |
| CHLOROETHANE | ND | 10 | 2.0 |
| CHLOROFORM | ND | 10 | 2.0 |
| CHLOROMETHANE | ND | 10 | 2.0 |
| CIS-1,2-DICHLOROETHENE | ND | 10 | 2.0 |
| CIS-1,3-DICHLOROPROPENE | ND | 10 | 2.0 |
| DIBROMOCHLOROMETHANE | ND | 10 | 2.0 |
| DIBROMOMETHANE | ND | 10 | 2.0 |
| DICHLORODIFLUOROMETHANE | 46 | 10 | 2.0 |
| ETHYLBENZENE | ND | 10 | 2.0 |
| HEXACHLOROBUTADIENE | ND | 10 | 2.0 |
| ISOPROPYL BENZENE | 8.3J | 10 | 2.0 |
| M,P-XYLENES | 150 | 20 | 2.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 100 | 2.0 |
| METHYLENE CHLORIDE | ND | 10 | 2.0 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 10 | 2.0 |
| NAPHTHALENE | 100 | 20 | 2.0 |
| N-BUTYLBENZENE | ND | 10 | 2.0 |
| N-PROPYLBENZENE | 8.1J | 10 | 2.0 |
| O-XYLENE | 3.0J | 10 | 2.0 |
| P-ISOPROPYLTOLUENE | 3.7J | 10 | 2.0 |
| SEC-BUTYLBENZENE | ND | 10 | 2.0 |
| STYRENE | ND | 10 | 2.0 |
| TERT-BUTYLBENZENE | ND | 10 | 2.0 |
| TETRACHLOROETHENE (PCE) | ND | 10 | 2.0 |
| TOLUENE | 2.9J | 10 | 2.0 |
| TRANS-1,2-DICHLOROETHENE | ND | 10 | 2.0 |
| TRANS-1,3-DICHLOROPROPENE | ND | 10 | 2.0 |
| TRICHLOROETHENE (TCE) | ND | 10 | 2.0 |
| TRICHLOROFLUOROMETHANE | ND | 10 | 2.0 |
| VINYL CHLORIDE | ND | 10 | 2.0 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 107 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 102 | 75-120 | |
| DIBROMOFLUOROMETHANE | 103 | 85-115 | |
| TOLUENE-D8 | 107 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project    : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.  : 10G178                   Date Extracted: 07/24/10 13:09
Sample ID  : LC 5A                     Date Analyzed: 07/24/10 13:09
Lab Samp ID: G17B-11                  Dilution Factor: 1
Lab File ID: RGD407                   Matrix: WATER
Ext Btch ID: V094G21                  % Moisture: NA
Calib. Ref.: RGD362                   Instrument ID: T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|--------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | 49 | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.20 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | 19 | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 0.50 |
| 2-CHLOROTOLUENE | ND | 1.0 | 0.20 |
| 2-HEXANONE | ND | 1.0 | 0.50 |
| 4-CHLOROTOLUENE | 2.4 | 1.0 | 0.20 |
| ACETONE | ND | 1.0 | 0.50 |
| BENZENE | 0.78J | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.20 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.40 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.20 |
| DICHLORODIFLUOROMETHANE | 19 | 1.0 | 0.20 |
| ETHYLBENZENE | 19 | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | 6.3 | 1.0 | 0.20 |
| M,P-XYLENES | 41 | 2.0 | 0.20 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 0.50 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | 42 | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | 8.4 | 1.0 | 0.20 |
| O-XYLENE | 1.0J | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | 3.5 | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | 2.5 | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | 1.2 | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 120 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 103 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 107 | 85-120 | |

METHOD 5030B/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client       : URS GROUP, INC.           Date Collected: 07/17/10
Project      : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.    : 10G178                   Date Extracted: 07/23/10 19:49
Sample ID    : TRIP BLANK                Date Analyzed: 07/23/10 19:49
Lab Samp ID  : G178-12                  Dilution Factor: 1
Lab File ID  : RGD380                    Matrix          : WATER
Ext Btch ID  : V094G20                   % Moisture     : NA
Calib. Ref.  : RGD362                    Instrument ID   : T-094
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|--------------------------------|-------------------|-----------------|---------------|
| 1,1,1,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,1,2-TRICHLOROETHANE (TCA) | ND | 1.0 | 0.20 |
| 1,1,2,2-TETRACHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1,2-TRICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHANE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROETHENE | ND | 1.0 | 0.20 |
| 1,1-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,3-TRICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,2,4-TRICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2,4-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,2-DIBROMO-3-CHLOROPROPANE | ND | 2.0 | 0.50 |
| 1,2-DIBROMOETHANE (EDB) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,2-DICHLOROETHANE (EDC) | ND | 1.0 | 0.20 |
| 1,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,3,5-TRIMETHYLBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 1,3-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 1,4-DICHLOROBENZENE | ND | 1.0 | 0.20 |
| 2,2-DICHLOROPROPANE | ND | 1.0 | 0.20 |
| 2-BUTANONE (MEK) | ND | 1.0 | 5.0 |
| 2-CHLOROTOLUENE | ND | 1.0 | 5.0 |
| 2-HEXANONE | ND | 1.0 | 5.0 |
| 4-CHLOROTOLUENE | ND | 1.0 | 5.0 |
| ACETONE | ND | 1.0 | 5.0 |
| BENZENE | ND | 1.0 | 0.20 |
| BROMOBENZENE | ND | 1.0 | 0.30 |
| BROMOCHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMODICHLOROMETHANE | ND | 1.0 | 0.30 |
| BROMOFORM | ND | 1.0 | 0.30 |
| BROMOMETHANE (METHYL BROMIDE) | ND | 1.0 | 0.30 |
| CARBON DISULFIDE | ND | 1.0 | 0.30 |
| CARBON TETRACHLORIDE | ND | 1.0 | 0.20 |
| CHLOROBENZENE | ND | 1.0 | 0.30 |
| CHLOROETHANE | ND | 1.0 | 0.30 |
| CHLOROFORM | ND | 1.0 | 0.30 |
| CHLOROMETHANE | ND | 1.0 | 0.20 |
| CIS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| CIS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| DIBROMOCHLOROMETHANE | ND | 1.0 | 0.20 |
| DIBROMOMETHANE | ND | 1.0 | 0.30 |
| DICHLORODIFLUOROMETHANE | ND | 1.0 | 0.20 |
| ETHYLBENZENE | ND | 1.0 | 0.20 |
| HEXACHLOROBUTADIENE | ND | 1.0 | 0.20 |
| ISOPROPYL BENZENE | ND | 2.0 | 0.50 |
| M, P-XYLENES | ND | 1.0 | 5.0 |
| METHYL ISOBUTYL KETONE (MIBK) | ND | 1.0 | 5.0 |
| METHYLENE CHLORIDE | ND | 1.0 | 0.20 |
| METHYL TERT-BUTYL ETHER (MTBE) | ND | 1.0 | 0.20 |
| NAPHTHALENE | ND | 2.0 | 0.20 |
| N-BUTYLBENZENE | ND | 1.0 | 0.20 |
| N-PROPYLBENZENE | ND | 1.0 | 0.20 |
| O-XYLENE | ND | 1.0 | 0.20 |
| P-ISOPROPYLTOLUENE | ND | 1.0 | 0.20 |
| SEC-BUTYLBENZENE | ND | 1.0 | 0.20 |
| STYRENE | ND | 1.0 | 0.30 |
| TERT-BUTYLBENZENE | ND | 1.0 | 0.20 |
| TETRACHLOROETHENE (PCE) | ND | 1.0 | 0.20 |
| TOLUENE | ND | 1.0 | 0.20 |
| TRANS-1,2-DICHLOROETHENE | ND | 1.0 | 0.20 |
| TRANS-1,3-DICHLOROPROPENE | ND | 1.0 | 0.20 |
| TRICHLOROETHENE (TCE) | ND | 1.0 | 0.20 |
| TRICHLOROFLUOROMETHANE | ND | 1.0 | 0.30 |
| VINYL CHLORIDE | ND | 1.0 | 0.20 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 1,2-DICHLOROETHANE-D4 | 105 | 70-120 | |
| 4-BROMOFLUOROBENZENE | 107 | 75-120 | |
| DIBROMOFLUOROMETHANE | 102 | 85-115 | |
| TOLUENE-D8 | 109 | 85-120 | |

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client       : URS GROUP, INC.
Project      : 2010_ADD PET CHAR ADAK
Batch No.    : 10G178
Sample ID    : 602
Lab Samp ID  : G178-03W
Lab File ID  : RGJ302
Ext Btch ID : SVG031W
Calib. Ref. : RFJ014
Date Collected: 07/16/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/26/10 17:25
Dilution Factor: 1.05
Matrix       : WATER
% Moisture   : NA
Instrument ID: T-OE4
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|-------------------|--------------|---------------|
| 1,2,4-TRICHLOROBENZENE | ND | 11 | 5.22 |
| 1,2-DICHLOROBENZENE | ND | 11 | 5.22 |
| 1,5-DIPHENYLHYDRAZINE | ND | 11 | 5.22 |
| 1,5-DICHLOROBENZENE | ND | 11 | 5.22 |
| 1,4-DICHLOROBENZENE | ND | 11 | 5.22 |
| 1,4,5-TRICHLOROPHENOL | ND | 11 | 5.22 |
| 1,4,6-TRICHLOROPHENOL | ND | 11 | 5.22 |
| 1,4-DICHLOROPHENOL | ND | 11 | 5.22 |
| 1,4-DIMETHYLPHENOL | ND | 32 | 11 |
| 1,4-DINITROPHENOL | ND | 11 | 5.22 |
| 1,4-DINITROTOLUENE | ND | 11 | 5.22 |
| 2,6-DINITROTOLUENE | ND | 11 | 5.22 |
| 2-CHLORONAPHTHALENE | ND | 11 | 5.22 |
| 2-CHLOROPHENOL | ND | 11 | 5.22 |
| 2-METHYLNAPHTHALENE | ND | 11 | 5.22 |
| 2-METHYLPHENOL | ND | 11 | 5.22 |
| 2-NITROANILINE | ND | 11 | 5.22 |
| 2-NITROPHENOL | ND | 11 | 5.22 |
| 3,3'-DICHLOROBENZIDINE | ND | 11 | 5.22 |
| 3-NITROANILINE | ND | 32 | 11 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 11 | 5.22 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 11 | 5.22 |
| 4-CHLORO-3-METHYLPHENOL | ND | 11 | 5.22 |
| 4-CHLOROANILINE | ND | 11 | 5.22 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 11 | 5.22 |
| 4-METHYLPHENOL (1) | ND | 11 | 5.22 |
| 4-NITROANILINE | ND | 32 | 11 |
| 4-NITROPHENOL | ND | 11 | 5.22 |
| ACENAPHTHENE | ND | 11 | 5.22 |
| ACENAPHTHYLENE | ND | 11 | 5.22 |
| ANTHRACENE | ND | 11 | 5.22 |
| BENZO(A)ANTHRACENE | ND | 11 | 5.22 |
| BENZO(A)PYRENE | ND | 11 | 5.22 |
| BENZO(B)FLUORANTHENE | ND | 11 | 5.22 |
| BENZO(G,H,I)PERYLENE | ND | 11 | 5.22 |
| BENZO(K)FLUORANTHENE | ND | 11 | 5.22 |
| BENZOIC ACID | ND | 100 | 5.22 |
| BENZYL ALCOHOL | ND | 32 | 11 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 11 | 5.22 |
| BIS(2-CHLOROETHYL)ETHER | ND | 11 | 5.22 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 11 | 5.22 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 11 | 5.22 |
| BUTYLBENZYLPHthalate | ND | 11 | 5.22 |
| CARBAZOLE | ND | 11 | 5.22 |
| CHRYSENE | ND | 11 | 5.22 |
| DI-BENZO(A,H)ANTHRACENE | ND | 11 | 5.22 |
| DI-BENZOFURAN | ND | 11 | 5.22 |
| DIETHYLPHthalate | ND | 11 | 5.22 |
| DIMETHYLPHthalate | ND | 11 | 5.22 |
| DI-N-BUTYLPHthalate | ND | 11 | 5.22 |
| DI-N-OCTYLPHthalate | ND | 11 | 5.22 |
| FLUORANTHENE | ND | 11 | 5.22 |
| FLUORENE | ND | 11 | 5.22 |
| HEXACHLOROBENZENE | ND | 11 | 5.22 |
| HEXACHLOROBUTADIENE | ND | 11 | 5.22 |
| HEXACHLOROETHANE | ND | 11 | 5.22 |
| INDENO(1,2,3-CD)PYRENE | ND | 11 | 5.22 |
| ISOPHORONE | ND | 11 | 5.22 |
| NAPHTHALENE | ND | 11 | 5.22 |
| NITROBENZENE | ND | 11 | 5.22 |
| N-NITROSODIMETHYLAMINE | ND | 11 | 5.22 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 11 | 5.22 |
| N-NITROSODIPHENYLAMINE (2) | ND | 11 | 5.22 |
| PENTACHLOROPHENOL | ND | 32 | 11 |
| PHENANTHRENE | ND | 11 | 5.22 |
| PHENOL | ND | 11 | 5.22 |
| PYRENE | ND | 11 | 5.22 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 55 | 50-110 | |
| TERPHENYL-D14 | 89 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 68 | 40-125 | |
| 2-FLUOROPHENOL | 47 | 20-110 | |
| PHENOL-D5 | 57 | 10-115 | |
| NITROBENZENE-D5 | 48 | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : URS GROUP, INC.
Project     : 2010_ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID  : 601
Lab Samp ID: G178-04
Lab File ID: RGJ284
Ext Btch ID: SVG031W
Calib. Ref.: RFJ014

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 19:51
Dilution Factor: .98
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-0E4
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| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|-------------------|--------------|---------------|
| 1,2,4-TRICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,2-DICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,2-DIPHENYLHYDRAZINE | ND | 9.8 | 4.9 |
| 1,5-DICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,5-DICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,4-DICHLOROPHENOL | ND | 9.8 | 4.9 |
| 1,4,5-TRICHLOROPHENOL | ND | 9.8 | 4.9 |
| 1,4,6-TRICHLOROPHENOL | ND | 9.8 | 4.9 |
| 1,4-DICHLOROPHENOL | ND | 9.8 | 4.9 |
| 1,4-DIMETHYLPHENOL | ND | 9.8 | 9.8 |
| 1,4-DINITROPHENOL | ND | 9.8 | 4.9 |
| 1,4-DINITROTOLUENE | ND | 9.8 | 4.9 |
| 1,6-DINITROTOLUENE | ND | 9.8 | 4.9 |
| 1-CHLORONAPHTHALENE | ND | 9.8 | 4.9 |
| 1-CHLOROPHENOL | ND | 9.8 | 4.9 |
| 1-METHYLNAPHTHALENE | ND | 9.8 | 4.9 |
| 1-METHYLPHENOL | ND | 9.8 | 4.9 |
| 2-NITROANILINE | ND | 9.8 | 4.9 |
| 2-NITROPHENOL | ND | 9.8 | 4.9 |
| 3,3'-DICHLOROBENZIDINE | ND | 9.8 | 4.9 |
| 3-NITROANILINE | ND | 9.8 | 4.9 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 9.8 | 4.9 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 9.8 | 4.9 |
| 4-CHLORO-3-METHYLPHENOL | ND | 9.8 | 4.9 |
| 4-CHLOROANILINE | ND | 9.8 | 4.9 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 9.8 | 4.9 |
| 4-METHYLPHENOL (1) | ND | 9.8 | 4.9 |
| 4-NITROANILINE | ND | 9.8 | 4.9 |
| 4-NITROPHENOL | ND | 9.8 | 4.9 |
| ACENAPHTHENE | ND | 9.8 | 4.9 |
| ACENAPHTHYLENE | ND | 9.8 | 4.9 |
| ANTHRACENE | ND | 9.8 | 4.9 |
| BENZO(A)ANTHRACENE | ND | 9.8 | 4.9 |
| BENZO(A)PYRENE | ND | 9.8 | 4.9 |
| BENZO(B)FLUORANTHENE | ND | 9.8 | 4.9 |
| BENZO(G,H,I)PERYLENE | ND | 9.8 | 4.9 |
| BENZO(K)FLUORANTHENE | ND | 9.8 | 4.9 |
| BENZOIC ACID | ND | 9.8 | 4.9 |
| BENZYL ALCOHOL | ND | 9.8 | 9.8 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 9.8 | 4.9 |
| BIS(2-CHLOROETHYL)ETHER | ND | 9.8 | 4.9 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 9.8 | 4.9 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 9.8 | 4.9 |
| BUTYLBENZYLPHthalate | ND | 9.8 | 4.9 |
| CARBAZOLE | ND | 9.8 | 4.9 |
| CHRYSENE | ND | 9.8 | 4.9 |
| DIBENZO(A,H)ANTHRACENE | ND | 9.8 | 4.9 |
| DIBENZOFURAN | ND | 9.8 | 4.9 |
| DIETHYLPHthalate | ND | 9.8 | 4.9 |
| DIMETHYLPHthalate | ND | 9.8 | 4.9 |
| DI-N-BUTYLPHthalate | ND | 9.8 | 4.9 |
| DI-N-OCTYLPHthalate | ND | 9.8 | 4.9 |
| FLUORANTHENE | ND | 9.8 | 4.9 |
| FLUORENE | ND | 9.8 | 4.9 |
| HEXACHLOROBENZENE | ND | 9.8 | 4.9 |
| HEXACHLOROBUTADIENE | ND | 9.8 | 4.9 |
| HEXACHLOROETHANE | ND | 9.8 | 4.9 |
| INDENO(1,2,3-CD)PYRENE | ND | 9.8 | 4.9 |
| ISOPHORONE | ND | 9.8 | 4.9 |
| NAPHTHALENE | ND | 9.8 | 4.9 |
| NITROBENZENE | ND | 9.8 | 4.9 |
| N-NITROSODIMETHYLAMINE | ND | 9.8 | 4.9 |
| N-NITroso-DI-N-Propylamine | ND | 9.8 | 4.9 |
| N-NITROSODIPHENYLAMINE (2) | ND | 9.8 | 4.9 |
| PENTACHLOROPHENOL | ND | 9.8 | 4.9 |
| PHENANTHRENE | ND | 9.8 | 4.9 |
| PHENOL | ND | 9.8 | 4.9 |
| PYRENE | ND | 9.8 | 4.9 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 56 | 50-110 | |
| TERPHENYL-D14 | 67 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 70 | 40-125 | |
| 2-FLUOROPHENOL | 57 | 20-110 | |
| PHENOL-D5 | 60 | 10-115 | |
| NITROBENZENE-D5 | 60 | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 106178
Sample ID   : 601 D
Lab Samp ID: G178-05
Lab File ID: RG1285
Ext Btch ID: SVG031W
Calib. Ref.: RFJ014
Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 20:10
Dilution Factor: .98
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-OE4
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|-------------------|--------------|---------------|
| 1,2,4-TRICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,2-DICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,2-DIPHENYLHYDRAZINE | ND | 9.8 | 4.9 |
| 1,3-DICHLOROBENZENE | ND | 9.8 | 4.9 |
| 1,4-DICHLOROBENZENE | ND | 9.8 | 4.9 |
| 2,4,5-TRICHLOROPHENOL | ND | 9.8 | 4.9 |
| 2,4,6-TRICHLOROPHENOL | ND | 9.8 | 4.9 |
| 2,4-DICHLOROPHENOL | ND | 9.8 | 4.9 |
| 2,4-DIMETHYLPHENOL | ND | 9.8 | 9.8 |
| 2,4-DINITROPHENOL | ND | 9.8 | 4.9 |
| 2,4-DINITROTOLUENE | ND | 9.8 | 4.9 |
| 2,6-DINITROTOLUENE | ND | 9.8 | 4.9 |
| 2-CHLORONAPHTHALENE | ND | 9.8 | 4.9 |
| 2-CHLOROPHENOL | ND | 9.8 | 4.9 |
| 2-METHYLNAPHTHALENE | ND | 9.8 | 4.9 |
| 2-METHYLPHENOL | ND | 9.8 | 4.9 |
| 2-NITROANILINE | ND | 9.8 | 4.9 |
| 2-NITROPHENOL | ND | 9.8 | 4.9 |
| 3,3'-DICHLOROBENZIDINE | ND | 9.8 | 4.9 |
| 3-NITROANILINE | ND | 9.8 | 4.9 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 9.8 | 4.9 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 9.8 | 4.9 |
| 4-CHLORO-3-METHYLPHENOL | ND | 9.8 | 4.9 |
| 4-CHLOROANILINE | ND | 9.8 | 4.9 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 9.8 | 4.9 |
| 4-METHYLPHENOL (1) | ND | 9.8 | 4.9 |
| 4-NITROANILINE | ND | 9.8 | 4.9 |
| 4-NITROPHENOL | ND | 9.8 | 4.9 |
| ACENAPHTHENE | ND | 9.8 | 4.9 |
| ACENAPHTHYLENE | ND | 9.8 | 4.9 |
| ANTHRACENE | ND | 9.8 | 4.9 |
| BENZO(A)ANTHRACENE | ND | 9.8 | 4.9 |
| BENZO(A)PYRENE | ND | 9.8 | 4.9 |
| BENZO(B)FLUORANTHENE | ND | 9.8 | 4.9 |
| BENZO(G,H,I)PERYLENE | ND | 9.8 | 4.9 |
| BENZO(K)FLUORANTHENE | ND | 9.8 | 4.9 |
| BENZOIC ACID | ND | 9.8 | 9.8 |
| BENZYL ALCOHOL | ND | 9.8 | 4.9 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 9.8 | 4.9 |
| BIS(2-CHLOROETHYL)ETHER | ND | 9.8 | 4.9 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 9.8 | 4.9 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 9.8 | 4.9 |
| BUTYLBENZYLPHTHALATE | ND | 9.8 | 4.9 |
| CARBAZOLE | ND | 9.8 | 4.9 |
| CHRYSENE | ND | 9.8 | 4.9 |
| DIBENZO(A,H)ANTHRACENE | ND | 9.8 | 4.9 |
| DIBENZOFURAN | ND | 9.8 | 4.9 |
| DIETHYLPHTHALATE | ND | 9.8 | 4.9 |
| DIMETHYLPHTHALATE | ND | 9.8 | 4.9 |
| DI-N-BUTYLPHTHALATE | ND | 9.8 | 4.9 |
| DI-N-OCTYLPHTHALATE | ND | 9.8 | 4.9 |
| FLUORANTHENE | ND | 9.8 | 4.9 |
| FLUORENE | ND | 9.8 | 4.9 |
| HEXACHLOROBENZENE | ND | 9.8 | 4.9 |
| HEXACHLOROBUTADIENE | ND | 9.8 | 4.9 |
| HEXACHLOROETHANE | ND | 9.8 | 4.9 |
| INDENO(1,2,3-CD)PYRENE | ND | 9.8 | 4.9 |
| ISOPHORONE | ND | 9.8 | 4.9 |
| NAPHTHALENE | ND | 9.8 | 4.9 |
| NITROBENZENE | ND | 9.8 | 4.9 |
| N-NITROSODIMETHYLAMINE | ND | 9.8 | 4.9 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 9.8 | 4.9 |
| N-NITROSODIPHENYLAMINE (2) | ND | 9.8 | 4.9 |
| PENTACHLOROPHENOL | ND | 9.8 | 4.9 |
| PHENANTHRENE | ND | 9.8 | 4.9 |
| PHENOL | ND | 9.8 | 4.9 |
| PYRENE | ND | 9.8 | 4.9 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 53 | 50-110 | |
| TERPHENYL-D14 | 77 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 69 | 40-125 | |
| 2-FLUOROPHENOL | 50 | 20-110 | |
| PHENOL-D5 | 57 | 10-115 | |
| NITROBENZENE-D5 | 52 | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G178
Sample ID   : MRP-MW8
Lab Samp ID : G178-06
Lab File ID : RGJ286
Ext Btch ID : SVG031W
Calib. Ref. : RFJ014

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 20:29
Dilution Factor: 1.02
Matrix       : WATER
% Moisture   : NA
Instrument ID : T-OE4
    
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 5.1 |
| 1,2-DICHLOROBENZENE | ND | 10 | 1.1 |
| 1,2-DIPHENYLHYDRAZINE | ND | 10 | 1.1 |
| 1,3-DICHLOROBENZENE | ND | 10 | 1.1 |
| 1,4-DICHLOROBENZENE | ND | 10 | 1.1 |
| 1,4,5-TRICHLOROPHENOL | ND | 10 | 1.1 |
| 1,4,6-TRICHLOROPHENOL | ND | 10 | 1.1 |
| 1,4-DICHLOROPHENOL | ND | 10 | 1.1 |
| 1,4-DIMETHYLPHENOL | ND | 10 | 1.1 |
| 1,4-DINITROPHENOL | ND | 31 | 10 |
| 1,4-DINITROTOLUENE | ND | 10 | 1.1 |
| 2,6-DINITROTOLUENE | ND | 10 | 1.1 |
| 2-CHLORONAPHTHALENE | ND | 10 | 1.1 |
| 2-CHLOROPHENOL | ND | 10 | 1.1 |
| 2-METHYLNAPHTHALENE | ND | 10 | 1.1 |
| 2-METHYLPHENOL | ND | 10 | 1.1 |
| 2-NITROANILINE | ND | 10 | 1.1 |
| 2-NITROPHENOL | ND | 10 | 1.1 |
| 3,3'-DICHLOROBENZIDINE | ND | 10 | 1.1 |
| 3-NITROANILINE | ND | 10 | 1.1 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 31 | 10 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 10 | 1.1 |
| 4-CHLORO-3-METHYLPHENOL | ND | 10 | 1.1 |
| 4-CHLOROANILINE | ND | 10 | 1.1 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 10 | 1.1 |
| 4-METHYLPHENOL (1) | ND | 10 | 1.1 |
| 4-NITROANILINE | ND | 10 | 1.1 |
| 4-NITROPHENOL | ND | 31 | 10 |
| ACENAPHTHENE | ND | 10 | 1.1 |
| ACENAPHTHYLENE | ND | 10 | 1.1 |
| ANTHRACENE | ND | 10 | 1.1 |
| BENZO(A)ANTHRACENE | ND | 10 | 1.1 |
| BENZO(A)PYRENE | ND | 10 | 1.1 |
| BENZO(B)FLUORANTHENE | ND | 10 | 1.1 |
| BENZO(G,H,I)PERYLENE | ND | 10 | 1.1 |
| BENZO(K)FLUORANTHENE | ND | 10 | 1.1 |
| BENZOIC ACID | ND | 100 | 5.1 |
| BENZYL ALCOHOL | ND | 31 | 10 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 10 | 1.1 |
| BIS(2-CHLOROETHYL)ETHER | ND | 10 | 1.1 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 10 | 1.1 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 10 | 1.1 |
| BUTYLBENZYLPHTHALATE | ND | 10 | 1.1 |
| CARBAZOLE | ND | 10 | 1.1 |
| CHRYSENE | ND | 10 | 1.1 |
| DIBENZO(A,H)ANTHRACENE | ND | 10 | 1.1 |
| DIBENZOFURAN | ND | 10 | 1.1 |
| DIETHYLPHTHALATE | ND | 10 | 1.1 |
| DIMETHYLPHTHALATE | ND | 10 | 1.1 |
| DI-N-BUTYLPHTHALATE | ND | 10 | 1.1 |
| DI-N-OCTYLPHTHALATE | ND | 10 | 1.1 |
| FLUORANTHENE | ND | 10 | 1.1 |
| FLUORENE | ND | 10 | 1.1 |
| HEXACHLOROBENZENE | ND | 10 | 1.1 |
| HEXACHLOROBUTADIENE | ND | 10 | 1.1 |
| HEXACHLOROETHANE | ND | 10 | 1.1 |
| INDENO(1,2,3-CD)PYRENE | ND | 10 | 1.1 |
| ISOPHORONE | ND | 10 | 1.1 |
| NAPHTHALENE | ND | 10 | 1.1 |
| NITROBENZENE | ND | 10 | 1.1 |
| N-NITROSODIMETHYLAMINE | ND | 10 | 1.1 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 10 | 1.1 |
| N-NITROSODIPHENYLAMINE (2) | ND | 10 | 1.1 |
| PENTACHLOROPHENOL | ND | 31 | 10 |
| PHENANTHRENE | ND | 10 | 1.1 |
| PHENOL | ND | 10 | 1.1 |
| PYRENE | ND | 10 | 1.1 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 35* | 50-110 | |
| TERPHENYL-D14 | 63 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 64 | 40-125 | |
| 2-FLUOROPHENOL | 31 | 20-110 | |
| PHENOL-D5 | 34 | 10-115 | |
| NITROBENZENE-D5 | 31* | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID  : 02-230
Lab Samp ID: G178-07
Lab File ID: RGJ287
Ext Btch ID: SVG031W
Calib. Ref.: RFJ014

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 20:48
Dilution Factor: .99
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-OE4
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 9.9 | 4.9 |
| 1,2-DICHLOROBENZENE | ND | 9.9 | 4.9 |
| 1,3-DIPHENYLHYDRAZINE | ND | 9.9 | 4.9 |
| 1,3-DICHLOROBENZENE | ND | 9.9 | 4.9 |
| 1,4-DICHLOROBENZENE | ND | 9.9 | 4.9 |
| 2,4,5-TRICHLOROPHENOL | ND | 9.9 | 4.9 |
| 2,4,6-TRICHLOROPHENOL | ND | 9.9 | 4.9 |
| 2,4-DICHLOROPHENOL | ND | 9.9 | 4.9 |
| 2,4-DIMETHYLPHENOL | ND | 30 | 9.9 |
| 2,4-DINITROPHENOL | ND | 9.9 | 4.9 |
| 2,4-DINITROTOLUENE | ND | 9.9 | 4.9 |
| 2,6-DINITROTOLUENE | ND | 9.9 | 4.9 |
| 2-CHLORONAPHTHALENE | ND | 9.9 | 4.9 |
| 2-CHLOROPHENOL | ND | 9.9 | 4.9 |
| 2-METHYLNAPHTHALENE | ND | 9.9 | 4.9 |
| 2-METHYLPHENOL | ND | 9.9 | 4.9 |
| 2-NITROANILINE | ND | 9.9 | 4.9 |
| 2-NITROPHENOL | ND | 9.9 | 4.9 |
| 3,3'-DICHLOROBENZIDINE | ND | 9.9 | 4.9 |
| 3-NITROANILINE | ND | 9.9 | 4.9 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 30 | 9.9 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 9.9 | 4.9 |
| 4-CHLORO-3-METHYLPHENOL | ND | 9.9 | 4.9 |
| 4-CHLOROANILINE | ND | 9.9 | 4.9 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 9.9 | 4.9 |
| 4-METHYLPHENOL (1) | ND | 9.9 | 4.9 |
| 4-NITROANILINE | ND | 9.9 | 4.9 |
| 4-NITROPHENOL | ND | 30 | 9.9 |
| ACENAPHTHENE | ND | 9.9 | 4.9 |
| ACENAPHTHYLENE | ND | 9.9 | 4.9 |
| ANTHRACENE | ND | 9.9 | 4.9 |
| BENZO(A)ANTHRACENE | ND | 9.9 | 4.9 |
| BENZO(A)PYRENE | ND | 9.9 | 4.9 |
| BENZO(B)FLUORANTHENE | ND | 9.9 | 4.9 |
| BENZO(G,H,I)PERYLENE | ND | 9.9 | 4.9 |
| BENZO(K)FLUORANTHENE | ND | 9.9 | 4.9 |
| BENZOIC ACID | ND | 9.9 | 50 |
| BENZYL ALCOHOL | ND | 30 | 9.9 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 9.9 | 4.9 |
| BIS(2-CHLOROETHYL)ETHER | ND | 9.9 | 4.9 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 9.9 | 4.9 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 9.9 | 4.9 |
| BUTYLBENZYL PHTHALATE | ND | 9.9 | 4.9 |
| CARBAZOLE | ND | 9.9 | 4.9 |
| CHRYSENE | ND | 9.9 | 4.9 |
| DIBENZO(A,H)ANTHRACENE | ND | 9.9 | 4.9 |
| DIBENZOFURAN | ND | 9.9 | 4.9 |
| DIETHYL PHTHALATE | ND | 9.9 | 4.9 |
| DIMETHYL PHTHALATE | ND | 9.9 | 4.9 |
| DI-N-BUTYL PHTHALATE | ND | 9.9 | 4.9 |
| DI-N-OCTYL PHTHALATE | ND | 9.9 | 4.9 |
| FLUORANTHENE | ND | 9.9 | 4.9 |
| FLUORENE | ND | 9.9 | 4.9 |
| HEXACHLOROBENZENE | ND | 9.9 | 4.9 |
| HEXACHLOROBUTADIENE | ND | 9.9 | 4.9 |
| HEXACHLOROETHANE | ND | 9.9 | 4.9 |
| INDENO(1,2,3-CD)PYRENE | ND | 9.9 | 4.9 |
| ISOPHORONE | ND | 9.9 | 4.9 |
| NAPHTHALENE | ND | 9.9 | 4.9 |
| NITROBENZENE | ND | 9.9 | 4.9 |
| N-NITROSODIMETHYLAMINE | ND | 9.9 | 4.9 |
| N-NITroso-DI-N-PROPYLAMINE | ND | 9.9 | 4.9 |
| N-NITROSODIPHENYLAMINE (2) | ND | 9.9 | 4.9 |
| PENTACHLOROPHENOL | ND | 30 | 9.9 |
| PHENANTHRENE | ND | 9.9 | 4.9 |
| PHENOL | ND | 9.9 | 4.9 |
| PYRENE | ND | 9.9 | 4.9 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 49* | 50-110 | |
| TERPHENYL-D14 | 57 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 66 | 40-125 | |
| 2-FLUOROPHENOL | 49 | 20-110 | |
| PHENOL-D5 | 51 | 10-115 | |
| NITROBENZENE-D5 | 50 | 40-110 | |

{1}: Cannot be separated from 3-Methylphenol
{2}: Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID  : 650
Lab Samp ID: G178-08
Lab File ID: RGJ288
Ext Btch ID: SVG031W
Calib. Ref.: RFJ014

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 21:07
Dilution Factor: 1.12
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-OE4
    
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 11 | 5.6 |
| 1,2-DICHLOROBENZENE | ND | 11 | 5.6 |
| 1,2-DIPHENYLHYDRAZINE | ND | 11 | 5.6 |
| 1,3-DICHLOROBENZENE | ND | 11 | 5.6 |
| 1,4-DICHLOROBENZENE | ND | 11 | 5.6 |
| 2,4,5-TRICHLOROPHENOL | ND | 11 | 5.6 |
| 2,4,6-TRICHLOROPHENOL | ND | 11 | 5.6 |
| 2,4-DICHLOROPHENOL | ND | 11 | 5.6 |
| 2,4-DIMETHYLPHENOL | ND | 34 | 11 |
| 2,4-DINITROPHENOL | ND | 11 | 5.6 |
| 2,4-DINITROTOLUENE | ND | 11 | 5.6 |
| 2,6-DINITROTOLUENE | ND | 11 | 5.6 |
| 2-CHLORONAPHTHALENE | ND | 11 | 5.6 |
| 2-CHLOROPHENOL | ND | 11 | 5.6 |
| 2-METHYLNAPHTHALENE | ND | 11 | 5.6 |
| 2-METHYLPHENOL | ND | 11 | 5.6 |
| 2-NITROANILINE | ND | 11 | 5.6 |
| 2-NITROPHENOL | ND | 11 | 5.6 |
| 3,3'-DICHLOROBENZIDINE | ND | 11 | 5.6 |
| 3-NITROANILINE | ND | 11 | 5.6 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 34 | 11 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 11 | 5.6 |
| 4-CHLORO-3-METHYLPHENOL | ND | 11 | 5.6 |
| 4-CHLOROANILINE | ND | 11 | 5.6 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 11 | 5.6 |
| 4-METHYLPHENOL (1) | ND | 11 | 5.6 |
| 4-NITROANILINE | ND | 11 | 5.6 |
| 4-NITROPHENOL | ND | 34 | 11 |
| ACENAPHTHENE | ND | 11 | 5.6 |
| ACENAPHTHYLENE | ND | 11 | 5.6 |
| ANTHRACENE | ND | 11 | 5.6 |
| BENZO(A)ANTHRACENE | ND | 11 | 5.6 |
| BENZO(A)PYRENE | ND | 11 | 5.6 |
| BENZO(B)FLUORANTHENE | ND | 11 | 5.6 |
| BENZO(G,H,I)PERYLENE | ND | 11 | 5.6 |
| BENZO(K)FLUORANTHENE | ND | 11 | 5.6 |
| BENZOIC ACID | ND | 110 | 5.6 |
| BENZYL ALCOHOL | ND | 34 | 11 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 11 | 5.6 |
| BIS(2-CHLOROETHYL)ETHER | ND | 11 | 5.6 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 11 | 5.6 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 11 | 5.6 |
| BUTYLBENZYLPHTHALATE | ND | 11 | 5.6 |
| CARBAZOLE | ND | 11 | 5.6 |
| CHRYSENE | ND | 11 | 5.6 |
| DIBENZO(A,H)ANTHRACENE | ND | 11 | 5.6 |
| DIBENZOFURAN | ND | 11 | 5.6 |
| DIETHYLPHTHALATE | ND | 11 | 5.6 |
| DIMETHYLPHTHALATE | ND | 11 | 5.6 |
| DI-N-BUTYLPHTHALATE | ND | 11 | 5.6 |
| DI-N-OCTYLPHTHALATE | ND | 11 | 5.6 |
| FLUORANTHENE | ND | 11 | 5.6 |
| FLUORENE | ND | 11 | 5.6 |
| HEXACHLOROBENZENE | ND | 11 | 5.6 |
| HEXACHLOROBUTADIENE | ND | 11 | 5.6 |
| HEXACHLOROETHANE | ND | 11 | 5.6 |
| INDENO(1,2,3-CD)PYRENE | ND | 11 | 5.6 |
| ISOPHORONE | ND | 11 | 5.6 |
| NAPHTHALENE | ND | 11 | 5.6 |
| NITROBENZENE | ND | 11 | 5.6 |
| N-NITROSODIMETHYLAMINE | ND | 11 | 5.6 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 11 | 5.6 |
| N-NITROSODIPHENYLAMINE (2) | ND | 11 | 5.6 |
| PENTACHLOROPHENOL | ND | 34 | 11 |
| PHENANTHRENE | ND | 11 | 5.6 |
| PHENOL | ND | 11 | 5.6 |
| PYRENE | ND | 11 | 5.6 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 36* | 50-110 | |
| TERPHENYL-D14 | 63 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 63 | 40-125 | |
| 2-FLUOROPHENOL | 36 | 20-110 | |
| PHENOL-D5 | 38 | 10-115 | |
| NITROBENZENE-D5 | 36* | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project    : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.  : 10G178                   Date Extracted: 07/21/10 18:00
Sample ID  : 651                       Date Analyzed: 07/23/10 21:25
Lab Samp ID: G178-09                   Dilution Factor: 1.07
Lab File ID: RGJ289                    Matrix: WATER
Ext Btch ID: SVG031W                   % Moisture: NA
Calib. Ref.: RFJ014                     Instrument ID: T-0E4
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 11 | 5.4 |
| 1,5-DICHLOROBENZENE | ND | 11 | 5.4 |
| 1,5-DIPHENYLHYDRAZINE | ND | 11 | 5.4 |
| 1,5-DICHLOROBENZENE | ND | 11 | 5.4 |
| 1,4-DICHLOROBENZENE | ND | 11 | 5.4 |
| 1,4,5-TRICHLOROPHENOL | ND | 11 | 5.4 |
| 1,4,6-TRICHLOROPHENOL | ND | 11 | 5.4 |
| 1,4-DICHLOROPHENOL | ND | 11 | 5.4 |
| 1,4-DIMETHYLPHENOL | ND | 32 | 11 |
| 1,4-DINITROPHENOL | ND | 11 | 5.4 |
| 1,4-DINITROTOLUENE | ND | 11 | 5.4 |
| 1,6-DINITROTOLUENE | ND | 11 | 5.4 |
| 2-CHLORONAPHTHALENE | ND | 11 | 5.4 |
| 2-CHLOROPHENOL | 8.1 J | 11 | 5.4 |
| 2-METHYLNAPHTHALENE | ND | 11 | 5.4 |
| 2-METHYLPHENOL | ND | 11 | 5.4 |
| 2-NITROANILINE | ND | 11 | 5.4 |
| 2-NITROPHENOL | ND | 11 | 5.4 |
| 3,3'-DICHLOROBENZIDINE | ND | 11 | 5.4 |
| 3-NITROANILINE | ND | 32 | 11 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 11 | 5.4 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 11 | 5.4 |
| 4-CHLORO-3-METHYLPHENOL | ND | 11 | 5.4 |
| 4-CHLOROANILINE | ND | 11 | 5.4 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 11 | 5.4 |
| 4-METHYLPHENOL (1) | ND | 11 | 5.4 |
| 4-NITROANILINE | ND | 32 | 11 |
| 4-NITROPHENOL | ND | 11 | 5.4 |
| ACENAPHTHENE | ND | 11 | 5.4 |
| ACENAPHTHYLENE | ND | 11 | 5.4 |
| ANTHRACENE | ND | 11 | 5.4 |
| BENZO(A)ANTHRACENE | ND | 11 | 5.4 |
| BENZO(A)PYRENE | ND | 11 | 5.4 |
| BENZO(B)FLUORANTHENE | ND | 11 | 5.4 |
| BENZO(G,H,I)PERYLENE | ND | 11 | 5.4 |
| BENZO(K)FLUORANTHENE | ND | 110 | 53 |
| BENZOIC ACID | ND | 32 | 11 |
| BENZYL ALCOHOL | ND | 11 | 5.4 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 11 | 5.4 |
| BIS(2-CHLOROETHYL)ETHER | ND | 11 | 5.4 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 11 | 5.4 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 11 | 5.4 |
| BUTYLBENZYLPHTHALATE | ND | 11 | 5.4 |
| CARBAZOLE | ND | 11 | 5.4 |
| CHRYSENE | ND | 11 | 5.4 |
| DIBENZO(A,H)ANTHRACENE | ND | 11 | 5.4 |
| DIBENZOFURAN | ND | 11 | 5.4 |
| DIETHYLPHTHALATE | ND | 11 | 5.4 |
| DIMETHYLPHTHALATE | ND | 11 | 5.4 |
| DI-N-BUTYLPHTHALATE | ND | 11 | 5.4 |
| DI-N-OCTYLPHTHALATE | ND | 11 | 5.4 |
| FLUORANTHENE | ND | 11 | 5.4 |
| FLUORENE | ND | 11 | 5.4 |
| HEXACHLOROBENZENE | ND | 11 | 5.4 |
| HEXACHLOROBUTADIENE | ND | 11 | 5.4 |
| HEXACHLOROETHANE | ND | 11 | 5.4 |
| INDENO(1,2,3-CD)PYRENE | ND | 11 | 5.4 |
| ISOPHORONE | ND | 11 | 5.4 |
| NAPHTHALENE | 11 J | 11 | 5.4 |
| NITROBENZENE | ND | 11 | 5.4 |
| N-NITROSODIMETHYLAMINE | ND | 11 | 5.4 |
| N-NITroso-DI-N-PROPYLAMINE | ND | 11 | 5.4 |
| N-NITROSODIPHENYLAMINE (2) | ND | 11 | 5.4 |
| PENTACHLOROPHENOL | ND | 32 | 11 |
| PHENANTHRENE | ND | 11 | 5.4 |
| PHENOL | ND | 11 | 5.4 |
| PYRENE | ND | 11 | 5.4 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 38* | 50-110 | |
| TERPHENYL-D14 | 72 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 63 | 40-125 | |
| 2-FLUOROPHENOL | 40 | 20-110 | |
| PHENOL-D5 | 42 | 10-115 | |
| NITROBENZENE-D5 | 39* | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G178
Sample ID   : 652
Lab Samp ID: G178-10
Lab File ID: RGJ290
Ext Btch ID: SVG031W
Calib. Ref.: RFJ014
Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 21:44
Dilution Factor: 1.02
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-0E4
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 5.1 |
| 1,2-DICHLOROBENZENE | ND | 10 | 5.1 |
| 1,3-DIPHENYLHYDRAZINE | ND | 10 | 5.1 |
| 1,3-DICHLOROBENZENE | ND | 10 | 5.1 |
| 1,4-DICHLOROBENZENE | ND | 10 | 5.1 |
| 1,4,5-TRICHLOROPHENOL | ND | 10 | 5.1 |
| 1,4,6-TRICHLOROPHENOL | ND | 10 | 5.1 |
| 1,4-DICHLOROPHENOL | ND | 10 | 5.1 |
| 1,4-DIMETHYLPHENOL | ND | 10 | 5.1 |
| 1,4-DINITROPHENOL | ND | 31 | 10 |
| 1,4-DINITROTOLUENE | ND | 10 | 5.1 |
| 1,6-DINITROTOLUENE | ND | 10 | 5.1 |
| 2-CHLORONAPHTHALENE | ND | 10 | 5.1 |
| 2-CHLOROPHENOL | ND | 10 | 5.1 |
| 2-METHYLNAPHTHALENE | ND | 10 | 5.1 |
| 2-METHYLPHENOL | ND | 10 | 5.1 |
| 2-NITROANILINE | ND | 10 | 5.1 |
| 2-NITROPHENOL | ND | 10 | 5.1 |
| 3,3'-DICHLOROBENZIDINE | ND | 10 | 5.1 |
| 3-NITROANILINE | ND | 10 | 5.1 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 31 | 10 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 10 | 5.1 |
| 4-CHLORO-3-METHYLPHENOL | ND | 10 | 5.1 |
| 4-CHLOROANILINE | ND | 10 | 5.1 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 10 | 5.1 |
| 4-METHYLPHENOL (1) | ND | 10 | 5.1 |
| 4-NITROANILINE | ND | 10 | 5.1 |
| 4-NITROPHENOL | ND | 31 | 10 |
| ACENAPHTHENE | ND | 10 | 5.1 |
| ACENAPHTHYLENE | ND | 10 | 5.1 |
| ANTHRACENE | ND | 10 | 5.1 |
| BENZO(A)ANTHRACENE | ND | 10 | 5.1 |
| BENZO(A)PYRENE | ND | 10 | 5.1 |
| BENZO(B)FLUORANTHENE | ND | 10 | 5.1 |
| BENZO(G,H,I)PERYLENE | ND | 10 | 5.1 |
| BENZO(K)FLUORANTHENE | ND | 10 | 5.1 |
| BENZOIC ACID | ND | 100 | 5.1 |
| BENZYL ALCOHOL | ND | 31 | 10 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 10 | 5.1 |
| BIS(2-CHLOROETHYL)ETHER | ND | 10 | 5.1 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 10 | 5.1 |
| BIS(2-ETHYLHEXYL)PHTHALATE | ND | 10 | 5.1 |
| BUTYLBENZYLPHTHALATE | ND | 10 | 5.1 |
| CARBAZOLE | ND | 10 | 5.1 |
| CHRYSENE | ND | 10 | 5.1 |
| DIBENZO(A,H)ANTHRACENE | ND | 10 | 5.1 |
| DIBENZOFURAN | ND | 10 | 5.1 |
| DIETHYLPHTHALATE | ND | 10 | 5.1 |
| DIMETHYLPHTHALATE | ND | 10 | 5.1 |
| D1-N-BUTYLPHTHALATE | ND | 10 | 5.1 |
| D1-N-OCTYLPHTHALATE | ND | 10 | 5.1 |
| FLUORANTHENE | ND | 10 | 5.1 |
| FLUORENE | ND | 10 | 5.1 |
| HEXACHLOROBENZENE | ND | 10 | 5.1 |
| HEXACHLOROBUTADIENE | ND | 10 | 5.1 |
| HEXACHLOROETHANE | ND | 10 | 5.1 |
| INDENO(1,2,3-CD)PYRENE | ND | 10 | 5.1 |
| ISOPHORONE | ND | 10 | 5.1 |
| NAPHTHALENE | ND | 25 | 5.1 |
| NITROBENZENE | ND | 10 | 5.1 |
| N-NITROSODIMETHYLAMINE | ND | 10 | 5.1 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 10 | 5.1 |
| N-NITROSODIPHENYLAMINE (2) | ND | 10 | 5.1 |
| PENTACHLOROPHENOL | ND | 31 | 10 |
| PHENANTHRENE | ND | 10 | 5.1 |
| PHENOL | ND | 10 | 5.1 |
| PYRENE | ND | 10 | 5.1 |
| ----- | | | |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 34* | 50-110 | |
| TERPHENYL-D14 | 60 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 65 | 40-125 | |
| 2-FLUOROPHENOL | 28 | 20-110 | |
| PHENOL-D5 | 32 | 10-115 | |
| NITROBENZENE-D5 | 29* | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3520C/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : URS GROUP, INC.
Project    : 2010 ADD PET CHAR ADAK
Batch No.  : 10G178
Sample ID  : LC 5A
Lab Samp ID: G178-11
Lab File ID: RGJ291
Ext Btch ID: SVG031W
Calib. Ref.: RFJ014

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 18:00
Date Analyzed: 07/23/10 22:03
Dilution Factor: 1.04
Matrix      : WATER
% Moisture  : NA
Instrument ID: T-OE4
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|-----------------------------|----------------|-----------|------------|
| 1,2,4-TRICHLOROBENZENE | ND | 10 | 5.2 |
| 1,5-DICHLOROBENZENE | ND | 10 | 10 |
| 1,2-DIPHENYLHYDRAZINE | ND | 10 | 10 |
| 1,3-DICHLOROBENZENE | ND | 10 | 10 |
| 1,4-DICHLOROBENZENE | ND | 10 | 10 |
| 2,4,5-TRICHLOROPHENOL | ND | 10 | 10 |
| 2,4,6-TRICHLOROPHENOL | ND | 10 | 10 |
| 2,4-DICHLOROPHENOL | ND | 10 | 10 |
| 2,4-DIMETHYLPHENOL | ND | 10 | 10 |
| 2,4-DINITROPHENOL | ND | 31 | 10 |
| 2,4-DINITROTOLUENE | ND | 10 | 10 |
| 2,6-DINITROTOLUENE | ND | 10 | 10 |
| 2-CHLORONAPHTHALENE | ND | 10 | 10 |
| 2-CHLOROPHENOL | ND | 10 | 10 |
| 2-METHYLNAPHTHALENE | 22 | 10 | 10 |
| 2-METHYLPHENOL | ND | 10 | 10 |
| 2-NITROANILINE | ND | 10 | 10 |
| 2-NITROPHENOL | ND | 10 | 10 |
| 3,3'-DICHLOROBENZIDINE | ND | 10 | 10 |
| 3-NITROANILINE | ND | 10 | 10 |
| 4,6-DINITRO-2-METHYLPHENOL | ND | 31 | 10 |
| 4-BROMOPHENYL-PHENYL ETHER | ND | 10 | 10 |
| 4-CHLORO-3-METHYLPHENOL | ND | 10 | 10 |
| 4-CHLOROANILINE | ND | 10 | 10 |
| 4-CHLOROPHENYL-PHENYL ETHER | ND | 10 | 10 |
| 4-METHYLPHENOL (1) | ND | 10 | 10 |
| 4-NITROANILINE | ND | 10 | 10 |
| 4-NITROPHENOL | ND | 31 | 10 |
| ACENAPHTHENE | ND | 10 | 10 |
| ACENAPHTHYLENE | ND | 10 | 10 |
| ANTHRACENE | ND | 10 | 10 |
| BENZO(A)ANTHRACENE | ND | 10 | 10 |
| BENZO(A)PYRENE | ND | 10 | 10 |
| BENZO(B)FLUORANTHENE | ND | 10 | 10 |
| BENZO(G,H,I)PERYLENE | ND | 10 | 10 |
| BENZO(K)FLUORANTHENE | ND | 10 | 10 |
| BENZOIC ACID | ND | 100 | 5.2 |
| BENZYL ALCOHOL | ND | 31 | 10 |
| BIS(2-CHLOROETHOXY)METHANE | ND | 10 | 10 |
| BIS(2-CHLOROETHYL)ETHER | ND | 10 | 10 |
| BIS(2-CHLOROISOPROPYL)ETHER | ND | 10 | 10 |
| BIS(2-ETHYLHEXYL)PHTHALATE | 7.9 | 10 | 10 |
| BUTYLBENZYLPHthalate | ND | 10 | 10 |
| CARBAZOLE | ND | 10 | 10 |
| CHRYSENE | ND | 10 | 10 |
| DIBENZO(A,H)ANTHRACENE | ND | 10 | 10 |
| DIBENZOFURAN | ND | 10 | 10 |
| DIETHYLPHthalate | ND | 10 | 10 |
| DIMETHYLPHthalate | ND | 10 | 10 |
| DI-N-BUTYLPHthalate | ND | 10 | 10 |
| DI-N-OCTYLPHthalate | ND | 10 | 10 |
| FLUORANTHENE | ND | 10 | 10 |
| FLUORENE | ND | 10 | 10 |
| HEXACHLOROBENZENE | ND | 10 | 10 |
| HEXACHLOROBUTADIENE | ND | 10 | 10 |
| HEXACHLOROETHANE | ND | 10 | 10 |
| INDENO(1,2,3-CD)PYRENE | ND | 10 | 10 |
| ISOPHORONE | ND | 10 | 10 |
| NAPHTHALENE | 15 | 10 | 10 |
| NITROBENZENE | ND | 10 | 10 |
| N-NITROSODIMETHYLAMINE | ND | 10 | 10 |
| N-NITROSO-DI-N-PROPYLAMINE | ND | 10 | 10 |
| N-NITROSODIPHENYLAMINE (2) | ND | 10 | 10 |
| PENTACHLOROPHENOL | ND | 31 | 10 |
| PHENANTHRENE | ND | 10 | 10 |
| PHENOL | ND | 10 | 10 |
| PYRENE | ND | 10 | 10 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| 2-FLUOROBIPHENYL | 44* | 50-110 | |
| TERPHENYL-D14 | 77 | 50-135 | |
| 2,4,6-TRIBROMOPHENOL | 64 | 40-125 | |
| 2-FLUOROPHENOL | 47 | 20-110 | |
| PHENOL-D5 | 48 | 10-115 | |
| NITROBENZENE-D5 | 49 | 40-110 | |

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G178
Sample ID   : ANT-601
Lab Samp ID: G178-01
Lab File ID: LG21111A
Ext Btch ID: DSG033W
Calib. Ref.: LG21103A

Date Collected: 07/16/10
Date Received: 07/19/10
Date Extracted: 07/21/10 16:00
Date Analyzed: 07/23/10 00:02
Dilution Factor: 1.02
Matrix      : WATER
% Moisture  : NA
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 830 | 510 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 94 | 50-150 |
| N-TRIACONTANE-D62 | 87 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/16/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/19/10
Batch No.  : 10G178                    Date Extracted: 07/21/10 16:00
Sample ID  : ANT-601 D                  Date Analyzed: 07/23/10 00:19
Lab Samp ID: G178-02                    Dilution Factor: 1.01
Lab File ID: LG21112A                   Matrix          : WATER
Ext Btch ID: DSG033W                    % Moisture      : NA
Calib. Ref.: LG21103A                    Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 1100 | 510 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 84 | 50-150 |
| N-TRIACONTANE-D62 | 89 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G178
Sample ID   : 602
Lab Samp ID: G178-03
Lab File ID: LG21113A
Ext Btch ID: DSG033W
Calib. Ref.: LG21103A

Date Collected: 07/16/10
Date Received: 07/19/10
Date Extracted: 07/21/10 16:00
Date Analyzed: 07/23/10 00:36
Dilution Factor: 1.03
Matrix      : WATER
% Moisture  : NA
Instrument ID : GCT105
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|----------------------|-------------------|--------------|---------------|
| DRO | ND | 520 | 100 |
| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 99 | 50-150 | |
| N-TRIACONTANE-D62 | 88 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.
Project     : 2010 ADD PET CHAR ADAK
Batch No.   : 10G178
Sample ID   : 601
Lab Samp ID: G178-04
Lab File ID: LG21114A
Ext Btch ID: DSG033W
Calib. Ref.: LG21103A

Date Collected: 07/17/10
Date Received: 07/19/10
Date Extracted: 07/21/10 16:00
Date Analyzed: 07/23/10 00:52
Dilution Factor: 1.03
Matrix      : WATER
% Moisture  : NA
Instrument ID : GCT105
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 2500 | 520 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 87 | 50-150 |
| N-TRIACONTANE-D62 | 83 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.   : 10G178                  Date Extracted: 07/21/10 16:00
Sample ID   : 601 D                   Date Analyzed: 07/23/10 01:09
Lab Samp ID: G178-05                  Dilution Factor: 1
Lab File ID: LG21115A                 Matrix           : WATER
Ext Btch ID: DSG033W                  % Moisture       : NA
Calib. Ref.: LG21103A                 Instrument ID    : GCT105
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 2400 | 500 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 87 | 50-150 |
| N-TRIACONTANE-D62 | 88 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project     : 2010 ADD PET CHAR ADAK    Date Received: 07/19/10
Batch No.   : 10G178                   Date Extracted: 07/21/10 16:00
Sample ID   : MRP-MW8                   Date Analyzed: 07/23/10 02:17
Lab Samp ID: G178-06                    Dilution Factor: 1.08
Lab File ID: LG21119A                   Matrix          : WATER
Ext Btch ID: DSG033W                     % Moisture     : NA
Calib. Ref.: LG21117A                    Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 2400 | 540 | 110 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 92 | 50-150 |
| N-TRIACONTANE-D62 | 101 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/19/10
Batch No.  : 10G178                    Date Extracted: 07/21/10 16:00
Sample ID  : 02-230                    Date Analyzed: 07/23/10 02:34
Lab Samp ID: G178-07                   Dilution Factor: 1
Lab File ID: LG21120A                  Matrix          : WATER
Ext Btch ID: DSG033W                   % Moisture      : NA
Calib. Ref.: LG21117A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 3600 | 500 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 82 | 50-150 |
| N-TRIACONTANE-D62 | 87 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project     : 2010 ADD PET CHAR ADAK   Date Received: 07/19/10
Batch No.   : 10G178                   Date Extracted: 07/21/10 16:00
Sample ID   : 650                       Date Analyzed: 07/23/10 02:51
Lab Samp ID: G178-08                    Dilution Factor: 1.03
Lab File ID: LG21121A                   Matrix          : WATER
Ext Btch ID: DSG033W                    % Moisture     : NA
Calib. Ref.: LG21117A                    Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|----------------------|-------------------|--------------|---------------|
| DRO | 1400 | 520 | 100 |
| SURROGATE PARAMETERS | | | |
| | % RECOVERY | QC LIMIT | |
| O-TERPHENYL | 90 | 50-150 | |
| N-TRIACONTANE-D62 | 88 | 50-150 | |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/19/10
Batch No.  : 10G178                    Date Extracted: 07/21/10 16:00
Sample ID  : 651                       Date Analyzed: 07/23/10 03:41
Lab Samp ID: G178-09                   Dilution Factor: 1.02
Lab File ID: LG21124A                  Matrix          : WATER
Ext Btch ID: DSG033W                   % Moisture      : NA
Calib. Ref.: LG21117A                  Instrument ID   : GCT105
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 1100 | 510 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 96 | 50-150 |
| N-TRIACONTANE-D62 | 98 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:

E: Exceeding calibration range
J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/19/10
Batch No.  : 10G178                    Date Extracted: 07/21/10 16:00
Sample ID  : 652                       Date Analyzed: 07/23/10 03:58
Lab Samp ID: G178-10                   Dilution Factor: 1.04
Lab File ID: LG21125A                  Matrix          : WATER
Ext Btch ID: DSG033W                   % Moisture     : NA
Calib. Ref.: LG21117A                  Instrument ID   : GCT105
=====
  
```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 3700 | 520 | 100 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 90 | 50-150 |
| N-TRIACONTANE-D62 | 102 | 50-150 |

| Parameter | H-C Range |
|-----------|-----------|
| DRO | C10-C25 |

Data Qualifiers:
 E: Exceeding calibration range
 J: Result is between the RL and MDL

METHOD AK102
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : URS GROUP, INC.           Date Collected: 07/17/10
Project    : 2010 ADD PET CHAR ADAK    Date Received: 07/19/10
Batch No.  : 10G178                    Date Extracted: 07/21/10 16:00
Sample ID  : LC 5A                     Date Analyzed: 07/23/10 04:14
Lab Samp ID: G178-11                   Dilution Factor: .95
Lab File ID: LG21126A                  Matrix           : WATER
Ext Btch ID: DSG033W                   % Moisture      : NA
Calib. Ref.: LG21117A                  Instrument ID    : GCT105
=====

```

| PARAMETERS | RESULTS (ug/L) | RL (ug/L) | MDL (ug/L) |
|------------|-------------------|--------------|---------------|
| DRO | 1100 | 470 | 95 |

| SURROGATE PARAMETERS | % RECOVERY | QC LIMIT |
|----------------------|------------|----------|
| O-TERPHENYL | 90 | 50-150 |
| N-TRIACONTANE-D62 | 89 | 50-150 |

Parameter H-C Range
DRO C10-C25

Data Qualifiers:
E: Exceeding calibration range
J: Result is between the RL and MDL

APPENDIX D

Antenna Field

D-1 Antenna Field - Boring and Well Construction Logs

| | | | | |
|-----------------|---------------------|-----------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 18-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | 10' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|-----------|-------------|----------|---------------|-------------|--|--|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL/GM | Brown organic silt. Buried cobbles/gravel just below surface | 922 | |
| 1 | | | | | | | | | |
| 2 | | | | | | ML | Gray stained sandy silt with some gravel. Strong diesel odor, sheen present, soft, wet | 930 | |
| | | SS | -2.5 | 4 | 3 | | | PID=34.7 | |
| 3 | | | | 3 | | | | | |
| 4 | | | | 3 | | | | | |
| 5 | | | | | | OL | Brown sandy silt, strong odor, wet (logged from cuttings) | 940 PID = N/A | |
| 6 | | | | 3 | | | | | |
| | | | | 5 | | | | | |
| 7 | | | | | | | | | |
| | | SS | -7.5 | 2 | 12 | OL | Brown silt with little sand, dry, soft, no odor, no staining | 945 PID = 9.3 FD = ANT-602D | |
| 8 | | | | 1 | | | | | |
| | | | | 2 | | | | | |
| 9 | | | | | | | | | |
| | | | | | | | | | |
| 10 | | | | | | BRK | Weathered bedrock with silt, damp, slight diesel odor, no staining, no sheen | 955 PID = 1.5 | |
| | | | | 21 | 6 | | | | |
| 11 | | | | 33 | | | | | |
| | | | | 50/3 | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

| | | | | |
|-----------------|---------------------|-------------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 6/15/10 through 6/16/10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" Hollow Stem | Total Borehole Depth | 7.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|--|--|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL | Dark Brown organic silt, very soft, wet | 10:45 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | SS | -2.5 | 2 | 12 | | as above, no odor, no staining, no sheen, very sticky | 10:50 | |
| 4 | | | | 4 | | | some lapilli sand | | |
| 5 | | | | 5 | | | | | |
| 6 | | | | 37 | 6 | BRK | Weathered bedrock, silt in shoe, bouncing on large cobble or boulder | end 6/15 11:12 resume 6/16/10 8:40 drill chatter | |
| 7 | | | | 60/6 | | | | | |
| 8 | | | | 60/3 | 0 | BRK | Few bedrock fragments | drill chatter 8:45 | |
| 9 | | | | | | | | 9:15 TD | |
| 10 | | | | | | | Abandoned with chips & cuttings No samples submitted for analysis | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

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|-----------------|---------------------|----------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 13-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" Hollow Stem Auger | Total Borehole Depth | 7' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| | 0 | | | | | OL | Dark brown organic silt with some sand, very soft, wet, no odor, no staining, grass & roots | 10:50 | |
| | 1 | | | | | | | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | as above, less organic material | | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 3 | 9 | | | | |
| | 6 | | | 5 | | SP | Rusty brown, coarse, well rounded sand with some silt, damp, no odor, no staining | 11:03 | |
| | 7 | SS | -7.5 | 50/6 | 6 | BRK | Bedrock with some silt | 11:15 | |
| | 8 | | | | | | | | |
| | 9 | | | | | | | | |
| | 10 | | | | | | | | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 16 | | | | | | | | |
| | 17 | | | | | | | | |
| | 18 | | | | | | | | |
| | 19 | | | | | | | | |
| | 20 | | | | | | | | |

| | | | | |
|-----------------|---------------------|----------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 12-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" hollow stem auger | Total Borehole Depth | 9.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL | Dark brown organic silt with some sand, very soft, wet, no odor, no staining, no sheen | 14:35 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | Brown organic silt with fewer roots | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 1 | 18 | SP | Rusty brown coarse sand with some silt, soft, slight diesel odor, no staining, no sheen | 14:50 | |
| 6 | | | | 4 | | | | | |
| 7 | | | | 5 | | | | | |
| 8 | | SS | -7.5 | 2 | 12 | SM | Red brown silty sand, no odor, no staining | 15:10 | |
| 9 | | | | 7 | | | | | |
| 10 | | | | 18 | | | | | |
| 11 | | SS | -9.5 | 50/4 | | BRK | Bedrock refusal at 9.5' | 15:25 | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

| | | | | |
|-----------------|---------------------|----------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 13-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" Hollow stem auger | Total Borehole Depth | 9.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| | 0 | | | | | OL | Dark brown, organic silt, very soft, wet, no odor, no staining | 14:18 | |
| | 1 | | | | | | | | |
| | 2 | | | | | | chatter - large piece of rock | | |
| | 3 | | | | | | | | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 15 | 3 | | Reddish brown silt, damp, no odor, no staining, rock fragment stuck in shoe | 14:28 | |
| | 6 | | | 50/3 | | | | | |
| | 7 | | | | | BRK | weathered bedrock | | |
| | 8 | SS | -7.5 | 7 | 3 | | Weathered bedrock, dry, no odor, no staining | 14:47 | |
| | 9 | | | 50/3 | | | | | |
| | 10 | | | 50/2 | | | Refusal at 9.5' | 15:15 | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 16 | | | | | | | | |
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| | 18 | | | | | | | | |
| | 19 | | | | | | | | |
| | 20 | | | | | | | | |

| | | | | |
|-----------------|---------------------|----------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 20-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" hollow stem auger | Total Borehole Depth | 9' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL | Dark brown organic silt, wet, very soft, no odor, no staining | 950 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| | | SS | -2.5 | 1 | 12 | | grading to | 953 | |
| 3 | | | | 1 | | SP/SM | Brown damp silty sand. Coarse subrounded sand with roots & buried grass. No odor, no staining | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 0 | 16 | | | | |
| 6 | | | | 1 | | OL | Brown silt with sand and decaying organics, damp, no odor, no staining | 958 | |
| 7 | | | | 3 | | | | | |
| | | SS | -7.5 | 1 | 0 | BRK | weathered bedrock Bedrock - bouncing on rock | 10:07 | |
| 8 | | | | 50/4 | | | | | |
| 9 | | | | | | | TD = 9' bgs | 10:20 | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
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| 20 | | | | | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Antenna Field, Adak, Alaska
 Project Number: 33762004

BORING NO. ANT-SB608
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 20-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 2 1/2" macrocore | Total Borehole Depth | 5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL | Dark brown organic silt. Very soft, moist, no odor, no staining | 15:00 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | SS | -2.5 | 2 | 12 | SP/SM | Dark brown silty sand - organic silt & coarse subrounded sand, soft, moist, no odor, no staining | 15:02 | |
| 4 | | | | 3 | | | | | |
| 5 | | | | 3 | | | | | |
| 5 | | SS | -5 | 50/6 | 3 | BRK | Weathered bedrock Bedrock refusal at 5' | 15:07 | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
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| 20 | | | | | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Antenna Field, Adak, Alaska
 Project Number: 33762004

BORING NO. ANT-SB609
 (completed as monitoring well ANT-603)
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|---|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 17-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 2 1/2" macrocore & 8" hollow stem auger | Total Borehole Depth | 8 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL | Dark brown organic silt with some sand, very soft, moist, no odor, no staining | 12:53 | |
| 1 | | | | | | | | | |
| 2 | | | | | | OL | Dark brown organic silt with sand, very soft, moist, no odor, no staining | 12:55 | |
| 3 | | SS | -2.5 | 1 | 16 | | | PID = 2.5 | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 3 | 16 | SP/GP | Brown subrounded coarse sand & fine gravel with silt, soft, moist, strong diesel odor, black staining, no sheen | 13:00 | |
| 6 | | | | 2 | | | | PID = 35.6 | |
| 7 | | | | 1 | | | As above with bedrock fragments, staining, strong diesel odor, sheen present | | |
| 8 | | SS | -7.5 | 6 | 10 | BRK | Weathered bedrock | 13:25 | |
| 9 | | | | 50/5 | | | Ream out hole with hollow stem auger to 8' bgs | PID = 17 | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Antenna Field, Adak, Alaska
 Project Number: 33762004

BORING NO. ANT-SB610
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|----------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 17-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 8" hollow stem auger | Total Borehole Depth | 6 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | OL | Dark brown organic silt, very soft, moist, no odor, no staining | 15:10 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | SS | -2.5 | 1 | 14 | | | 15:12 PID = 0.5 | |
| 4 | | | | 2 | | SP/GP | Reddish brown coarse sand & fine gravel with silt, soft, moist, no odor, no staining | | |
| 5 | | SS | -5 | 5 | 9 | ML/BRK | Brown silt with sand and bedrock fragments. Dry to moist. | 15:17 PID = 0.4 | |
| 6 | | | | 12 | | BRK | Bedrock refusal at 6' bgs | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Antenna Field, Adak, Alaska
 Project Number: 33762004

BORING NO. ANT-SB612
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 20-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 2 1/2" macrocore | Total Borehole Depth | 7.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | GP | Gravel & cobbles just below surface | 15:31 | |
| 1 | | | | | | OL | Dark brown organic silt, very soft, moist, no odor, no staining | | |
| 2 | | | | | | | | | |
| 3 | | SS | -2.5 | 2 | 14 | SP | Brown subrounded coarse sand with silt, no odor, no staining | 15:33 | |
| 4 | | | | 1 | | OL | Dark brown organic silt with sand, damp, no odor, no staining, very soft | | |
| 5 | | | | 2 | | | | | |
| 6 | | SS | -5 | 2 | 12 | SP | Brown sand (as above at 2.5') | 15:40 | |
| 7 | | | | 1 | | OL | Organic silt (as above at 3') | | |
| 8 | | | | 2 | | | | | |
| 9 | | SS | -7.5 | 8 | 12 | GM | Silty weathered bedrock, dry, no odor, no staining | 15:44 | |
| 10 | | | | 15 | | | | | |
| 11 | | | | 24 | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Antenna Field, Adak, Alaska
 Project Number: 33762004

BORING NO. ANT-SB613



Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 20-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 2 1/2" macrocore | Total Borehole Depth | 5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | GP | gravelly fill | 11:22 | |
| | 1 | | | | | OL | Dark brown organic silt with some sand, soft, moist, no odor, no staining | | |
| | 2 | | | | | | | | |
| | 3 | SS | -2.5 | 2 | 14 | | | 11:25 | |
| | 4 | | | 4 | | | | | |
| | 5 | | | 6 | | | | | |
| | 6 | SS | -5 | 50/3 | 0 | BRK | Rock fragments in slough Bedrock refusal at 5' bgs | 11:30 | |
| | 7 | | | | | | | | |
| | 8 | | | | | | | | |
| | 9 | | | | | | | | |
| | 10 | | | | | | | | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 16 | | | | | | | | |
| | 17 | | | | | | | | |
| | 18 | | | | | | | | |
| | 19 | | | | | | | | |
| | 20 | | | | | | | | |

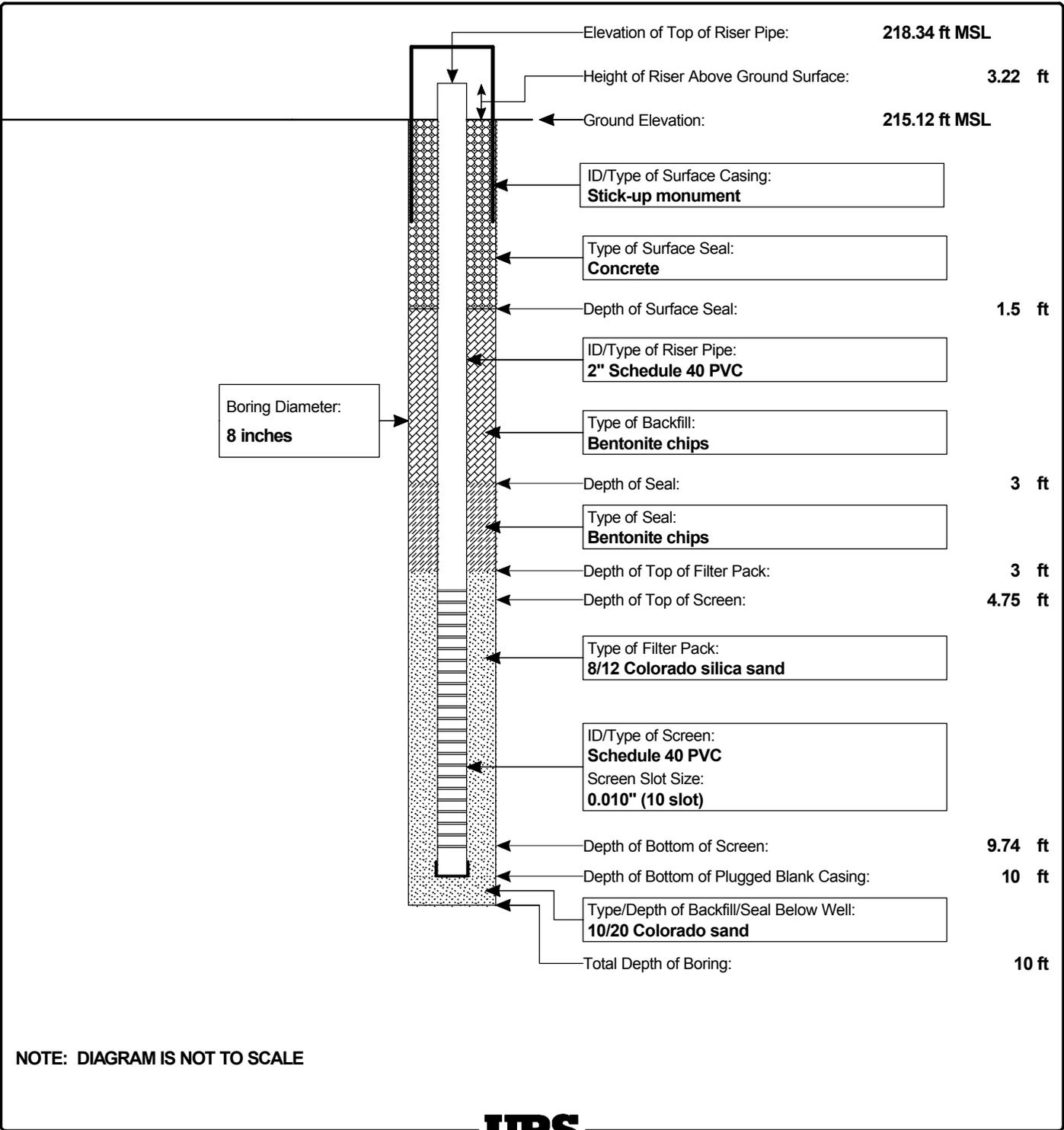
| | | | | |
|-----------------|---------------------|------------------|----------------------|-----------------|
| Location Sketch | Date(s) Drilled | 20-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | 2 1/2" macrocore | Total Borehole Depth | 4.3' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610DT |
| | Sampling Method(s) | SPT | Hammer Data | 140 |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|---------------|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (in) | | | | |
| 0 | | | | | | | Few gravels/cobbles at surface | 11:45 | |
| | | | | | | OL | Dark brown organic silt with sand, moist, soft, no odor, no staining | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| | | SS | -2.5 | 2 | 12 | SP | Brown sand with silt and trace gravel, damp, no odor, no staining | 11:50 | |
| 3 | | | | 2 | | | | | |
| | | | | 7 | | | | | |
| 4 | | | | | | | Bedrock refusal at 4' 4" bgs | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

Project: DO 5
 Project Location: Adak
 Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL ANT-602

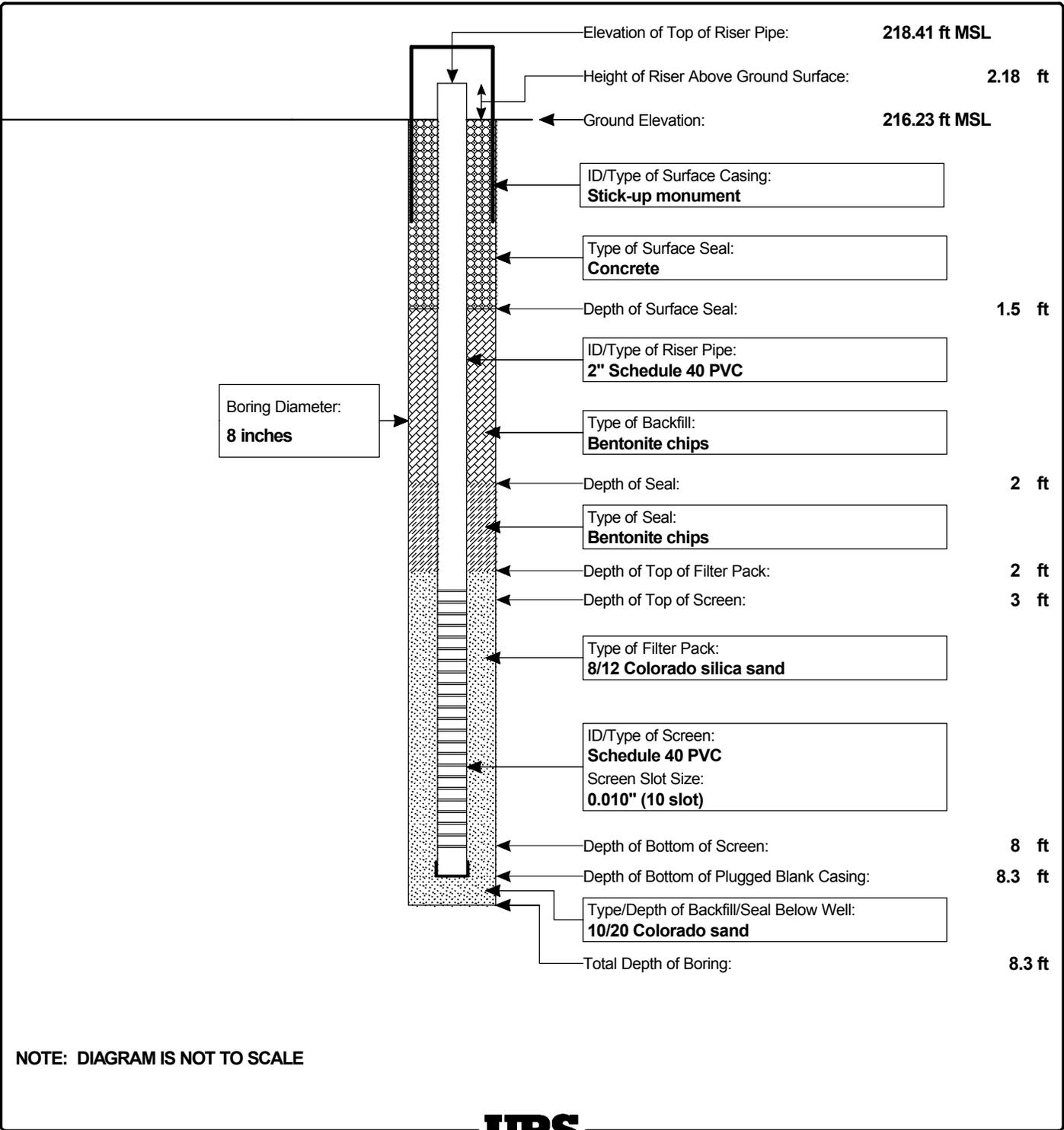
| | | |
|--|-----------------------------------|----------------------------|
| Well Location Antenna Field | Date(s) Installed 6/18/10 | Time 10:00 |
| Installed By Denali Drilling | Observed By JW | Total Depth 10 feet |
| Method of Installation HSA | | |
| Screened Interval 4.75'-9.75' bgs | Completion Zone Sandy Silt | |
| Remarks Vertical datum is NOAA MLLW | | |



Project: DO 5
Project Location: Adak
Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL ANT-603

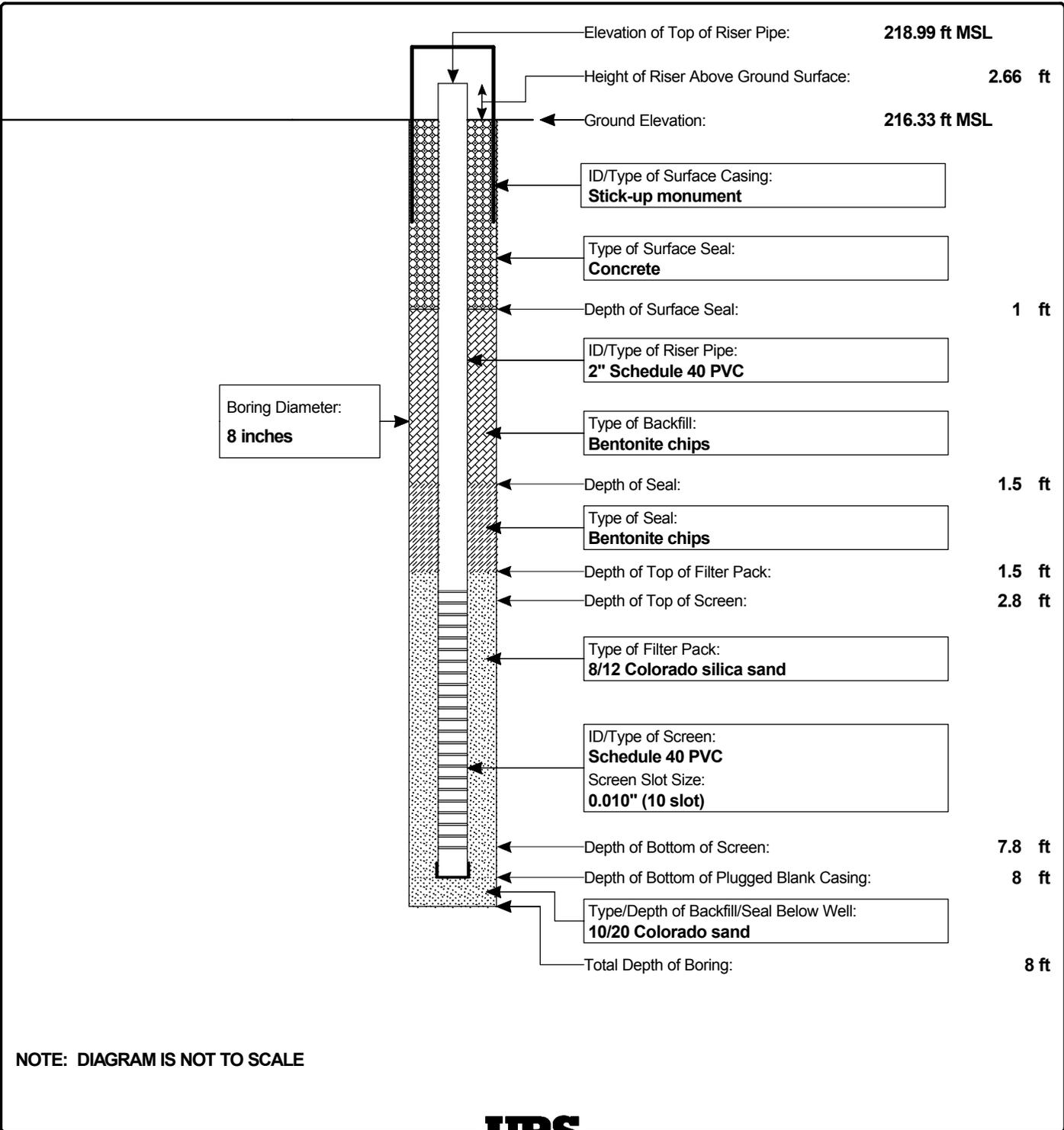
| | | |
|--|---|-----------------------------|
| Well Location Antenna Field | Date(s) Installed 6/17/10 | Time 14:20 |
| Installed By Denali Drilling | Observed By JW | Total Depth 8.3 feet |
| Method of Installation HSA | | |
| Screened Interval 3'-8" bgs | Completion Zone Coarse Sand and Gravel | |
| Remarks Vertical datum is NOAA MLLW | | |



Project: DO 5
 Project Location: Adak
 Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL ANT-604

| | | |
|--|------------------------------------|---------------------------|
| Well Location Antenna Field | Date(s) Installed 6/13/10 | Time 13:05 |
| Installed By Denali Drilling | Observed By JW | Total Depth 8 feet |
| Method of Installation HSA | | |
| Screened Interval 2.8'-7.8' bgs | Completion Zone Coarse Sand | |
| Remarks Vertical datum is NOAA MLLW | | |



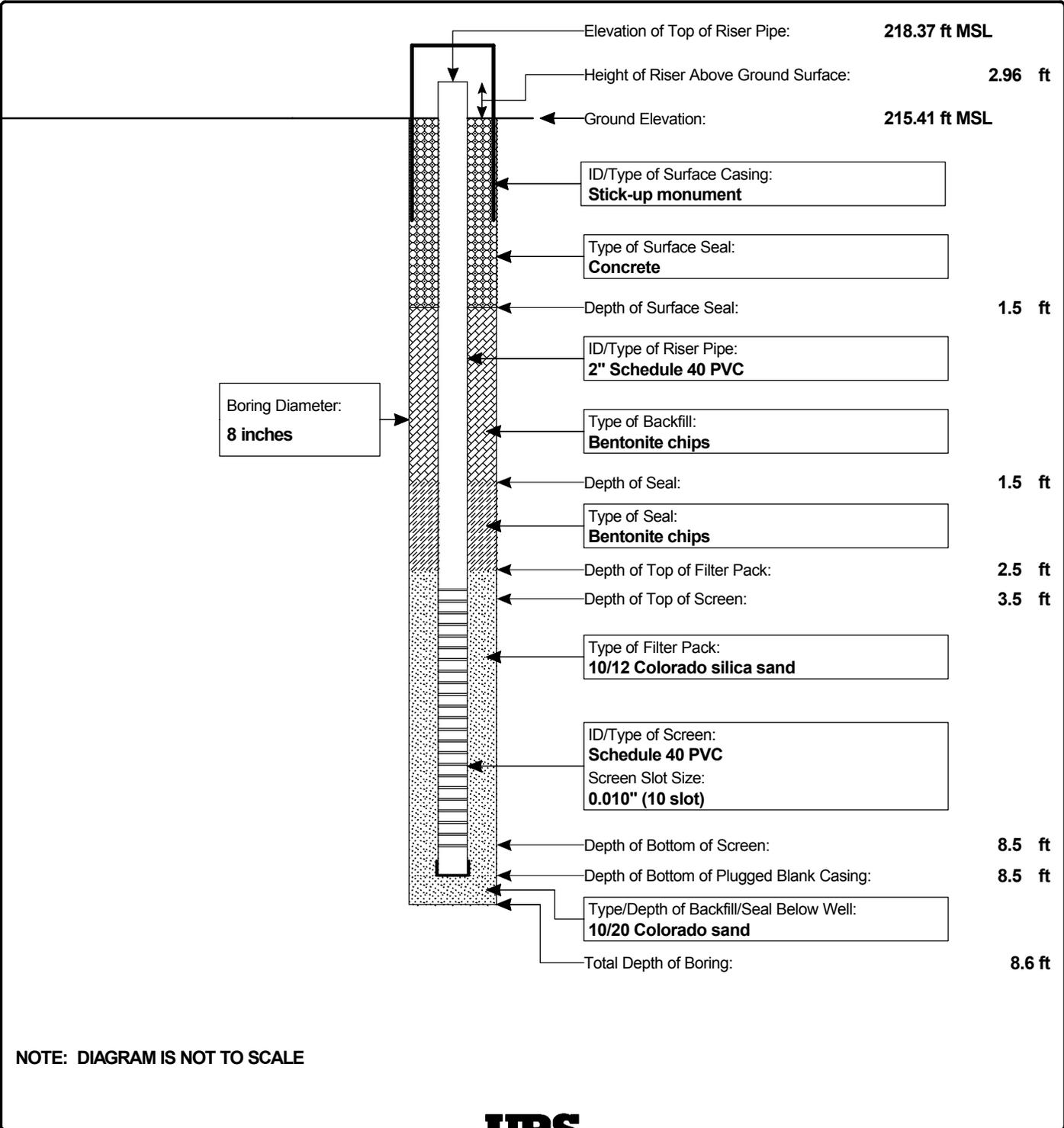
NOTE: DIAGRAM IS NOT TO SCALE



Project: DO 5
 Project Location: Adak
 Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL ANT-605

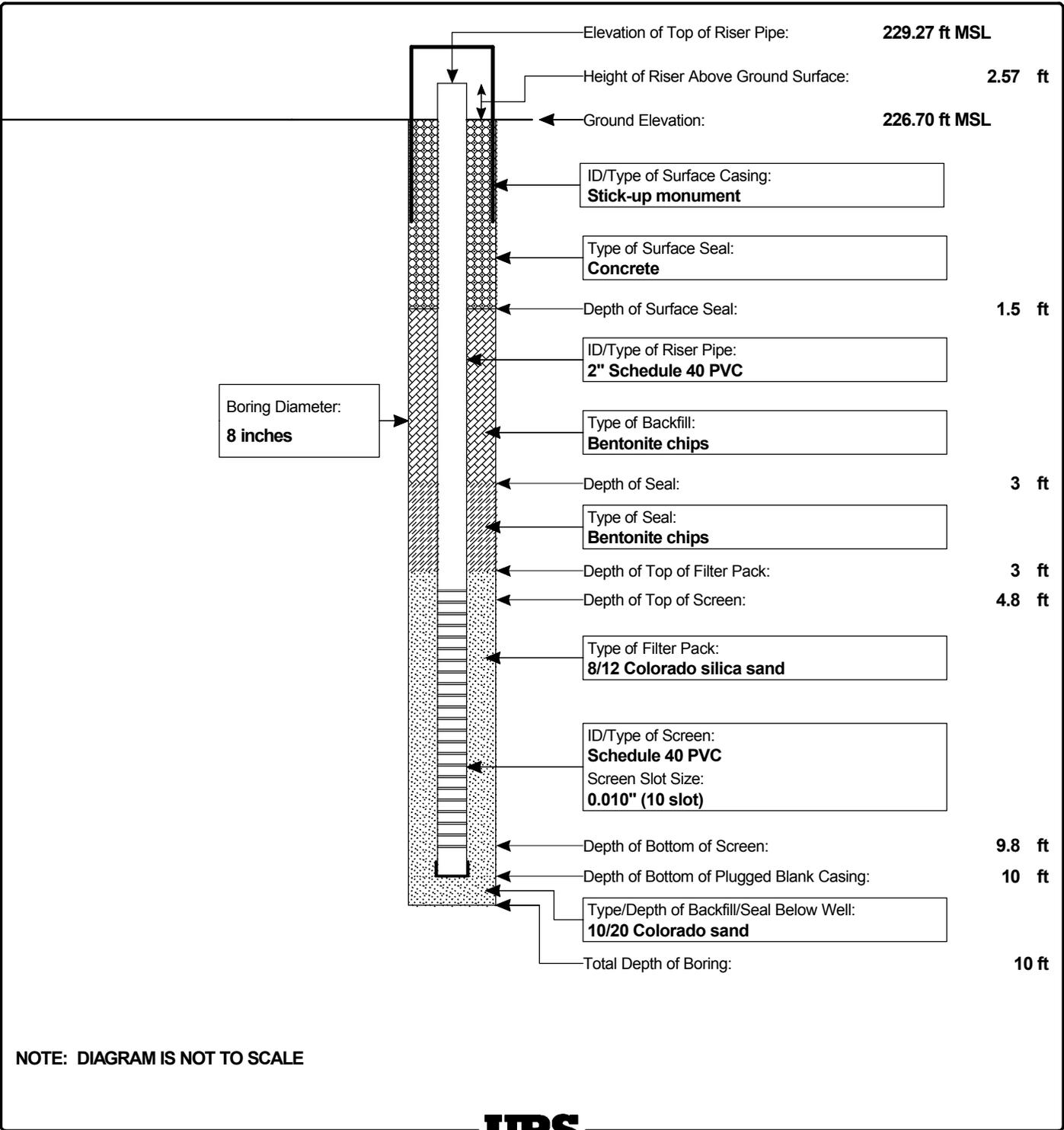
| | | |
|--|--|-----------------------------|
| Well Location Antenna Field | Date(s) Installed 6/13/10 | Time 09:20 |
| Installed By Denali Drilling | Observed By JW | Total Depth 8.6 feet |
| Method of Installation HSA | | |
| Screened Interval 3.5'-8.5' bgs | Completion Zone Silty Coarse Sand | |
| Remarks Vertical datum is NOAA MLLW | | |



Project: DO 5
 Project Location: Adak
 Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL ANT-606

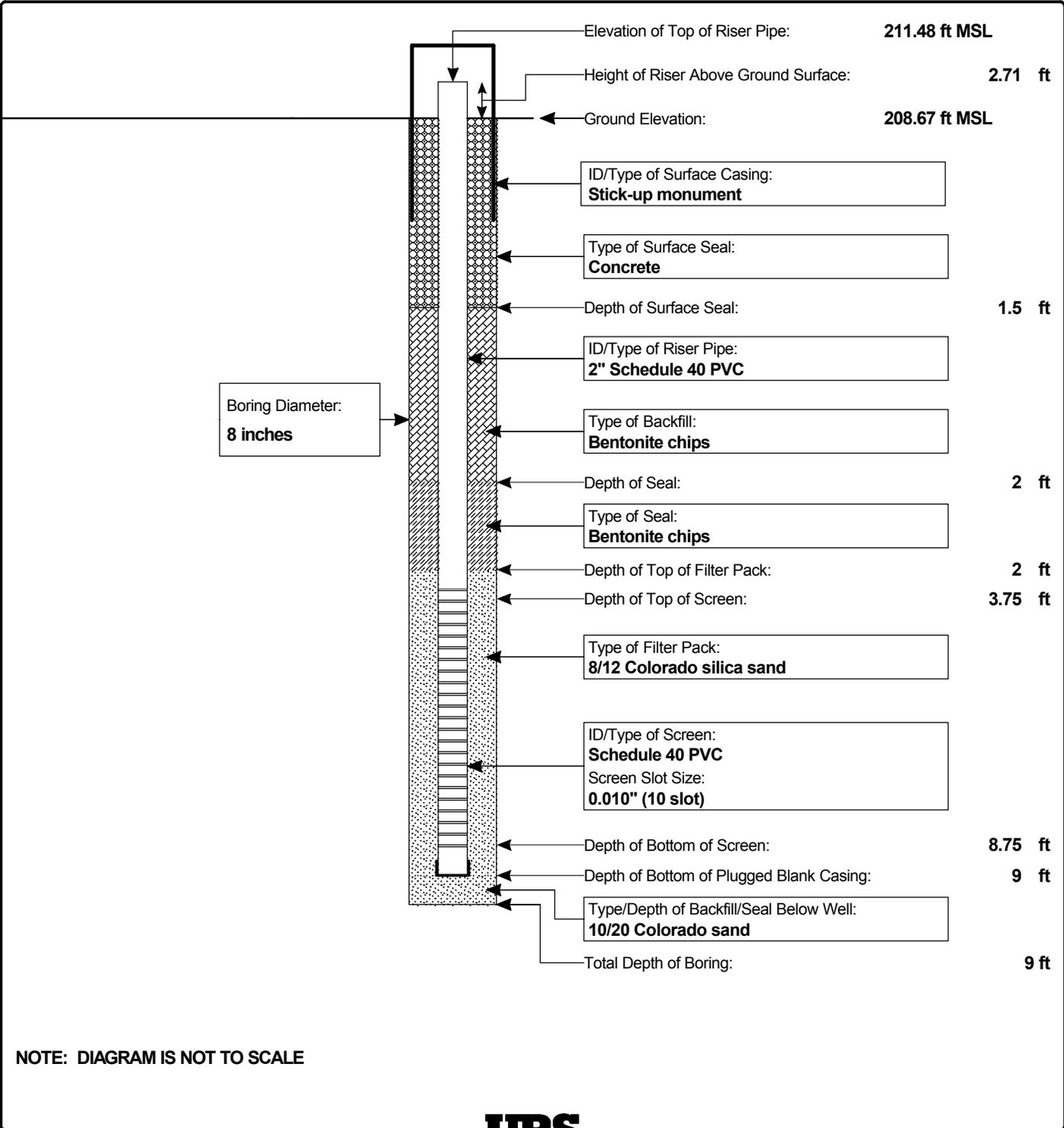
| | | |
|--|---|----------------------------|
| Well Location Antenna Field | Date(s) Installed 6/14/10 | Time 10:00 |
| Installed By Denali Drilling | Observed By JW | Total Depth 10 feet |
| Method of Installation HSA | | |
| Screened Interval 4.8'-9.8' bgs | Completion Zone Silt and Weathered Bedrock | |
| Remarks Vertical datum is NOAA MLLW | | |



Project: DO 5
 Project Location: Adak
 Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL ANT-607

| | | |
|--|--|---------------------------|
| Well Location Antenna Field | Date(s) Installed 6/20/10 | Time 10:30 |
| Installed By Denali Drilling | Observed By JW | Total Depth 9 feet |
| Method of Installation HSA | | |
| Screened Interval 3.75'-8.75' bgs | Completion Zone Silt, Sand, and Weathered Bedrock | |
| Remarks Vertical datum is NOAA MLLW | | |



D-2 Antenna Field - Field Change Request Form

FIELD CHANGE REQUEST FORM

| | | | | | |
|---|---------------------|---|--|--|---------------------|
| CONTRACT NO. N44255-09-D-4001 | | TASK ORDER NO. 005 | | Field Change Request Form No. 1 | |
| Location Antenna Field, Adak | | Date 6/17/10 | | Page 1 of 1 | |
| RE: <u>Fig 4</u> Drawing No. | | <u>Draft Final SAP, Six Sites, Adak</u> | | Title <u>SB and MW Locs, Antenna Field</u> | |
| _____ Specification Section | | _____ | | Title _____ | |
| _____ Other | | _____ | | Title _____ | |
| Description (items involved, submit sketch, if applicable) (Use continuation sheet if necessary) Please see page 2 | | | | | |
| Reason for Change (Use continuation sheet if necessary) Please see page 2 | | | | | |
| Recommended Disposition (submit sketch, if applicable) (Use Continuation Sheet if necessary) Please see page 2 | | | | | |
| Preparer Print Name: | Burgess, Gregory, T | Date 6/17/10 | Preparer's Title | Project Manager Print Name: | Burgess, Gregory, T |
| (signature) | | | (Signature) | | |
|  | | |  | | |
| NTR Acknowledgement Print Name: | Brian Cullen | Date 6/18/10 | Navy RPM Print Name: | Date | |
| (signature) | | | (signature) | | |
|  NTR | | | 6/18/10 | | |
| CIH Print Name: | | Date | QA Program Manager Print Name: | Date | |
| (signature) | | | (signature) | | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | |
| Title | | Date | Title | Date | |
| Print Name | | | Print Name | | |
| (signature) | | | (signature) | | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | |

Page 2 of 2
Field Change Request Form
Additional Petroleum Characterization at Antenna Field, SA 79,
SWMU 60, Former Power Plant, SWMU 61, and Pipeline Location A-06
Former Adak Naval Complex
Adak, Alaska

Description:

The map upon which planned sampling locations at Antenna Field (for the 2010 additional characterization on Adak) were based is inaccurate. A field inspection tentatively identified the location of the former UST excavations. Five soil borings were completed within the footprint what was identified as the former UST excavations. Soil sample collected from these borings (EX 1 through EX 5 on the attached map) confirmed the presence of backfill material in the area tentatively identified as the former UST excavations and thus confirmed the location of the former excavations. Figure 4 of the SAP shows ANT-601 being approximately 75 feet south of the former UST excavations. Based on the field observations described above, ANT-601 is approximately 5 to 10 feet from the southern end of the larger excavation (see revised figure that is attached). Also, the actual orientation of the UST excavations is also rotated approximately 90 degrees from what is shown on Figure 4 of the SAP.

Reason for Change

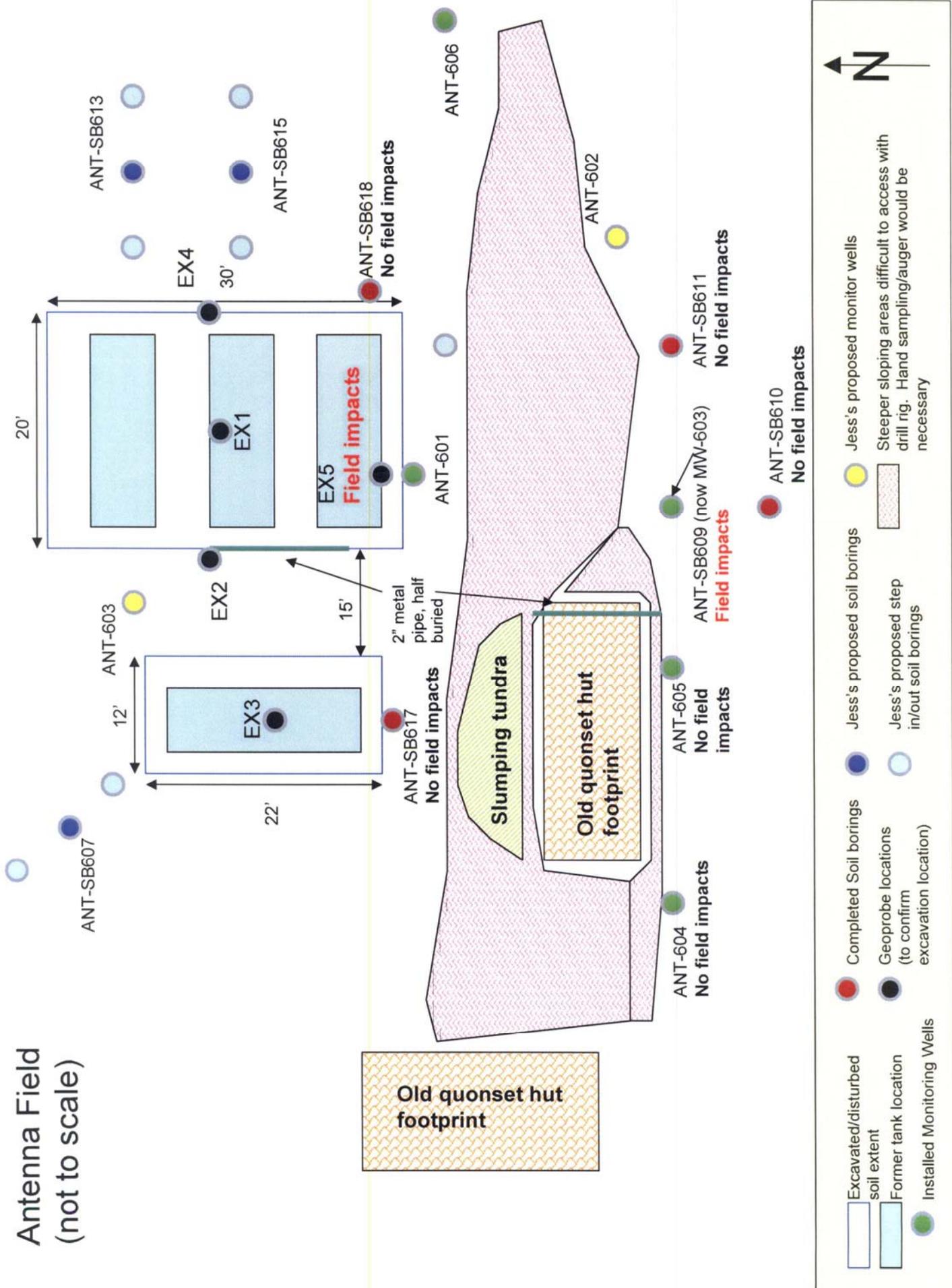
The improved understanding of site conditions show that the former UST excavations are not where they were indicated to be on site maps prepared by the UST removal contractor in 1993. As a result, the planned sampling locations specified in the SAP will not meet the plan objectives.

Recommended Disposition

The originally planned positions for the additional characterization at Antenna Field would not have characterized the intended area, namely the former UST excavation. It is recommended that sampling locations be repositioned as shown on the attached map to meet the SAP objectives. The attached map is not to scale but a survey of final sampling positions, the revised excavation location, and germane site features will be conducted

Also, field impacts were identified at the relocated ANT-SB609 location. ANT-SB609 is located south of the larger former UST excavation at the bottom of the slope (see the attached figure). A well has been installed at this location and named SB-603. Soil samples from this location have been identified as being from ANT-SB609.

Antenna Field (not to scale)



| | | | | | |
|--|---------------------------------|--|---|--|--|
| | Excavated/disturbed soil extent | | Jess's proposed soil borings | | Jess's proposed monitor wells |
| | Former tank location | | Completed Soil borings | | Steeper sloping areas difficult to access with drill rig. Hand sampling/auger would be necessary |
| | Installed Monitoring Wells | | Geoprobe locations (to confirm excavation location) | | Jess's proposed step in/out soil borings |

APPENDIX E

SA 79, Main Road Pipeline, South End

E-1 SA 79 - Boring and Well Construction Logs

| | | |
|---|--|---|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 601X (relocated boring 601 for monitoring well) Sheet 1 of 1 |  |
| Project Location: SA 79, Adak, Alaska | | |
| Project Number: 33762004 | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/28/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 4.5' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|----|----------|---------------|-------------|---|-------------------------------------|-------------------------|
| | | Type | ID | Blows/ft | Recovery (ft) | | | | |
| 0 | | | | | | | thin veneer of organic silt Gray sand w/ some gravel | Hand cleared to 4' | |
| 1 | | | | | | SP | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | Shot rock - Refusal - Significant chatter and bouncing off (rip-rap along shoreline) | 1300 start drilling chatter 1305 | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

| | | | | |
|-----------------|---------------------|-------------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/4/10 and 7/5/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----------|-------------|---|-----------------------------|-------------------------|
| | | Type | ID | Blows/ft | OWM (ppm) | | | | |
| | 0 | | | | | | Organic layer, hand-clear to 3' bgs | 1650 | |
| | 1 | | | | | SP | Fine sand | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | | | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 3 | 75 | SP | Gray fine sand, dry, stained, strong hydrocarbon odor | 1705 | |
| | 6 | | | 5 | | | | | |
| | 7 | | | 6 | | | | | |
| | 8 | SS | -7.5 | 4 | 105 | SP | As above, wet, no sheen, strong hydrocarbon odor | 1715 | |
| | 9 | | | 7 | | | | | |
| | 10 | | | 7 | | | | | |
| | 11 | SS | -10 | 7 | 0.0 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1725 | |
| | 12 | | | 9 | | | | | |
| | 13 | | | 11 | | | | | |
| | 14 | SS | -12.5 | 10 | 0.0 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1735 | |
| | 15 | | | 14 | | | | | |
| | 16 | | | 14 | | | | | |
| | 17 | SS | -15 | 9 | 0.0 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1745 | |
| | 18 | | | 13 | | | | | |
| | 19 | | | 14 | | | | | |
| | 20 | SS | -17.5 | 16 | 0.0 | SP | As above, wet, no sheen, no hydrocarbon odor | 1820 | |
| | 21 | | | 21 | | | | stop drilling for the day | |
| | 22 | | | 22 | | | | 0900 7/5/10 set up to drill | |
| | 23 | | | | | | | | |
| | 24 | | | | | | | | |
| | 25 | SS | -20 | 5 | 0.0 | SP | As above, wet, no sheen, no hydrocarbon odor | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/28/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|--|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SM-GM | Brown silty sand and gravel, moist, dense, some veg. | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | 0820 start drilling hand clear to 3.5' bgs | |
| 3 | | | | | | SP | Gray brown medium and fine sand, dry, mod dense, no odor, no staining | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 2 | 0.0 | | As above | 825 | |
| 6 | | | | 8 | | | 12" recovery (REC) | | |
| 7 | | | | 10 | | | | | |
| 8 | | SS | -7.5 | 10 | 0.0 | | As above - wet at bottom, slight fuel odor, no stain, no sheen, | 836 | |
| 9 | | | | 22 | | | 12" REC, dense | | |
| 10 | | | | 20 | | | | | |
| 10 | | SS | -10 | 10 | 0.0 | | As above, trace gravel, wet, slight fuel odor w/ sulfide, no stain, no sheen, mod dense, 14" REC | 843 | |
| 11 | | | | 12 | | | | | |
| 12 | | | | 12 | | | | | |
| 13 | | SS | -12.5 | 8 | 0.0 | | As above, trace gravel, wet, slight fuel odor and some black stain, no sheen, mod dense, 14" REC | 852 | |
| 14 | | | | 13 | | | | | |
| 15 | | | | 16 | | | | | |
| 15 | | SS | -15 | 8 | 0.0 | | As above, no odor, no stain, 9" REC, mod dense | 900 | |
| 16 | | | | 13 | | | | | |
| 17 | | | | 15 | | | | | |
| 17 | | SS | -17.5 | 4 | 0.0 | | As above, no odor, no stain, 9" REC, mod dense | 915 | |
| 18 | | | | 12 | | | | | |
| 19 | | | | 16 | | | | | |
| 20 | | SS | -20 | 2 | 0.0 | | As above, no odor, no stain, 6" REC, Completed as monitoring well | 925 | |
| | | | | 3 | | | Completed as monitoring well | | |
| | | | | 14 | | | Completed as monitoring well | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/25/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|---|--|
| | | Type | ID | Blows/ft | QVM | | | | |
| | 0 | | | | 0.0 | | SP | Thin veneer of organic silt | 1605 Begin hand clearing |
| | 1 | | | | | | Brownish Gray medium and fine sand, w/ grass/roots, dry to damp, soft, no odor, no staining | | |
| | 2 | | | | | | Boulder- angular armour rock (rip rap) at 1' bgs | | |
| | 3 | | | | | | | Hand cleared to almost 4' bgs | |
| | 4 | | | | | | | 1610 | |
| | 5 | SS | -5 | 11 | 210 | | | Gray to dark gray medium and fine sand, damp, strong diesel odor, black staining, oily sheen, 14" REC | 1613 start drilling 1615 B2=0.3 PPM PID |
| | 6 | | | | 17 | | | Dense sand | |
| | 7 | | | | | | | Cuttings PID = 43 PPM | |
| | 8 | SS | -7.5 | 7 | 0.4 | | | As above, diesel odor, staining, sheen, wet, 12" REC, medium dense | 1625 |
| | 9 | | | | 13 | | | | |
| | 10 | | | | 14 | | | | |
| | 10 | SS | -10 | 12 | 0.0 | | | Gray medium and fine sand, more fine, slight diesel odor, no staining, no sheen, wet, ~10% gravel - fine to 1/2" diameter | 1635 |
| | 11 | | | | 17 | | | 12" REC, dense | |
| | 12 | | | | | | | | |
| | 13 | SS | -12.5 | 7 | 0.0 | | | As above, no odor, no sheen, wet, no staining, thin lens of coal ~13' bgs, more fine sand, 16" REC, medium dense | 1640 |
| | 14 | | | | 13 | | | | |
| | 15 | SS | -15 | 2 | 0.0 | | SP | Gray medium and coarse sand, trace gravel, wet, no odor, no stain, sand heaving somewhat, medium dense, 14" REC | 1648 |
| | 16 | | | | 3 | | | | |
| | 17 | | | | 8 | | | heaving sands, making it difficult to retrieve 17.5' split spoon | |
| | 18 | SS | -17.5 | 3 | | | | Gray medium and fine sand, trace gravel, wet, no odor, no stain, medium dense, 18" REC | 1710 |
| | 19 | | | | 7 | | | Approximately 3' of heave inside augers, pull auger back | |
| | 20 | | | | 15 | | | | |
| | 20 | SS | -20 | 7 | | | | As above, no odor, no sheen | 1730 |
| | | | | | 14 | | | Approx. 18" of heave, Difficult pulling sampler due to heave | 1750 TD=20' bgs |
| | | | | | 22 | | | Backfilled with chips and cuttings, DTW=9.3' bgs; no product | |

| | | | | |
|-------------------------------------|---------------------|-------------|----------------------|------------------|
| Location Sketch SA79 Tide going out | Date(s) Drilled | 6/26/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|------|-------------|---|------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SP | Thin veneer of organic silt, then | 800 hand clear to 3.5' | |
| 1 | | | | | | | Brown/Gray medium and fine sand, mod dense, moist, no odor, no stain | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | Grades to gray | | |
| 4 | | | | | | | slight diesel odor | 815 | |
| 5 | | SS | -5 | 11 | 50.6 | | Gray medium and fine sand, mod dense, damp, strong diesel odor, black staining, sheen, thin lens of coal, 14" REC | 818 | |
| 6 | | | | 11 | | | | | |
| | | | | 15 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 6 | 16.4 | | Gray medium and fine sand, mod dense, wet, strong diesel odor, black staining, sheen present, 12" REC | 830 MS/MSD | |
| 9 | | | | 10 | | | | | |
| | | | | 12 | | | | | |
| 10 | | SS | -10 | 8 | 1.6 | | Gray medium and fine sand, dense, wet, diesel odor, no staining, sheen present, 12" REC, 10% gravel. | 837 | |
| 11 | | | | 16 | | | | | |
| | | | | 16 | | | | | |
| 12 | | | | | | | | | |
| 13 | | SS | -12.5 | 11 | 1.7 | | As above, 12" REC, mod dense | 845 | |
| 14 | | | | 13 | | | | | |
| | | | | 14 | | | | | |
| 15 | | SS | -15 | 3 | 0.0 | | Gray medium and fine sand with some gravel, wet, slight diesel odor, no staining, no sheen, 14" REC, mod dense | 855 | |
| 16 | | | | 3 | | | | | |
| | | | | 8 | | | | | |
| 17 | | | | | | | | | |
| 18 | | SS | -17.5 | 5 | 0.0 | | Gray medium and fine sand, wet, no odor, no stain, no sheen, 10" REC, mod dense | 905 | |
| 19 | | | | 11 | | | | | |
| | | | | 16 | | | | | |
| 20 | | SS | -20 | 6 | 0.0 | | Gray medium and coarse sand, wet, no odor, no stain, 18" REC, mod dense, heaving sands | 925 | |
| | | | | 14 | | | | | |
| | | | | 14 | | | | | |

DTW= 7.9' bgs, no product, TD = 20' bgs

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/26/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|------|-------------|---|---|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SP | Thin veneer of organic silt, then brown gray medium and fine sand no odor, no stain, damp | 1150 Begin hand clearing | |
| 1 | | | | | | SP | Black sand and coal, damp, no odor, no sheen, medium and fine sand, dense | | |
| 2 | | | | | | COAL | less sand, more COAL | | |
| 3 | | | | | | | | Hand cleared to 4' 1204 begin drilling | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 3 | 48.6 | SP | Dark gray sand, mod dense, damp, fuel odor, black stain, some sheen, few coal fragments 12" REC | 1208 | |
| 6 | | | | 6 | | | | | |
| 7 | | | | 9 | | | | | |
| 8 | | SS | -7.5 | 4 | 23.2 | SP | Dark gray sand, mod dense, wet, fuel odor, no staining, some sheen, 9" REC, mostly medium sand | 1215 | |
| 9 | | | | 8 | | | | | |
| 10 | | | | 9 | | | | | |
| 10 | | SS | 10 | 8 | 0.0 | | As above, dense, more sheen, slight fuel odor, 10" REC | 1222 | |
| 11 | | | | 16 | | | | | |
| 12 | | | | 18 | | | | | |
| 13 | | SS | 12.5 | 7 | 0.0 | SP | Gray sand, mod dense, wet, no odor, no staining, no sheen, medium and fine sand, 10" REC | 1228 | |
| 14 | | | | 12 | | | | | |
| 15 | | | | 16 | | | | | |
| 15 | | SS | 15 | 7 | 0.0 | SP | Gray sand, mod dense, wet, no odor, no staining, medium and fine sand, 10" REC | 1630 | |
| 16 | | | | 11 | | | | | |
| 17 | | | | 10 | | | | | |
| 17 | | SS | 17.5 | 5 | | | Some heave As above, 6" REC | 1645 | |
| 18 | | | | 8 | | | | | |
| 19 | | | | 11 | | | | | |
| 20 | | SS | 20 | 2 | | | As above, 9" REC | 1700 | |
| | | | | 3 | | | | | |

1237: Broken wireline (sandline) stop until fixed 1632: DTW=10' bgs

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/25/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 12.5' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|-----|-------------|---|--|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SP | thin veneer of organic silt, then | 1125 hand clear | |
| | 1 | | | | | | Brownish gray medium and fine sand, soft, dry to moist, no odor, no stain (fill) | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | Cobble at 3' - 3" diameter | Cleared to 3.5' 1133 1145 | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 18 | 6.3 | | As above, strong diesel odor, thin coal seam? Moist, sheen, 14" REC | 1147 | |
| | 6 | | | 23 | | | | B2 PID = 0.9 | |
| | | | | 28 | | | | | |
| | 7 | | | | | | | | |
| | 8 | SS | -7.5 | 13 | 0.4 | | As above, moist, strong diesel odor, sheen, 9" REC | 1155 | |
| | | | | 18 | | | | | |
| | | | | 16 | | | | | |
| | 9 | | | | | | | | |
| | 10 | SS | 10 | 11 | 0.0 | | Gray medium and fine sand, wet, strong diesel odor, sheen, no stain, trace rounded gravel, 12" REC and more fine sand | B2 PID = 0 1205 | |
| | | | | 16 | | | sands heaving a bit | | |
| | | | | 18 | | | | | |
| | 12 | | | | | | still heaving | | |
| | 13 | SS | 12.5 | 24 | 0.3 | SP | As above, Diesel odor less intense, no sheen, 18" REC | 1214 | |
| | | | | 20 | | | | | |
| | | | | 20 | | | Annular space too small to deal with sands inside auger with sampler- flowing sands - switch to macrocore geoprobe | 1214 heaving sands difficulty retrieving split spoon | |
| | 14 | | | | | | macrocore ID is 1/4" larger than augers | 1225 attempt to retrieve using hammer | |
| | 15 | | | | | | | 1232 pull back 5' of auger w/ rod | |
| | 16 | | | | | | | 1235 pull another 5' of auger w/ rod | |
| | 17 | | | | | | | 1238 pull last 5' flight of auger | |
| | 18 | | | | | | | try to free sampler | |
| | 19 | | | | | | | 1325 back | |
| | 20 | | | | | | 1350 Difficulty pulling rod w/ solid tip | 1340 begin advancing geoprobe | |

| | | | | |
|-----------------|---------------------|-------------------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/27/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | DTW= 11.5bgs 6/27 @1305 | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|------|-------------|---|--------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SM | Brown silty sand and gravel, hard, damp, no odor, no stain | 1208 begin hand clearing | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | SP | Brown gray medium and fine sand, dry to damp, no odor, no stain, with coarse gravel | 1215 cleared to 3' bgs | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 7 | 0.0 | | As above, no odor, no stain, 7" REC | 1220 | |
| 6 | | | | 10 | | | Cobble | | |
| 7 | | | | 9 | | | | | |
| 8 | | SS | -7.5 | 8 | 0.0 | | As above, no odor, no stain, damp | 1231 | |
| 9 | | | | 8 | | | 12" REC | | |
| 10 | | | | 8 | | | | | |
| 10 | | SS | -10 | 6 | 12.2 | | Gray medium and fine sand, wet, slight fuel odor, no stain, no sheen mod dense, 12" REC | 1240 | |
| 11 | | | | 9 | | | | | |
| 12 | | | | 11 | | | | | |
| 13 | | SS | -12.5 | 9 | 2.2 | | Gray medium and fine sand, wet, mod dense, no stain, no odor, 9" REC, some heave | 1250 | |
| 14 | | | | 12 | | | | | |
| 15 | | | | 14 | | | | | |
| 15 | | SS | -15 | 8 | 0.0 | | As above | 1303 | |
| 16 | | | | 15 | | | 16" REC | | |
| 17 | | | | 17 | | | some heave | | |
| 18 | | | | | | | | | |
| 18 | | SS | -17.5 | 5 | 0.0 | | As above | 1323 | |
| 19 | | | | 14 | | | 12" REC | | |
| 20 | | | | 29 | | | some heave | | |
| 20 | | SS | -20 | 3 | 0.0 | | As above | 1344 | |
| | | | | 8 | | | 6" REC some heave | | |
| | | | | 21 | | | 1305 DTW = 11.5' bgs TD= 20' bgs | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/27/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

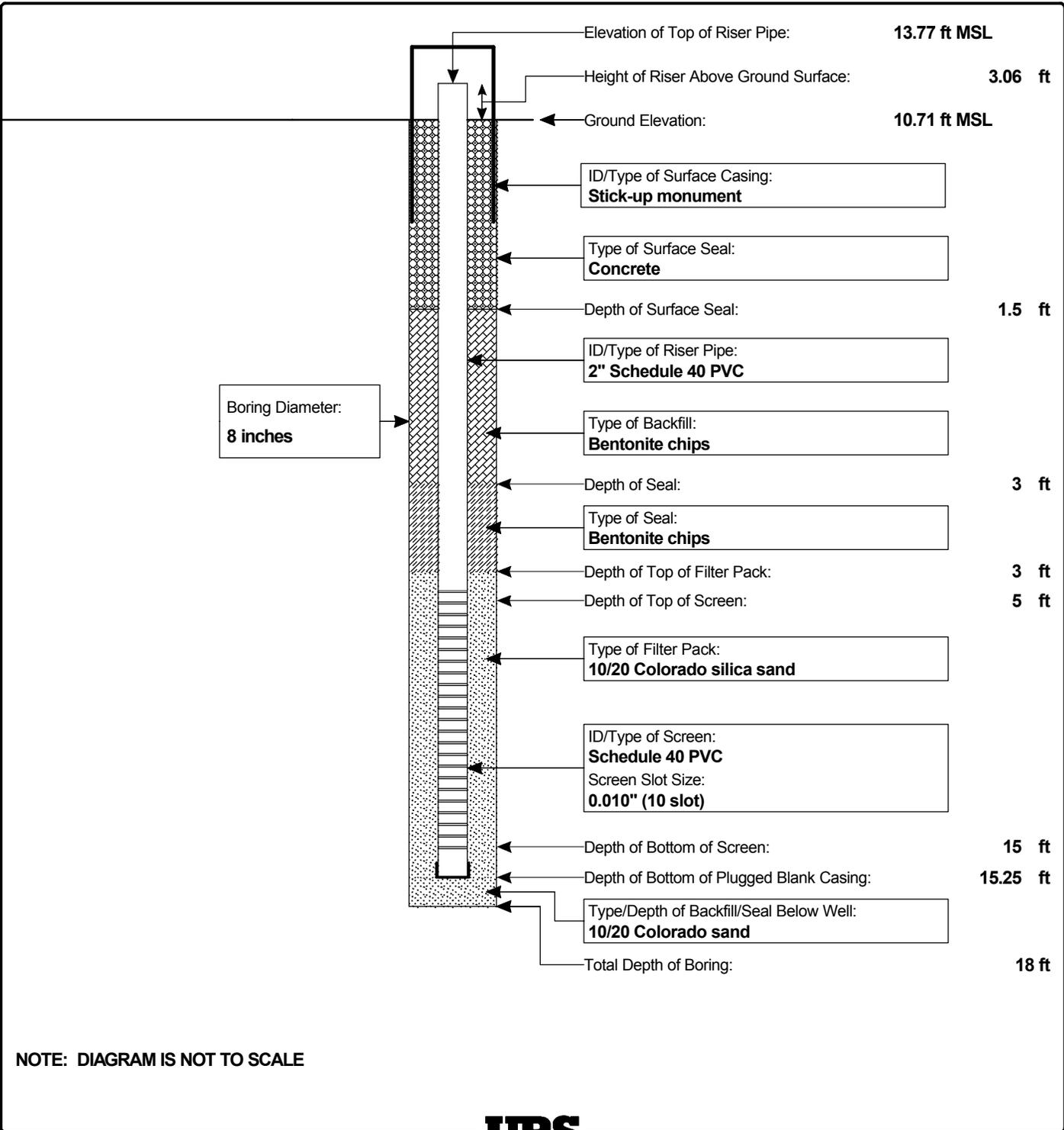
| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|---|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SM-GM | Brown silty sand with gravel, damp, no odor, no stain Hard drilling | 828 begin hand clearing | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | SP | Gray medium and fine sand, damp, mod dense, slight diesel odor | cleared 3' 838 begin drilling | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 6 | 0.0 | SP | Gray brown medium and fine sand, dry to damp, dense, no odor, no stain, 9" REC | 845 | |
| 6 | | | | 17 | | | | | |
| | | | | 22 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 10 | 0.0 | | As above, slight fuel odor, moist to wet, some black staining 10" REC | 853 | |
| 9 | | | | 10 | | | | | |
| | | | | 11 | | | | | |
| 10 | | SS | -10 | 9 | 0.0 | SP | Gray medium and fine sand, wet, slight fuel odor, no stain mod dense, 9" REC | 901 | |
| 11 | | | | 11 | | | | | |
| | | | | 12 | | | | | |
| 12 | | SS | -12.5 | 6 | 3.6 | SP | As above PID = 0.7 12" REC, some heave | 912 | |
| 13 | | | | 12 | | | | | |
| | | | | 16 | | | | | |
| 14 | | | | | | | | | |
| 15 | | SS | -15 | 4 | 0.0 | | As above, no odor, no stain 12" REC | 922 | |
| 16 | | | | 16 | | | | | |
| | | | | 18 | | | | | |
| 17 | | | | | | | | | |
| 18 | | SS | -17.5 | 7 | 0.0 | | As above dense 6" REC | drums full 605+608 in Same drum 945 | |
| 19 | | | | 15 | | | | | |
| | | | | 17 | | | | | |
| 20 | | SS | -20 | 2 | 0.0 | | As above 6" REC | 1007 | |
| | | | | 6 | | | | | |

925 PID acting up, will rescreen all samples 1012 No DTW measurements, driller began pulling auger immediately after drilling 20' split spoon

Project: DO 5
 Project Location: Adak
 Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL 601

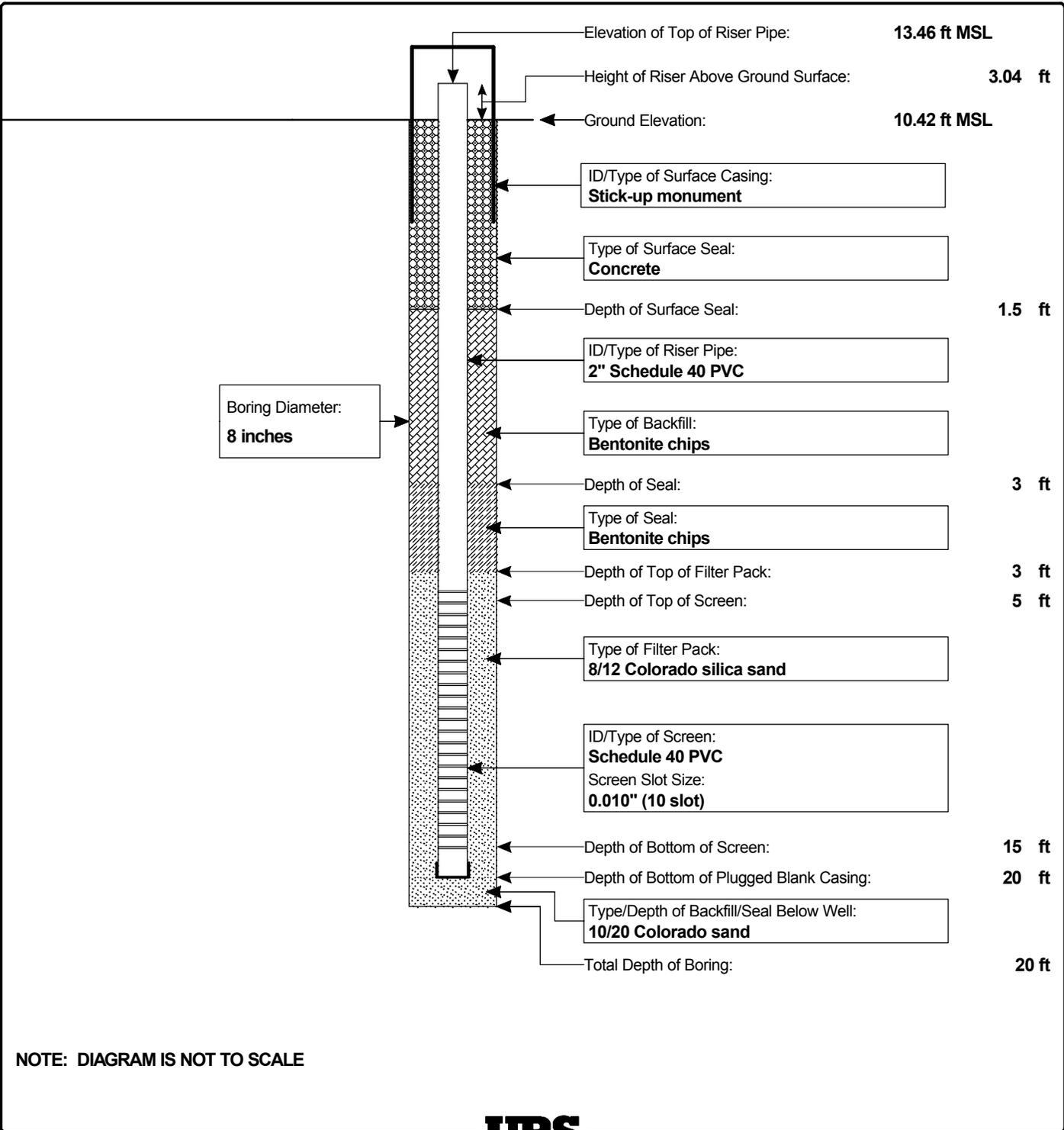
| | | |
|---|----------------------------------|----------------------------|
| Well Location SA-79 | Date(s) Installed 7/5/10 | Time 09:30 |
| Installed By Denali Drilling | Observed By IPV | Total Depth 18 feet |
| Method of Installation HSA | | |
| Screened Interval 5'-15' bgs | Completion Zone Fine Sand | |
| Remarks Native collapse 18'-20' bgs, vertical datum is NOAA MLLW | | |



Project: DO 5
 Project Location: Adak
 Project Number: 33762004

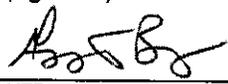
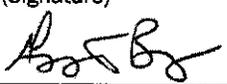
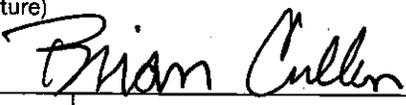
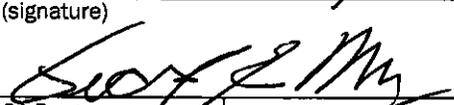
MONITORING WELL CONSTRUCTION LOG FOR WELL 602

| | | |
|--|---|----------------------------|
| Well Location SA-79 | Date(s) Installed 6/28/10 | Time |
| Installed By Denali Drilling | Observed By JW,IPV | Total Depth 20 feet |
| Method of Installation HSA | | |
| Screened Interval 5'-15' bgs | Completion Zone Medium and Fine Sand | |
| Remarks Vertical datum is NOAA MLLW | | |



E-2 SA 79 - Field Change Request Form

FIELD CHANGE REQUEST FORM

| | | | | | |
|---|--|--------------------------------|---------|---|--|
| CONTRACT NO. N44255-09-D-4001 | | TASK ORDER NO. 005 | | Field Change Request Form No. 3 | |
| Location Antenna Field, Adak | | Date 6/30/10 | | Page 1 of 2 3 | |
| RE: <u>Fig 6</u> Drawing No. <u>Draft Final SAP, Six Sites, Adak</u> | | Title <u>MW 601 Loc, SA 79</u> | | | |
| Specification Section _____ | | Title _____ | | | |
| Other _____ | | Title _____ | | | |
| Description (items involved, submit sketch, if applicable) (Use continuation sheet if necessary) Please see page 2 | | | | | |
| Reason for Change (Use continuation sheet if necessary) Please see page 2 | | | | | |
| Recommended Disposition (submit sketch, if applicable) (Use Continuation Sheet if necessary) Please see page 2 | | | | | |
| Preparer Print Name: | Burgess, Gregory, T | Date | 6/30/10 | Preparer's Title | |
| (signature) |  | | | | |
| Project Manager Print Name: | Burgess, Gregory, T | Date | 6/30/10 | Project Manager Title | |
| (signature) |  | | | | |
| NTR Acknowledgement Print Name: | Brian Cullen | Date | 7/1/10 | Navy RPM Print Name: | Grady May |
| (signature) |  | | | (signature) |  |
| CIH Print Name: | | Date | | QA Program Manager Print Name: | |
| (signature) | | | | (signature) | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | |
| Title | | Date | | Title | |
| Print Name | | | | Print Name | |
| (signature) | | | | (signature) | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | |

Page 2 of 2
Field Change Request Form #3
Additional Petroleum Characterization at Antenna Field, SA 79,
SWMU 60, Former Power Plant, SWMU 61, and Pipeline Location A-06
Former Adak Naval Complex
Adak, Alaska

Description:

New well 601 was intended to be installed between existing well 02-230 and the shoreline of Sweeper Cove.

Reason for Change

The planned location for well 601 is too close to the shoreline. The initial attempt to drill this well resulted in hitting armor rock at approximately 4.5 feet below ground surface, resulting in refusal. There is insufficient room to drill this well between 02-230 and the armor rock shoreline. The field crew indicate that 02-230 is as close as drilling can occur to the shoreline without encountering rip rap.

Recommended Disposition

With the exception of the well 601 installation, the planned field program at SA 79 has been completed. A figure showing field observations is attached. Field observations suggest that soil impacts in the northern portion of the site are shallower and cover a larger vertical extent than impacts observed in the southern portion of the site. PID readings are higher and visual indications of petroleum impacts are stronger in the northern portion of the site as well.

Based on these observations, it is recommended that well 601 be completed in the area indicated on the attached figure. This is an area upgradient of MRP-MW8 and 02-230. This is an area in which previously collected data indicate significantly elevated DRO content in soil. However, this data is limited vertically. So this location will provide further assessment of soil impacts vertically. This will also provide a groundwater monitoring location from which natural attenuation can be evaluated, assuming this location potentially represents source area concentrations to groundwater. It will provide a point to triangulate with MRP-MW8, and 602 to approximate groundwater flow as well.

Final positioning will depend upon subsurface utility location.

Legend

25 --- Elevation Contour (ft Above MLLW)

⊕ Monitoring Well

⊕ Abandoned Monitoring Well

⊕ Temporary Well

◆ Proposed Soil Boring Location

◆ Proposed Monitoring Well Location

⊗ Lost Well

◆ Bore Hole

◆ Hand Auger

■ Test Pit

** Only Hanby Field Test Kit Results Available for This Location, Test Results >1,000 ppm TPH.

* Only Hanby Field Test Kit Results Available for This Location, Test Results <1,000 ppm TPH.

--- 1x DRO Cleanup Level (230 mg/kg)

— 30x DRO Cleanup Level (6,900 mg/kg)

Note: Sampling locations based on coordinates in the Navy Installation Restoration Information Solution.

| 603 | | |
|----------------|-----------|---------------------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 0-5 | | No odor |
| 5 | 201 | Strong odor sheen |
| 7.5 | 0.4 | Moderate odor, staining |
| 7.5 | | Wet |
| 10 | 0 | Slight odor, no stain, no sheen |
| 10-20 | 0 | No odor, no stain, no sheen |

| 606 | | |
|----------------|-----------|---------------------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 0-5 | | No odor |
| 5 | 6.3 | Strong odor, no staining, sheen |
| 7.5 | 0.4 | Strong odor, sheen, no staining |
| 10 | | Wet |
| 10 | 0 | Strong odor, sheen, no staining |
| 12.5 | 0 | Total depth |

| 601 | | |
|----------------|-----------|-------------|
| Depth (ft bgs) | PID (ppm) | Observation |
| 1-4.5 | | Armour rock |

| 604 | | |
|----------------|-----------|------------------------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 0-4 | | No odor |
| 5 | 50.6 | Strong odor, staining, sheen |
| 7.5 | 16.4 | Strong odor, sheen, no staining |
| 7.5 | | Wet |
| 10 | 1.6 | Slight odor, sheen, no staining |
| 12.5 | 1.7 | Slight odor, sheen, no staining |
| 15 | 0 | Slight odor, no staining, no sheen |
| 17.5-20 | 0 | No odor, no stain, no sheen |

| 608 | | |
|----------------|-----------|---------------------------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 0-5 | | No odor |
| 5 | 0 | No odor, no staining |
| 7.5 | 0 | Slight odor, black staining, no sheen |
| 7.5 | | Wet |
| 10-20 | 0 | Slight odor, no staining, no sheen |

| 605 | | |
|----------------|-----------|---------------------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 0-5 | | No odor |
| 5 | 48.6 | Moderate odor, staining, sheen |
| 7.5 | 23.2 | Slight odor, sheen, no staining |
| 7.5 | | Wet |
| 10 | 0 | Slight odor, sheen, no staining |
| 12.5-20 | 0 | No odor, no sheen, no staining |

| 607 | | |
|----------------|-----------|------------------------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 0-5 | | No odor |
| 5 | 0 | No odor, no staining |
| 7.5 | 0 | No odor, no sheen |
| 10 | | Wet |
| 10 | 12.2 | Slight odor, no staining, no sheen |
| 12.5 | 2.2 | No odor, no staining |
| 15-20 | 0 | No odor, no staining |

| 602 | | |
|----------------|-----------|------------------|
| Depth (ft bgs) | PID (ppm) | PID/ Observation |
| 1-7.5 | 0 | 0 |
| 7.5-15 | 0 | Fuel odor |
| 8 | 0 | Wet |
| 15 | 0 | No odor |
| 5-20 | 0 | Screen |

Suggested 601 Relocation

4" Mogas Pipeline

T:\ADAK\ID\1010-7\101000 SAAdd Petro SAP\Fig 6 DRO Soil Contam.dwg
Mod: 11/16/2009, 10:38 | Ploster: 11/16/2009, 10:38 | jahn_inobias

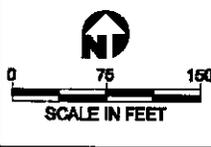


Figure 6
Estimated Extent of DRO In Soil and Proposed Sampling Locations SA 79, Main Road Pipeline, South End

Delivery Order 0005
Adak Island, AK
ADD. PETROLEUM CHARACTER. SAP

APPENDIX F

SWMU 60, Tank Farm

F-1 SWMU 60 - Boring and Well Construction Logs

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 3-Jul-10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----------|-------------|--|----------------------------|-------------------------|
| | | Type | ID | Blows/ft | OMV (ppm) | | | | |
| 0 | | | | | | | Hand-cleared to 3' bgs GP Gravel fill | Hand cleared to 3' 1400 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | SP | Fine sand | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 3 | 0 | SP | Brown fine sand, dry, loose, no stain, no hydrocarbon odor | 1405 | |
| 6 | | | | 6 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 4 | 0 | SP | As above, dry, no stain, trace coal, slight to moderate sour odor (not diesel) | 1425 | |
| 9 | | | | 6 | | | | | |
| 10 | | SS | -10 | 7 | 4.0 | SP | As above, moist, no stain, trace coal, moderate hydrocarbon odor | 1430 | |
| 11 | | | | 12 | | | | | |
| 12 | | | | 16 | | | | | |
| 13 | | SS | -12.5 | 8 | 0 | SP | Gray fine sand, wet, slight sheen, strong hydrocarbon odor | 1441 | |
| 14 | | | | 10 | | | | | |
| 15 | | | | 16 | | | | | |
| 16 | | SS | -15 | 11 | 0 | SP | As above, wet, no sheen, slight hydrocarbon odor | 1450 | |
| 17 | | | | 18 | | | | rig cool down | |
| 18 | | | | 18 | | | | | |
| 19 | | SS | -17.5 | 8 | 0 | SP | As above, wet, no sheen, slight hydrocarbon odor | 1530 | |
| 20 | | | | 16 | | | | | |
| 20 | | SS | -20 | 8 | 0 | SP | As above, wet, no sheen, slight hydrocarbon odor | 1545 | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 3-Jul-10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|--------------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| | 0 | | | | | | Organic layer, hand cleared to 3' bgs | 830 | |
| | 1 | | | | | GP | Gravel with sand | | |
| | 2 | | | | | SP | Fine sand | | |
| | 3 | | | | | | | 845 | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 4 | 0.0 | SP | Brown fine sand, dry. Loose, no stain, no hydrocarbon odor | 900 | |
| | 6 | | | 5 | | | | | |
| | 7 | | | 4 | | | | | |
| | 8 | SS | -7.5 | 7 | 0.0 | SP | As above, dry, trace coal, no stain, no odor | 910 | |
| | 9 | | | 13 | | | | | |
| | 10 | | | 13 | | | | | |
| | 11 | SS | -10 | 3 | 0.0 | SP | As above, wet, no stain, moderate hydrocarbon odor | 920 | |
| | 12 | | | 2 | | | | took duplicate as 651D at 0925 | |
| | 13 | | | 2 | | | | | |
| | 14 | SS | -12.5 | 5 | 0.0 | SP | Gray fine sand, wet no stain, moderate to strong hydrocarbon odor | 930 | |
| | 15 | | | 16 | | | | | |
| | 16 | | | 15 | | | | | |
| | 17 | SS | -15 | 6 | 0.0 | SP | As above, wet, no stain, moderate hydrocarbon odor | 935 | |
| | 18 | | | 10 | | | | | |
| | 19 | | | 11 | | | | | |
| | 20 | SS | -17.5 | 8 | 0.0 | SP | As above, wet, no stain, moderate hydrocarbon odor | 1000 | |
| | 21 | | | 15 | | | | rig down to frayed winch line | |
| | 22 | | | 20 | | | | | |
| | 23 | | | | | | | | |
| | 24 | SS | -20 | 1 | 0.0 | SP | As above, wet, no stain, slight hydrocarbon odor | 1215 | |
| | 25 | | | 7 | | | | | |
| | 26 | | | 14 | | | | | |

DTW=10.6' bgs, well set TD=17.5'

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 2-Jul-10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|--------------------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | GP | Gravel fill | 1500 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | 1510 rig down 1525 begin drilling | |
| 3 | | | | | | | | | |
| 4 | | | | | | | Sand at 4' | | |
| 5 | | SS | -5 | 2 | 0.0 | SP | Brown fine sand, dry, loose, no stain, no hydrocarbon odor | 1530 | |
| 6 | | | | 3 | | | | | |
| 7 | | | | 2 | | | | | |
| 8 | | SS | -7.5 | 1 | 175 | SP | Gray fine sand, moist, loose, possible light staining, strong hydrocarbon odor | 1536 | |
| 9 | | | | 4 | | | | | |
| 10 | | | | 8 | | | | | |
| 11 | | SS | -10 | 6 | 12 | SP | As above, wet, sheen present, strong hydrocarbon odor | 1545 | |
| 12 | | | | 6 | | | | | |
| 13 | | | | 8 | | | | | |
| 14 | | SS | -12.5 | 2 | 0 | SP | As above, wet, sheen present, moderate hydrocarbon odor | 1605 | |
| 15 | | | | 2 | | | | PID = 15 ppm in cuttings | |
| 16 | | | | 9 | | | | | |
| 17 | | SS | -15 | 11 | 0 | SP | As above, wet, no sheen, strong to moderate hydrocarbon odor | 1615 | |
| 18 | | | | 16 | | | | | |
| 19 | | | | 16 | | | | | |
| 20 | | SS | -17.5 | 8 | 0.0 | SP | As above, 3" coarse sand layer at 18' bgs, wet, sheen present, moderate hydrocarbon odor | 1625 | |
| 21 | | | | 13 | | | | | |
| 22 | | | | 17 | | | | | |
| 23 | | SS | -20 | 2 | 0.0 | SP | As above, slight odor, no stain, sampler refusal on rock | 1655 | |
| 24 | | | | | | | | | |

DTW=11' bgs, well set TD=17'

1800

| | | | | |
|-------------------------------------|---------------------|-------------------|----------------------|------------------|
| Location Sketch SA79 Tide going out | Date(s) Drilled | 7/3/10 and 7/4/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|-----------------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Organic layer, hand-cleared to 3' bgs | 1800 | |
| 1 | | | | | | SP | Fine sand | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 5 | 0.0 | SP | Gray fine sand, moist to dry, loose, no stain, no stain, no hydrocarbon odor, trace coal | 1810 | |
| 6 | | | | 7 | | | | | |
| | | | | 10 | | | | | |
| 7 | | SS | -7.5 | 11 | 380 | SP | Gray fine sand, moist, no stain, strong hydrocarbon odor | 1820 | |
| 8 | | | | 19 | | | | MS/MSD | |
| | | | | 14 | | | | | |
| 9 | | | | | | | | | |
| 10 | | SS | -10 | 7 | 2.0 | SP | As above, wet, sheen present, strong hydrocarbon odor | 1825 | |
| 11 | | | | 12 | | | | | |
| | | | | 9 | | | | | |
| 12 | | SS | -12.5 | 6 | 1.5 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1835 | |
| 13 | | | | 15 | | | | | |
| | | | | 20 | | | | | |
| 14 | | | | | | | | | |
| 15 | | SS | -15 | 8 | 0.0 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1845 | |
| 16 | | | | 16 | | | | | |
| | | | | 17 | | | | | |
| 17 | | | | | | | | | |
| 18 | | SS | -17.5 | 8 | 0.0 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1900 | |
| 19 | | | | 15 | | | | 1915 stopped drilling for the day | |
| | | | | 13 | | | | | |
| 20 | | SS | -20 | 8 | | SP | As above, wet, no sheen, moderate hydrocarbon odor | 7/4/2010 820 | |
| | | | | 17 | | | | | |

DTW=11' bgs, well set TD=17'

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 4-Jul-10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | 12.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|---------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Organic layer | 1350 | |
| | | | | | | | Hand-cleared to 3' bgs | move to location | |
| 1 | | | | | SP | | Fine sand | 1407 | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 9 | 52 | SP | Gray fine sand, wet, heavy sheen, strong hydrocarbon odor | 1415 | |
| | | | | 7 | | | | | |
| 6 | | | | 8 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 5 | 18 | SP | As above, wet, heavy sheen, strong hydrocarbon odor | 1425 | |
| | | | | 8 | | | | | |
| | | | | 9 | | | | | |
| 9 | | | | | | | | | |
| 10 | | SS | -10 | 2 | 2.1 | SP | As above, wet, light sheen, moderate to strong hydrocarbon odor | 1435 | |
| | | | | 2 | | | | | |
| 11 | | | | 3 | | | | | |
| 12 | | | | | | | | | |
| 13 | | SS | -12.5 | 30 | 2.0 | SP | As above, wet, no sheen, moderate hydrocarbon odor | 1445 | |
| | | | | - | | | rock caused refusal at 12.5' bgs | sampler bouncing off rock | |
| | | | | - | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | borehole backfilled with cuttings and bentonite | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

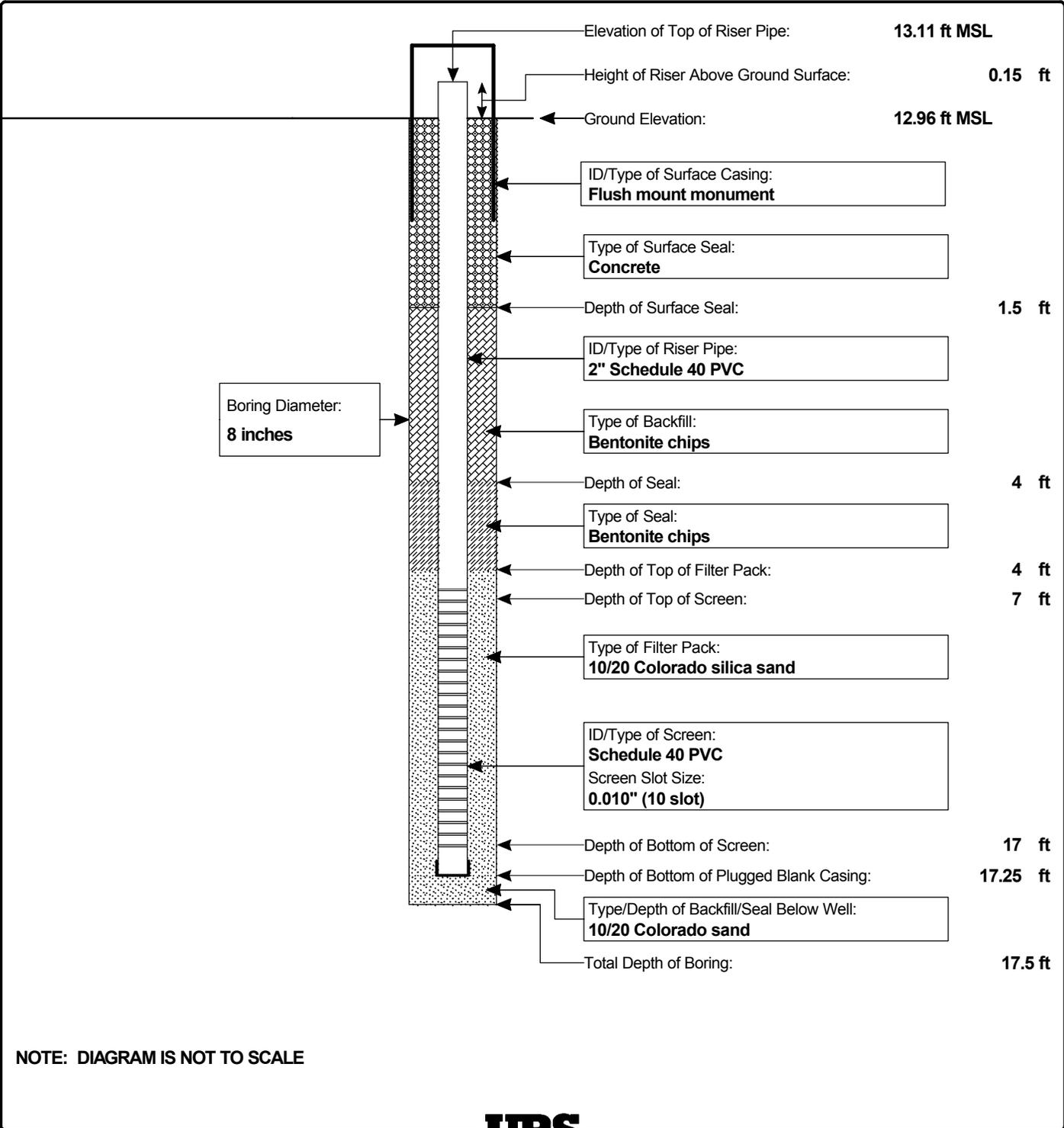
| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 4-Jul-10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HAS | Total Borehole Depth | |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|------|-------------|--|-----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Organic layer, hand-cleared to 3' bgs | 955 | |
| | 1 | | | | | SP | Fine sand | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | | | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 11 | 19.0 | SP | Gray fine sand, moist to wet, no stain, moderate hydrocarbon odor | 1015 | |
| | 6 | | | 25 | | | | | |
| | | | | 21 | | | | | |
| | 7 | | | | | | | | |
| | 8 | SS | -7.5 | 6 | 13.2 | SP | As above, wet, sheen present, strong hydrocarbon odor | 1025 | |
| | 9 | | | 6 | | | | | |
| | | | | 5 | | | | | |
| | 10 | SS | -10 | 10 | 0.0 | SP | As above, wet, sheen present, strong hydrocarbon odor | 1035 | |
| | 11 | | | 16 | | | | | |
| | | | | 21 | | | | | |
| | 12 | | | | | | | | |
| | 13 | SS | -12.5 | 12 | 0.0 | SP | As above, wet, sheen present, moderate hydrocarbon odor | 1040 | |
| | 14 | | | 16 | | | | | |
| | | | | 17 | | | | | |
| | 15 | SS | -15 | 6 | 0.0 | SP | As above, wet, no sheen or stain, slight hydrocarbon odor | 1050 | |
| | 16 | | | 11 | | | | rig down | |
| | | | | 9 | | | | 1115 rig back up | |
| | 17 | | | | | | | | |
| | 18 | SS | -17.5 | 3 | | SP | As above with trace silt and clay, subangular gravel, no staining, slight hydrocarbon odor | 115 | |
| | 19 | | | 14 | | | | difficult drilling at | |
| | | | | 18 | | | | 18' bgs | |
| | 20 | | | | | | Met refusal at 19' bgs due to rock | 1143 | |

Project: DO 5
Project Location: Adak
Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL 650

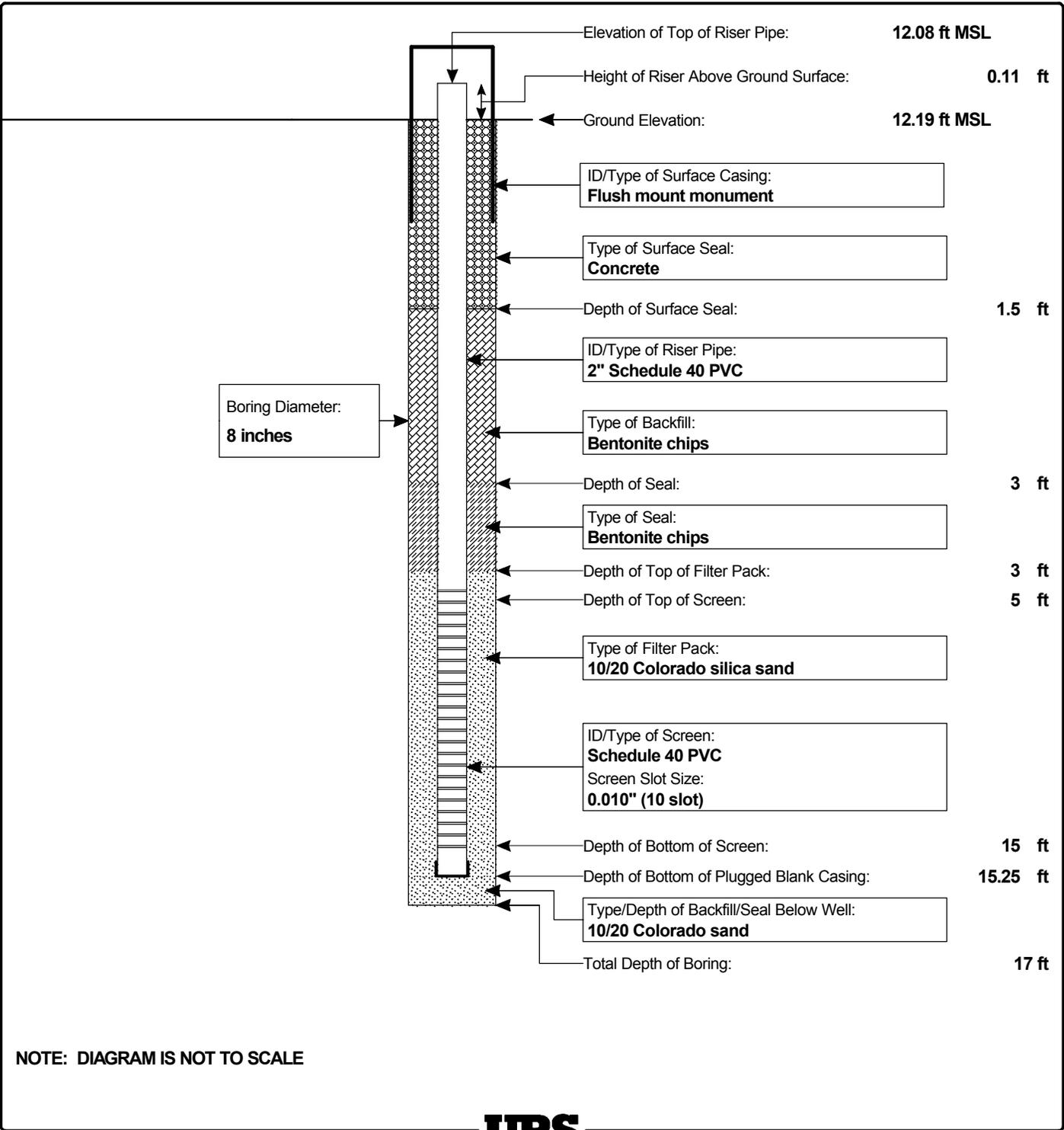
| | | |
|---|----------------------------------|------------------------------|
| Well Location Tank Farm A | Date(s) Installed 7/3/10 | Time 16:30 |
| Installed By Denali Drilling | Observed By IPV | Total Depth 17.5 feet |
| Method of Installation HSA | | |
| Screened Interval 7'-17' bgs | Completion Zone Fine Sand | |
| Remarks Native collapse 17.5'-20' bgs, vertical datum is NOAA MLLW | | |



Project: DO 5
Project Location: Adak
Project Number: 33762004

**MONITORING WELL
CONSTRUCTION LOG
FOR WELL 651**

| | | | | | |
|------------------------|---|-------------------|------------------|-------------|----------------|
| Well Location | Tank Farm A | Date(s) Installed | 7/3/10 | Time | 12:40 |
| Installed By | Denali Drilling | Observed By | IPV | Total Depth | 17 feet |
| Method of Installation | HSA | | | | |
| Screened Interval | 5'-15' bgs | Completion Zone | Fine Sand | | |
| Remarks | Native collapse 17'-20' bgs, vertical datum is NOAA MLLW | | | | |



WELL_CONSTR_ABOVE_GROUND T:\ONEWORLD\33762004 ADAK NAVALADAK MW LOGS.GPJ_URSSA3B.GLB_URSSA3.GDT 11/9/10

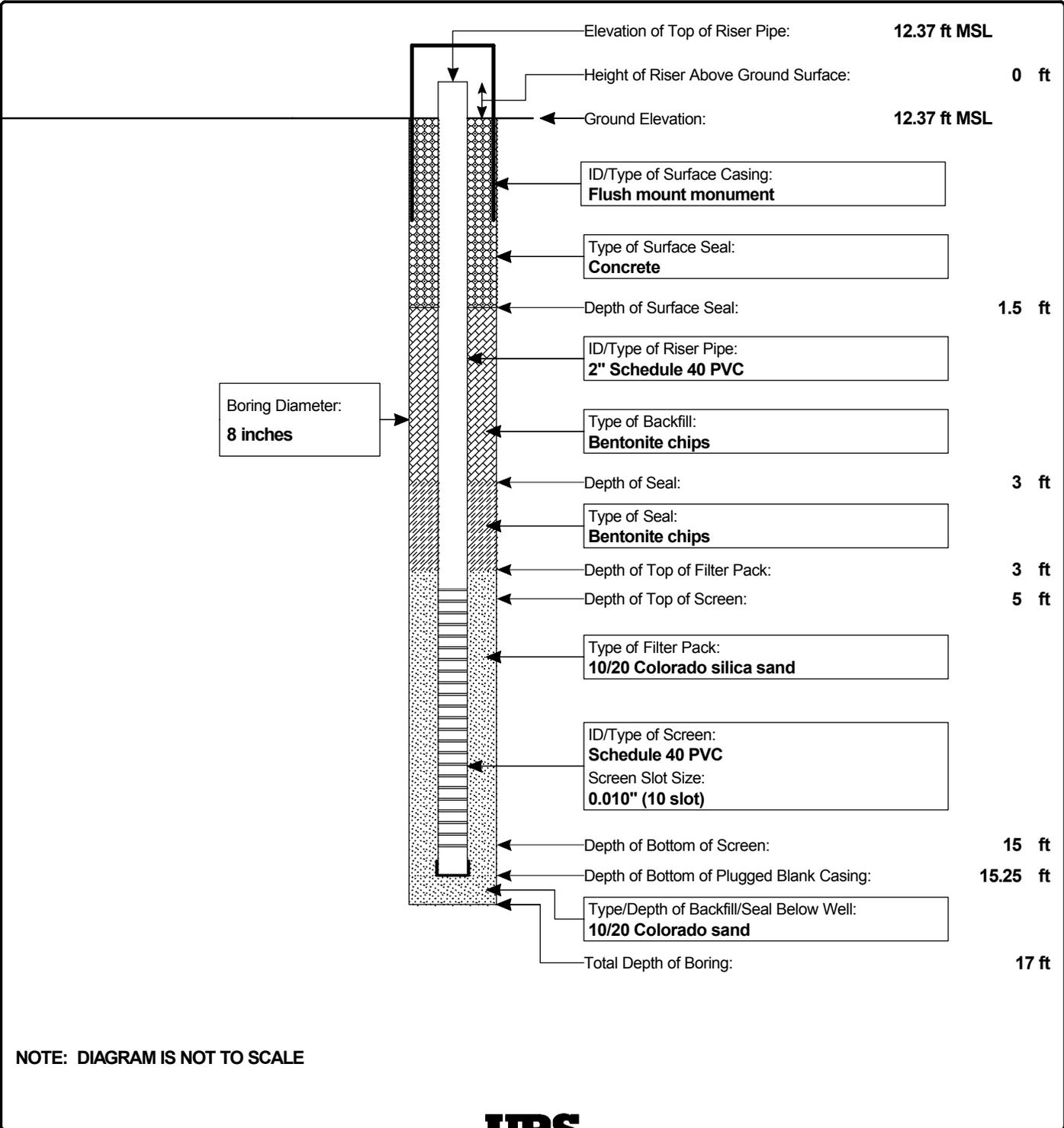
NOTE: DIAGRAM IS NOT TO SCALE



Project: DO 5
Project Location: Adak
Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL 652

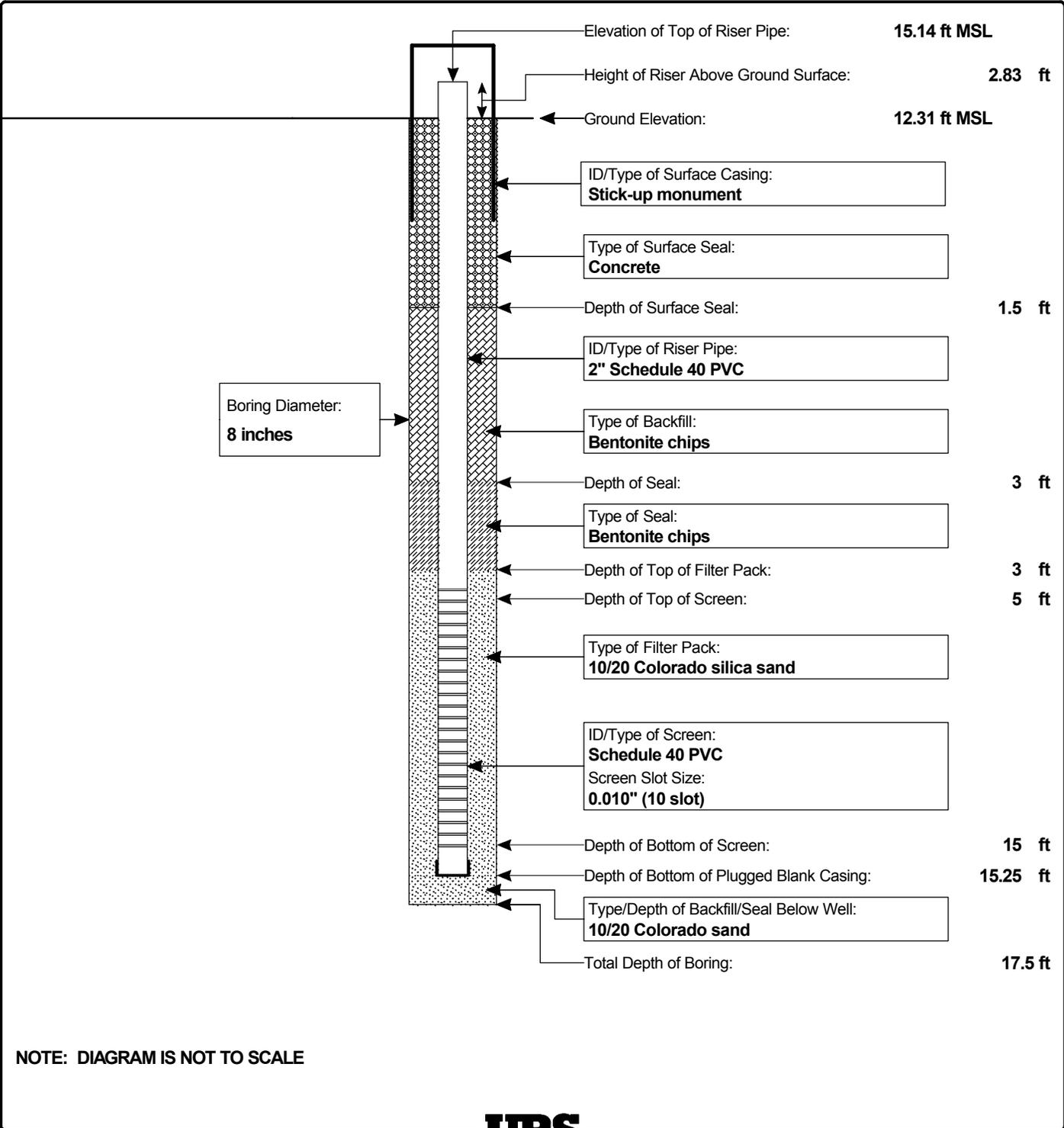
| | | |
|---|----------------------------------|----------------------------|
| Well Location Tank Farm A | Date(s) Installed 7/2/10 | Time 18:00 |
| Installed By Denali Drilling | Observed By IPV | Total Depth 17 feet |
| Method of Installation HSA | | |
| Screened Interval 5'-15' bgs | Completion Zone Fine Sand | |
| Remarks Native collapse 17'-20' bgs, vertical datum is NOAA MLLW | | |



Project: DO 5
Project Location: Adak
Project Number: 33762004

MONITORING WELL CONSTRUCTION LOG FOR WELL 653

| | | |
|---|----------------------------------|------------------------------|
| Well Location Tank Farm A | Date(s) Installed 7/4/10 | Time 09:00 |
| Installed By Denali Drilling | Observed By IPV | Total Depth 17.5 feet |
| Method of Installation HSA | | |
| Screened Interval 5'-15' bgs | Completion Zone Fine Sand | |
| Remarks Native collapse 17.5'-20' bgs, vertical datum is NOAA MLLW | | |



F-2 SWMU 60 - Field Change Request Form

FIELD CHANGE REQUEST FORM

| | | | | | |
|--|--|------------------------|--------------------------------------|---|------|
| CONTRACT NO. N44255-09-D-4001 | | TASK ORDER NO. 0005 | | Field Change Request Form No. 2 | |
| Location SWMU 60, Adak | | Date 6/25/10 | | Page 1 of 2 | |
| RE: _____ Drawing No. <u>Figure 9</u> Title _____ _____ Worksheet # _____ Specification _____ Title <u>Worksheet # 17 & NAVFAC NW</u> <u>17</u> _____ Section <u>Draft Final SAP, Six Sites, Adak</u> _____ Title <u>SOP I-C-1</u> _____ Other _____ Title _____ | | | | | |
| Description (items involved, submit sketch, if applicable) (Use continuation sheet if necessary) See page 2 | | | | | |
| Reason for Change (Use continuation sheet if necessary) See page 2 | | | | | |
| Recommended Disposition (submit sketch, if applicable) (Use Continuation Sheet if necessary) See page 2 | | | | | |
| Preparer Print Name: Jessica Wellmeyer | | Date 6/25/10 | Preparer's Title Field Team | Project Manager Print Name: Burgess, Gregory, T | |
| (signature)  | | | | (Signature)  | |
| NTR Acknowledgement Print Name: | | Date | Navy RPM Print Name: | | Date |
| (signature) | | | (signature) | | |
| CIH Print Name: | | Date | QA Program Manager Print Name: | | Date |
| (signature) | | | (signature) | | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | |
| Title | | Date | Title | | Date |
| Print Name | | | Print Name | | |
| (signature) | | | (signature) | | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | |

Page 2 of 2
Field Change Request Form
Additional Petroleum Characterization at Antenna Field, SA 70, SWMU 60, Former
Power Plant, SWMU 61 and Pipeline Location A-06
Former Adak Naval Complex
Adak, Alaska

Description:

The map upon which planned sampling locations at SWMU 60 (Tank Farm A) for the 2010 additional characterization identifies proposed monitoring wells 650, 651 and 652 along the eastern edge of the roadway, inside the traffic circle, near South Sweeper Creek. A field inspection identified these boring locations beneath and/or adjacent to a strung cable barrier between the roadway and South Sweeper Creek. All three monitoring well locations were to be completed 2 to 3 feet above grade with protective monuments and 3 bollards set in concrete. Based on field observations, there is limited access to install these wells just off the roadway before topography drops down to South Sweeper Creek.

Reason for Change:

Field conditions at the proposed monitoring well locations do not allow for safe or practical installation of above ground well completions with bollards within the specifications designated in SAP Worksheet #17 and/or NAVFAC SOP I-C-1. The cable barrier impedes adequate clearance to complete these wells in above ground monuments with bollards as originally specified.

Recommended Disposition

The three proposed monitoring well locations can be completed with alternative surface completions. It is recommended that monitoring wells 650, 651, and 652 be completed with flush mount well boxes, set on concrete pads up to 4" above grade, allowing the original locations to be maintained, future access for groundwater sampling preserved, and permitting wells to be constructed out of the roadway and in an area protected from traffic and surface water accumulation. These locations are under or immediately adjacent to the cable barrier.

The well 651 location is also proposed to move approximately 12' south of originally designated to avoid penetrating the culvert beneath the road.

The attached photos depict proposed well locations relative to the protective cable barrier.



view north – recommend flush mount surface completion with concrete pad



view south – recommend flush mount surface completion with concrete pad



view north – recommend flush mount surface completion with concrete pad

APPENDIX G

Former Power Plant

G-1 Former Power Plant - Boring Logs

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/29/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|----------------------|---|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Hand dig to 3.5' bgs | 0915 Location refusal at 3' bgs, move boring ~4' north, 0918 concrete at ~2' bgs, move boring ~14' east | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 13 | 0.0 | | SP | Gray fine to medium SAND, damp to wet, medium dense, slight sheen, moderate hydrocarbon odor, no stain | 950 |
| 6 | | | | 19 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 11 | 0.0 | | SP | Gray fine SAND, moist to wet, medium dense, moderate hydrocarbon odor, no sheen, no stain | 1000 |
| 9 | | | | 14 | | | | | |
| 10 | | | | 16 | | | | | |
| 10 | | SS | -10 | 13 | 0.0 | | SP | Gray fine SAND, wet, no sheen, hydrocarbon odor, no stain | 1010 |
| 11 | | | | 14 | | | | | |
| 12 | | | | 20 | | | | | |
| 13 | | SS | -12.5 | 16 | 0.0 | | SP | Gray fine SAND with trace medium sub rounded gravel, wet, no stain or sheen, moderate hydrocarbon odor | 1020 |
| 14 | | | | 22 | | | | | |
| 15 | | | | 22 | | | | | |
| 15 | | SS | -15 | 10 | 0.0 | | SP | Gray fine SAND, wet, no stain or sheen, hydrocarbon odor | 1050 |
| 16 | | | | 18 | | | | | |
| 17 | | | | 31 | | | | | |
| 18 | | SS | -17.5 | 14 | 0.0 | | SP | Gray fine SAND, wet, no stain or sheen, slight hydrocarbon odor | 1115 |
| 19 | | | | 30 | | | | 1130 rig down due to overheating fluids | |
| 20 | | | | | | | | | |
| 20 | | SS | -20 | 4 | 0.0 | | SP | Gray fine sand, wet, no stain or sheen, slight hydrocarbon odor | 1340 |
| | | | | 7 | | | | | |

Boring completed to 20' on 6/29, backfilled with cuttings and bentonite

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/28/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|------|-------------|--|--|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | OL | Thin veneer dark brown organic silt | Hand clear to 3' bgs with post hold digger | |
| | | | | | | SP | Brown medium and fine SAND, dry to damp, soft, no odor, no stain | | |
| 1 | | | | | | | | 1445 Start | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 4 | 0.0 | SP | Brown medium and fine SAND, dry to damp, soft, no odor, no stain | 1450 | |
| | | | | 5 | | | 10" REC | | |
| 6 | | | | 5 | | | | | |
| 7 | | | | | | | | 1455 FD= T-1451D @ 1530 | |
| 8 | | SS | -7.5 | 5 | 11.7 | SP | Gray medium SAND, moist, moderately dense, no stain, slight fuel odor, 12" REC | | |
| | | | | 8 | | | | | |
| 9 | | | | 8 | | | | 1500 | |
| 10 | | SS | -10 | 7 | 0.0 | SP | Gray medium and fine SAND, wet, moderately dense, no stain, fuel odor, 14" REC | | |
| | | | | 9 | | | | | |
| 11 | | | | 11 | | | | 1510 | |
| 12 | | SS | -12.5 | 8 | 0.0 | SP | As above, sheen present, fuel odor, no staining, 16" REC | | |
| | | | | 14 | | | | | |
| 13 | | | | 21 | | | | 1522 | |
| 14 | | | | | | | | | |
| 15 | | SS | -15 | 12 | 0.0 | SP | As above, no sheen 16" REC | | |
| | | | | 20 | | | | 1540 | |
| 16 | | | | 21 | | | | | |
| 17 | | | | | | | | | |
| 18 | | SS | -17.5 | 11 | 0.0 | SP | As above, no sheen, 12" REC | 1555 | |
| | | | | 26 | | | | | |
| 19 | | | | 26 | | | | | |
| 20 | | SS | -20 | 8 | 0.0 | SP | As above, more coarse sand, slight fuel odor, no stain, no sheen, 12" REC | 1555 | |
| | | | | 19 | | | | | |
| | | | | 21 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/2/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | OL SP | Thin veneer dark brown organic silt fine sand | 830 | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 4 | 0 | SP | Gray fine sand, dry, loose, no staining, no odor | 900 | |
| 6 | | | | 5 | | | | | |
| 7 | | | | 4 | | | | | |
| 8 | | SS | -7.5 | 3 | 20 | SP | Gray fine sand, dry, loose, light staining @ 8' bgs, moderate to strong hydrocarbon odor | 910 | |
| 9 | | | | 6 | | | | | |
| 10 | | | | 5 | | | | | |
| 11 | | SS | -10 | 5 | 80 | SP | Gray fine sand, wet, moderately dense, strong hydrocarbon odor, sheen present | 920 | |
| 12 | | | | 11 | | | | | |
| 13 | | | | 11 | | | | | |
| 14 | | SS | -12.5 | 6 | 0 | SP | Gray fine sand, wet, no sheen, moderate hydrocarbon odor | 930 | |
| 15 | | | | 11 | | | | | |
| 16 | | | | 13 | | | | | |
| 17 | | SS | -15 | 10 | 0 | SP | Gray fine sand, wet, no stain or sheen, slight hydrocarbon odor | 935 | |
| 18 | | | | 16 | | | | | |
| 19 | | | | 17 | | | | | |
| 20 | | SS | -17.5 | 11 | 0 | SP | Gray fine sand, wet, no stain or sheen, slight hydrocarbon odor | 1003 | |
| | | | | 22 | | | | | |
| | | | | 30 | | | | | |
| | | | | | | | | | |
| | | SS | -20 | 12 | 0 | SP | Gray fine sand, wet, no stain or sheen, slight hydrocarbon odor | 1015 | |
| | | | | 18 | | | | | |
| | | | | 20 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 6/22/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|-----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SP | Brown gray poorly graded SAND, damp, clean, medium and fine sand, no odor, no stain | 1600 hand clear to 4' | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | 1603 | |
| 5 | | SS | -5 | 8 | 0.0 | | As above, damp, no odor, no stain | 1610 | |
| 6 | | | | 14 | | | 12" REC | | |
| 7 | | | | 14 | | | | | |
| 8 | | SS | -7.5 | 10 | 0.0 | | As above, wet, no odor, no stain | 1615 | |
| 9 | | | | 17 | | | | | |
| 10 | | | | 22 | | | | | |
| 11 | | SS | -10 | 10 | 0.0 | | As above, wet, no odor, no stain, starting to heave, above 1' of sand heave at start of sample | 1625 | |
| 12 | | | | 18 | | | 18" REC | | |
| 13 | | | | 24 | | | | | |
| 14 | | SS | -12.5 | 3 | 0.0 | | 1630 DTW = 7.5' | 1735 @ 12.5 | |
| 15 | | | | 13 | | | TD= 9' | | |
| 16 | | | | 19 | | | | | |
| 17 | | | | | | | 1635 DTW = 7.5' | | |
| 18 | | | | | | | TD = 8.5' | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

| | | |
|---|---------------------------|---|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 01-156A |  |
| Project Location: Former Power Plant, Adak, Alaska | | |
| Project Number: 33762004 | | |
| Sheet 1 of 1 | | |

| | | | | |
|--|---------------------|-------------|----------------------|------------------|
| Location Sketch 2nd run @ location larger auger, 4 feet from original location | Date(s) Drilled | 6/28/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | OL | Brown organic SILT with roots and grass, damp to dry, no odor, no stain | Hand clear to 3' | |
| 1 | | | | | | SP | Brown gray medium and fine SAND with some silt, damp to dry, moderately dense, no odor, no stain | 1738 start | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | 1740 | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | 1743 | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 6 | 0.0 | SP | Gray medium and fine SAND, damp to wet, moderately dense, moderate fuel odor, no staining or sheen | 1750 | |
| | | | | 13 | | | | | |
| | | | | 17 | | | | | |
| 9 | | | | | | | | | |
| 10 | | SS | -10 | 9 | 0.0 | | As above, slight odor, no sheen, wet, 12" REC | 1750 | |
| | | | | 19 | | | | | |
| | | | | 19 | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | SS | -15 | 12 | 0.0 | | Gray brown medium and fine SAND, trace gravel, wet, dense, no odor, no stain, 10" REC | 1758 | |
| | | | | 23 | | | | | |
| 16 | | | | 23 | | | heave | | |
| 17 | | | | | | | | | |
| 18 | | SS | -17.5 | 7 | 0.0 | | As above, 6" REC | 1815 | |
| | | | | 20 | | | heave | | |
| | | | | 27 | | | | | |
| 19 | | | | | | | | | |
| 20 | | SS | -20 | 9 | 0.0 | | As above, 12" REC | 1830 | |
| | | | | 19 | | | | | |

54 TD= 20' bgs backfill with chips and cuttings

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/1/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20' |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|--------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Hand clear to 3' SP Gray fine SAND | 1150 start hand clearing | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 2 | 0.0 | | SP Gray fine SAND, moist, loose, no stain or odor | 1155 | |
| 6 | | | | 4 | | | | | |
| 7 | | | | 5 | | | | | |
| 8 | | SS | -7.5 | 2 | 0.0 | | SP As above, no odor, no stain | 1200 | |
| 9 | | | | 5 | | | | | |
| 10 | | | | 6 | | | | | |
| 11 | | SS | -10 | 4 | 0.0 | | SP As above, moist, no odor, no stain | 1215 | |
| 12 | | | | 8 | | | | | |
| 13 | | | | 10 | | | | | |
| 14 | | SS | -12.5 | 5 | 25 | | SP Gray fine SAND, wet, medium dense, sheen present, strong hydrocarbon odor | 1225 | |
| 15 | | | | 10 | | | | | |
| 16 | | | | 11 | | | | | |
| 17 | | SS | -15 | 8 | 0.0 | | SP As above, wet, no sheen, strong to moderate hydrocarbon odor | 1235 | |
| 18 | | | | 14 | | | | | |
| 19 | | | | 15 | | | | | |
| 20 | | SS | -17.5 | 11 | 0.0 | | SP As above, wet, no sheen, no stain, slight hydrocarbon odor | 1250 | |
| 21 | | | | 20 | | | | | |
| 22 | | | | 24 | | | | | |
| 23 | | | | | | | | | |
| 24 | | SS | -20 | 8 | 0.0 | | SP As above, wet, no sheen, very slight odor | 1310 | |
| | | | | 21 | | | | | |
| | | | | 24 | | | | | |

Boring completed to 20' bgs, backfilled with cuttings and bentonite

Project: 2010 Additional Petroleum Characterization
 Project Location: Former Power Plant, Adak, Alaska
 Project Number: 33762004

BORING NO. 01-158A
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/2/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|----------------------------------|---|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Organic layer SP Fine sand | 1125 Hand clear to 4' | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | SS | -10 | 12 | 0.0 | | SP | Brown gray fine sand, wet, moderately dense, no staining, no odor | 1150 |
| | | | | 21 | | | | | |
| 11 | | | | 25 | | | | | |
| 12 | | | | | | | | | |
| | | SS | -12.5 | 11 | 0 | | SP | As above, no stain, no odor | 1200 |
| 13 | | | | 17 | | | | | |
| | | | | 20 | | | | | |
| 14 | | | | | | | | | |
| 15 | | SS | -15 | 9 | 0 | | SP | As above, no stain or sheen, slight hydrocarbon odor | 1210 |
| | | | | 18 | | | | | |
| 16 | | | | 27 | | | | | |
| 17 | | | | | | | | | |
| | | SS | -17.5 | 4 | 0 | | SP | As above, no stain, slight hydrocarbon odor | 1245 |
| 18 | | | | 5 | | | | | |
| | | | | 22 | | | | | |
| 19 | | | | | | | | | |
| 20 | | SS | -20 | 13 | 0 | | SP | As above, no staining, slight to no hydrocarbon odor | 1310 |
| | | | | 29 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/6/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|-------------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | SP | Thin veneer of dark brown organic silt | 845 hand clear to 3' | |
| 1 | | | | | | | Gray brown medium & fine sand, dry to damp, moderately dense, no odor, no staining | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | 900 start drilling | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 4 | 0 | SP | As above, no odor, no staining, 12" recovery | 905 | |
| 6 | | | | 7 | | | | | |
| | | | | 8 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 5 | 0 | SP | As above, no odor, no staining, 12" recovery | 912 | |
| 9 | | | | 9 | | | | | |
| | | | | 8 | | | | | |
| 10 | | | | | | | | | |
| 11 | | SS | -10 | 4 | 0 | SP | As above, no odor, no staining, 12" recovery | 920 | |
| 12 | | | | 6 | | | | | |
| | | | | 7 | | | | | |
| 13 | | | | | | | | | |
| 14 | | SS | -12.5 | 6 | 40 | SP | Gray brown medium & fine sand, dry to moist, moderately dense, strong fuel odor, no staining, no sheen, 12" recovery | 927 | |
| 15 | | | | 10 | | | | | |
| | | | | 11 | | | | | |
| 16 | | | | | | | | | |
| 17 | | SS | -15 | 8 | 0 | SP | Gray medium & fine sand, wet, moderately dense, strong fuel odor, no staining, sheen present, 12" recovery | 937 | |
| 18 | | | | 12 | | | | 947 01-159D (field dup) | |
| | | | | 14 | | | | | |
| 19 | | | | | | | | | |
| 20 | | SS | -17.5 | 13 | 0 | SP | Brownish gray medium & fine sand, wet, moderate odor, no staining, 12" recovery | 1020 | |
| | | | | 22 | | | | | |
| | | | | 24 | | | | | |
| 21 | | | | | | | | | |
| 22 | | | | | | | | | |
| 23 | | | | | | | | | |
| 24 | | | | | | | | | |
| 25 | | | | | | | | | |
| 26 | | SS | -20 | 11 | 0 | SP | Brown gray fine sand, wet, dense, slight odor, no staining, 12" recovery | 1030 | |
| | | | | 19 | | | | | |
| | | | | 26 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/6/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 7.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|-----|-------------|------|--|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| | 0 | | | | | | SP | Gray brown medium & fine sand, dry to moist, dense, fuel odor, no staining | |
| | 1 | | | | | | | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | | | |
| | 4 | | | | | | | | |
| | 5 | SS | -5 | 9 | 0 | | SP | wet @ 4.5' Gray medium & fine sand, wet, moderately dense, strong fuel odor, some staining, sheen present, 12" recovery | 1150 |
| | 6 | | | 10 | | | | | |
| | 7 | | | 11 | | | | | |
| | 8 | SS | -7.5 | 9 | 0 | | SP | As above, strong fuel odor, some staining, sheen present, 12" recovery | 1155 |
| | 9 | | | 13 | | | | | |
| | 10 | | | 16 | | | | | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 16 | | | | | | | | |
| | 17 | | | | | | | | |
| | 18 | | | | | | | | |
| | 19 | | | | | | | | |
| | 20 | | | | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Former Power Plant, Adak, Alaska
 Project Number: 33762004

BORING NO. 01-161
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/6/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|-----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | OL | Dark brown organic silt with sand, damp, roots | 1312 hand clear to 3' | |
| 1 | | | | | | SP | Brown medium & fine sand, dry to damp, dense, no odor, no staining | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 3 | 0 | SP | Brown medium & fine sand, dry, moderately dense, no odor, no staining, 12" recovery | 1315 | |
| 6 | | | | 5 | | | | | |
| 7 | | | | 6 | | | | | |
| 8 | | SS | -7.5 | 4 | 0 | SP | As above, no odor, no staining, 12" recovery | 1320 | |
| 9 | | | | 5 | | | | | |
| 10 | | | | 9 | | | | | |
| 11 | | SS | -10 | 4 | 0 | SP | As above, no odor, no staining, 12" recovery | 1330 | |
| 12 | | | | 7 | | | | | |
| 13 | | | | 10 | | | | | |
| 14 | | SS | -12.5 | 6 | 0 | SP | As above, moist, no odor, no staining, 12" recovery | 1338 | |
| 15 | | | | 13 | | | | | |
| 16 | | | | 14 | | | | | |
| 17 | | SS | -15 | 6 | 0 | SP | Grayish brown medium & fine sand, wet, dense, no odor, no staining, 12" recovery | 1348 | |
| 18 | | | | 18 | | | | | |
| 19 | | | | 19 | | | | | |
| 20 | | SS | -17.5 | 15 | 0 | SP | Grayish brown medium & fine sand, wet, very dense, no odor, no staining, 12" recovery, some heave | 1418 | |
| 21 | | | | 24 | | | | | |
| 22 | | | | 27 | | | | | |
| 23 | | SS | -20 | 10 | 0 | SP | Gray brown medium & fine sand, wet, very dense, no odor, no staining, 12" recovery, some heave | 1430 | |
| 24 | | | | 25 | | | | | |
| 25 | | | | 22 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/6/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|-----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | OL | Dark brown organic silt with sand, damp, roots | 1543 hand clear to 3' | |
| 1 | | | | | | SP | Brown medium & fine sand, dry to damp, dense, no odor, no staining | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | 1548 start drilling | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 10 | 0 | SP | Brown medium & fine sand, wet, dense, no odor, no staining, 12" recovery | 1552 MS/MSD | |
| 6 | | | | 18 | | | | | |
| 7 | | | | 17 | | | | | |
| 8 | | SS | -7.5 | 12 | 0 | SP | Brown fine sand, wet, dense, no odor, no staining, 9" recovery | 1600 | |
| 9 | | | | 18 | | | | | |
| 10 | | | | 22 | | | | | |
| 11 | | SS | -10 | 9 | 0 | SP | Brown medium & fine sand, wet, dense, no odor, no staining, 10" recovery | 1618 | |
| 12 | | | | 15 | | | | | |
| 13 | | | | 15 | | | | | |
| 14 | | SS | -12.5 | 12 | 0 | SP | Brown medium & fine sand, wet, dense, slight sour odor, no staining, 6" recovery | 1628 | |
| 15 | | | | 16 | | | | | |
| 16 | | | | 19 | | | | | |
| 17 | | SS | -15 | 13 | 0 | SP | Brown medium & fine sand, wet, dense, slight sour/fuel odor, no staining 8" recovery | 1640 | |
| 18 | | | | 20 | | | | | |
| 19 | | | | 23 | | | | | |
| 20 | | SS | -17.5 | 10 | 0 | SP | Pale brown medium & fine sand, wet, dense, slight sour odor, no staining 9" recovery | 1728 | |
| 21 | | | | 18 | | | | | |
| 22 | | | | 21 | | | | | |
| 23 | | SS | -20 | 8 | 0 | SP | Pale brown medium & fine sand, wet, dense, slight sour odor, no staining | 1743 | |
| 24 | | | | 16 | | | | | |
| 25 | | | | 17 | | | | | |

Project: 2010 Additional Petroleum Characterization
 Project Location: Former Power Plant, Adak, Alaska
 Project Number: 33762004

BORING NO. 01-163
 Sheet 1 of 1



| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/7/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | | Organic layer | 845 Hand clear to 3' | |
| | | | | | | SP | Fine sand | | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 12 | 0 | | Gray fine sand, wet, slight hydrocarbon odor, no sheen | 900 | |
| | | | | 18 | | | | | |
| 6 | | | | 16 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 7 | 0 | | As above, slight sour odor, no sheen | 910 | |
| | | | | 11 | | | | | |
| 9 | | | | 19 | | | | | |
| 10 | | SS | -10 | 2 | 0 | | Gray fine to coarse sand, wet, no sheen, no hydrocarbon odor | 940 | |
| | | | | 10 | | | | | |
| 11 | | | | 19 | | | | | |
| 12 | | | | | | | | | |
| 13 | | SS | -12.5 | 5 | 0 | | As above, wet, no sheen, no odor | 950 | |
| | | | | 15 | | | | | |
| 14 | | | | 17 | | | | | |
| 15 | | SS | -15 | 10 | 0 | | As above, wet, no sheen, no odor | 1000 | |
| | | | | 18 | | | | | |
| 16 | | | | 18 | | | | | |
| 17 | | | | | | | | | |
| 18 | | SS | -17.5 | 6 | 0 | | As above, wet, no sheen, no odor, heave in auger flowing sands? | 1035 | |
| | | | | 16 | | | | | |
| 19 | | | | | | | | | |
| 20 | | SS | -20 | 2 | 0 | | As above, wet, no sheen, no odor | 1100 | |
| | | | | 8 | | | | | |

14

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/7/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | GP | Brown gravel with sandy silt, dry, no odor, no staining | 1200 Handclear to 3' | |
| 1 | | | | | | | | | |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | SP | Grayish brown medium & fine sand, dry, moderately dense, no odor, no staining | 1215 start drilling | |
| 5 | | SS | -5 | 11 | 0 | SP | Brown medium & fine sand, wet, moderately dense, no odor, no staining, 14" recovery | 1227 | |
| 6 | | | | 16 | | | | | |
| 7 | | | | 12 | | | | | |
| 8 | | SS | -7.5 | 6 | 0 | SP | Gray medium & coarse sand with some fine gravel, wet, dense, slight hydrocarbon odor, no staining, no sheen, 10" recovery | 1233 | |
| 9 | | | | 12 | | | | | |
| 10 | | SS | -10 | 14 | 0 | SP | Gray medium & fine sand, wet, very dense, slight sour odor, no staining, 10" recovery | 1241 | |
| 11 | | | | 24 | | | | | |
| 12 | | | | 28 | | | | | |
| 13 | | SS | -12.5 | 3 | 0 | SP | As above, slight sour odor, no staining, 12" recovery | 1258 | |
| 14 | | | | 22 | | | | | |
| 15 | | | | 30 | | | | | |
| 16 | | SS | -15 | 4 | 0 | SP | As above, slight sour odor, no staining, 6" recovery, some heave | 1307 | |
| 17 | | | | 17 | | | | | |
| 18 | | | | 19 | | | | | |
| 19 | | | | | | | | | |
| 20 | | SS | -20 | 2 | 0 | SP | No recovery - all slough in sampler. | 1325 | |
| | | | | 4 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/8/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 12.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | GP | Brown sandy gravel | Hand clear to 3' bgs | |
| 1 | | | | | | | | | |
| 2 | | | | | | SP-SC | Gray clayey sand, wet, strong fuel odor, no staining, moderate plasticity (logged from hand cleared cuttings) | 810 start drilling | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 5 | 8 | SP | Gray medium & fine sand, wet, strong fuel odor, gray staining, heavy sheen, 10" recovery | 815 | |
| 6 | | | | 12 | | | | | |
| | | | | 16 | | | | | |
| 7 | | | | | | | | | |
| 8 | | SS | -7.5 | 9 | 0 | SP | Gray medium & fine sand, wet, moderate to strong fuel odor, gray staining, sheen present, 8" recovery | 822 | |
| 9 | | | | 13 | | | | | |
| | | | | 15 | | | | | |
| 10 | | SS | -10 | 13 | 0 | SP | Gray fine sand, wet, moderate to strong fuel odor, gray stained, sheen present, 8" recovery, some heave | 834 | |
| 11 | | | | 22 | | | | | |
| | | | | 27 | | | | | |
| 12 | | | | | | | | | |
| 13 | | SS | -12.5 | 9 | 0 | SP | Gray fine sand, wet, dense, slight fuel odor, no staining, no sheen, 6" recovery, flowing sands. | 905 | |
| 14 | | | | 26 | | | | | |
| | | | | 15 | | | | | |
| 15 | | | | | | | 9:15 am: lost hole at 12.5' bgs | 930 | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/11/10 | Logged By | IPV |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

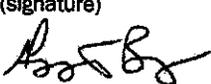
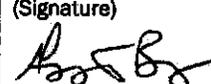
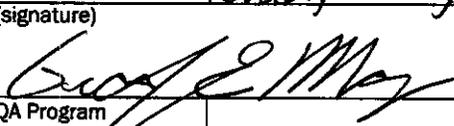
| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---------------|--|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| | 0 | | | | | | Gravel & sand | Hand clear to 3' bgs | |
| | 1 | | | | | | | | |
| | 2 | | | | | | | | |
| | 3 | | | | | | | | |
| | 4 | | | | | | | | |
| | 5 | | | | | | | | |
| | 6 | | | | | | | | |
| | 7 | | | | | | | | |
| | 8 | | | | | | | | |
| | 9 | | | | | | | | |
| | 10 | | | | | | | | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | SS | -15 | 8 | 0 | | SP | Gray fine sand, wet, no staining | 925 |
| | 16 | | | 12 | | | | | |
| | 17 | | | 19 | | | | | |
| | 18 | SS | -17.5 | 10 | 0 | | SP | Gray fine sand, wet, no staining, no odor | 935 |
| | 19 | | | 20 | | | | | |
| | 20 | SS | -20 | 12 | 0 | | SP | Gray fine sand, wet, no staining, no odor, heaving sands, very little recovery | 940 |
| | | | | 22 | | | | | |

| | | | | |
|-----------------|---------------------|-------------|----------------------|------------------|
| Location Sketch | Date(s) Drilled | 7/7/10 | Logged By | JW |
| | Drill Bit Size/Type | 8" HSA | Total Borehole Depth | 20 |
| | Drilling Contractor | Denali | Drill Rig Type | Geoprobe 6610 DT |
| | Sampling Method(s) | Split Spoon | Hammer Data | 140# |
| | Level/Date Measured | | Surface Elevation | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|-------|----------|-----|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | QVM | | | | |
| 0 | | | | | | GP | Brown sandy gravel | | |
| 1 | | | | | | | | | |
| 2 | | | | | | SP | Brown medium & fine sand, dry to moist, medium dense, no odor, no staining | 1555 start drilling | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |
| 5 | | SS | -5 | 7 | 0 | SP | Grayish brown medium & fine sand, moist, moderately dense, very slight sour odor, no staining, no sheen, 16" recovery | 1603 | |
| 6 | | | | 12 | | | | | |
| 7 | | | | 12 | | | | | |
| 8 | | SS | -7.5 | 11 | 0 | SP | Brown medium & fine sand, wet, dense, no odor, no staining, 13" recovery | 1610 | |
| 9 | | | | 20 | | | | | |
| 10 | | | | 20 | | | | | |
| 10 | | SS | -10 | 10 | 0 | SP | As above, no odor, no staining, 12" recovery | 1617 | |
| 11 | | | | 15 | | | | | |
| 12 | | | | 17 | | | | | |
| 13 | | SS | -12.5 | 12 | 0 | SP | Gray medium & coarse sand, wet, dense, slight fuel odor, no staining, 12" recovery | 1630 | |
| 14 | | | | 16 | | | | | |
| 15 | | | | 18 | | | | | |
| 15 | | SS | -15 | 7 | 0 | SP | Gray medium & coarse sand, wet, dense, very slight fuel odor, no staining, 10" recovery | 1642 | |
| 16 | | | | 13 | | | | | |
| 17 | | | | 22 | | | | | |
| 18 | | SS | -17.5 | 5 | 0 | SP | Gray medium & coarse sand, wet, dense, very slight fuel odor, no staining, 6" recovery | 1728 | |
| 19 | | | | 11 | | | | | |
| 20 | | | | 18 | | | | | |
| 20 | | SS | -20 | 12 | 0 | SP | Gray medium & coarse sand, wet, dense, very slight fuel odor, no staining, 3" recovery | 1743 | |
| | | | | 27 | | | | | |

G-2 Former Power Plant - Field Change Request Form

FIELD CHANGE REQUEST FORM

| | | | | | |
|---|---|-----------------------|--------|---|--|
| CONTRACT NO. N44255-09-D-4001 | | TASK ORDER NO. 005 | | Field Change Request Form No. 4 | |
| Location Former Power Plant Building T-1451 | | Date 7/2/10 | | Page 1 of 3 | |
| RE: <u>Fig 14</u> Drawing No. <u>Draft Final SAP, Six Sites, Adak</u> | | Title _____ | | Title _____ | |
| _____ Specification Section _____ | | Title _____ | | Title _____ | |
| Other _____ | | Title _____ | | Title _____ | |
| Description (items involved, submit sketch, if applicable) (Use continuation sheet if necessary) Please see page 2 | | | | | |
| Reason for Change (Use continuation sheet if necessary) Please see page 2 | | | | | |
| Recommended Disposition (submit sketch, if applicable) (Use Continuation Sheet if necessary) Please see page 2 | | | | | |
| Preparer Print Name: | Burgess, Gregory, T | Date | 7/2/10 | Preparer's Title | |
| (signature) |  | | | Project Manager Print Name: | Burgess, Gregory, T |
| | | | | (Signature) |  |
| | | | | | 7/2/10 |
| NTR Acknowledgement Print Name: | | Date | | Navy RPM Print Name: | Grady May |
| (signature) | | | | (signature) |  |
| | | | | | 7/2/10 |
| CIH Print Name: | | Date | | QA Program Manager Print Name: | |
| (signature) | | | | (signature) | |
| | | | | | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | |
| Title | | Date | | Title | |
| Print Name | | | | Print Name | |
| (signature) | | | | (signature) | |
| <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | | | | <input type="checkbox"/> Comments (attached) <input type="checkbox"/> No Comments | |

Page 2 of 3
Field Change Request Form
Additional Petroleum Characterization at Antenna Field, SA 79,
SWMU 60, Former Power Plant, SWMU 61, and Pipeline Location A-06
Former Adak Naval Complex
Adak, Alaska

Description:

All but one of the planned 2010 soil borings have been completed at Former Power Plant Building T-1451. A figure showing field observations is attached. Based on these field observations, it appears that the distribution of DRO in subsurface soil is located farther north than originally estimated using the existing site data.

Reason for Change

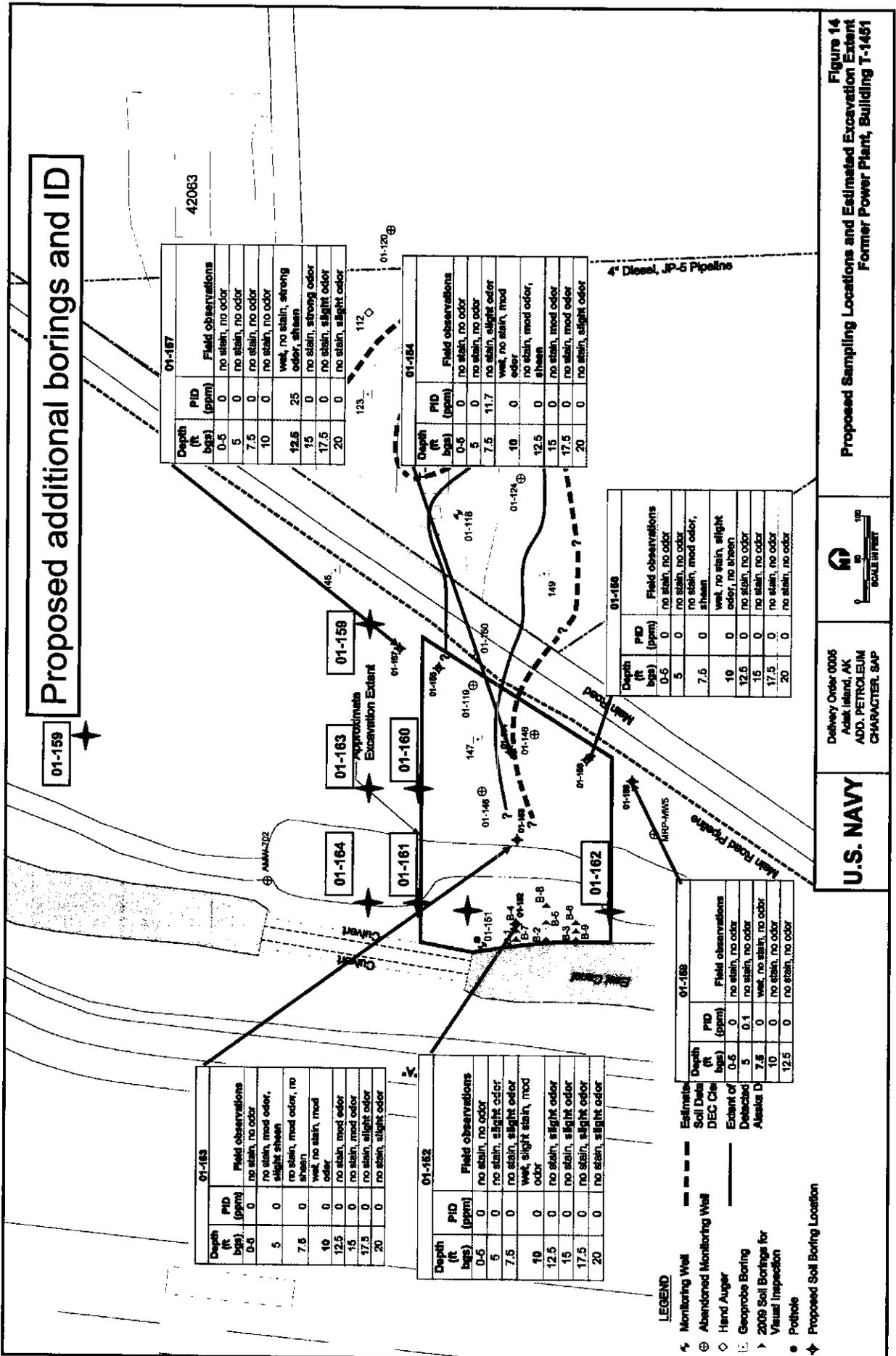
The improved understanding of site conditions show that the distribution of DRO in subsurface soil extends farther north than originally estimated using pre-1020 site data. Collection of additional soil data to the north would further refine the estimate of soil to be excavated and treated as part of the ongoing Engineering Evaluation and Cost Analysis for this site.

Recommended Disposition

It is recommended that the 7 soil borings planned for A-06 be reallocated to this site as shown on the attached figure. Six of these borings will be positioned to further refine the estimated extent to the north. The seventh boring will be positioned to assess the presence or absence of DRO in subsurface soil in the southwestern portion of the site.

Field observations indicate the presence of DRO in soil at completed location 01-157 in the northeast (see attached figure). It is recommended that an additional step-out boring be completed to the north (proposed 01-159) to further refine the northern extent in this area. Proposed borings 01-160 and -01-161 would be positioned as shown on the attached figure and completed in that order. Proposed boring 01-162 is recommended for the southwestern portion of the site to confirm the presence or absence of DRO in subsurface soil at that location. Proposed borings 01-163 and 01-164 will be completed if DRO impacts are observed at proposed boring locations 01-160 and 01-161, respectively.

Proposed additional borings and ID



01-157

| Depth (ft bgs) | PID (ppm) | Field observations |
|----------------|-----------|------------------------------------|
| 0-5 | 0 | no stain, no odor |
| 5 | 0 | no stain, no odor |
| 7.5 | 0 | no stain, no odor |
| 10 | 0 | no stain, no odor |
| 12.5 | 25 | wet, no stain, strong odor, slight |
| 15 | 0 | no stain, strong odor |
| 17.5 | 0 | no stain, slight odor |
| 20 | 0 | no stain, slight odor |

01-164

| Depth (ft bgs) | PID (ppm) | Field observations |
|----------------|-----------|---------------------------|
| 0-5 | 0 | no stain, no odor |
| 5 | 0 | no stain, no odor |
| 7.5 | 11.7 | no stain, slight odor |
| 10 | 0 | wet, no stain, mod odor |
| 12.5 | 0 | no stain, mod odor, sheen |
| 15 | 0 | no stain, mod odor |
| 17.5 | 0 | no stain, mod odor |
| 20 | 0 | no stain, slight odor |

01-168

| Depth (ft bgs) | PID (ppm) | Field observations |
|----------------|-----------|--------------------------------------|
| 0-5 | 0 | no stain, no odor |
| 5 | 0 | no stain, mod odor, sheen |
| 7.5 | 0 | wet, no stain, slight odor, no sheen |
| 10 | 0 | no stain, no odor |
| 12.5 | 0 | no stain, no odor |
| 15 | 0 | no stain, no odor |
| 17.5 | 0 | no stain, no odor |
| 20 | 0 | no stain, no odor |

01-163

| Depth (ft bgs) | PID (ppm) | Field observations |
|----------------|-----------|----------------------------------|
| 0-5 | 0 | no stain, no odor |
| 5 | 0 | no stain, mod odor, slight sheen |
| 7.5 | 0 | no stain, mod odor, no sheen |
| 10 | 0 | wet, no stain, mod odor |
| 12.5 | 0 | no stain, mod odor |
| 15 | 0 | no stain, mod odor |
| 17.5 | 0 | no stain, slight odor |
| 20 | 0 | no stain, slight odor |

01-162

| Depth (ft bgs) | PID (ppm) | Field observations |
|----------------|-----------|-----------------------------|
| 0-5 | 0 | no stain, no odor |
| 5 | 0 | no stain, slight odor |
| 7.5 | 0 | no stain, slight odor |
| 10 | 0 | wet, slight stain, mod odor |
| 12.5 | 0 | no stain, slight odor |
| 15 | 0 | no stain, slight odor |
| 17.5 | 0 | no stain, slight odor |
| 20 | 0 | no stain, slight odor |

01-168

| Depth (ft bgs) | PID (ppm) | Field observations |
|----------------|-----------|------------------------|
| 0-5 | 0 | no stain, no odor |
| 5 | 0.1 | no stain, no odor |
| 7.5 | 0 | wet, no stain, no odor |
| 10 | 0 | no stain, no odor |
| 12.5 | 0 | no stain, no odor |

- LEGEND**
- ⊕ Monitoring Well
 - ⊖ Abandoned Monitoring Well
 - ⊙ Hand Auger
 - ⊔ Geoprobe Boring
 - ⊠ Visual Inspection
 - Petiole
 - ⬠ Proposed Soil Boring Location

Figure 14
Proposed Sampling Locations and Estimated Excavation Extent
Former Power Plant, Building T-1451



Delivery Order 0006
Adak Island, AK
ADD. PETROLEUM
CHARACTER SAP

U.S. NAVY

THIS DOCUMENT IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE

APPENDIX H

SWMU 61 - Boring Logs

| | |
|---|--------------------------|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-710 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand Auger | Total Borehole Depth | 4 |
| | Drilling Contractor | Denali | Drill Rig Type | Hand Auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|----------|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | OM (ppm) | | | | |
| 0 | | | | 0 | | OL | Dark brown organic silt, moist, no odor, no staining | 13:38 | |
| | | | | 0 | | | | 13:40 | |
| 1 | | | | 44 | | | increasing rounded sand | 13:43 | |
| | | | | 0 | | | | 13:45 | |
| 2 | | | -2.5 | 444 | | | rusty red silt clumps, moist | 13:47 | |
| | | | | 6.1 | | SM | Brown silty sand, medium & coarse and, moist, no odor, no staining | 13:48 | |
| 3 | | | | 1.9 | | ML/OL | Dark brown silt with sand, soft, moist, no odor, no staining | 13:52 | |
| | | | -4 | 110 | | | | 13:58 | |
| 4 | | | | | | | Refusal at 4' bgs | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |



| | |
|---|--------------------------|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-709 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand auger | Total Borehole Depth | 6 |
| | Drilling Contractor | Denali | Drill Rig Type | hand auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|-----------|-------------|------|--|-------------------------|
| | | Type | ID | Blows/ft | OMV (ppm) | | | | |
| | 0 | | -0.5 | | 7.2 | | OL | Dark brown organic silt, wet, soft, fuel odor, no stain, sheen present | 14:50 |
| | | | -1 | | 7.6 | | | | 14:55 |
| | 1 | | | | 1.3 | | | pale brown sandy silt | 15:00 |
| | 2 | | | | | | | | |
| | 3 | | | | 4.8 | | | less odor, more dense | 15:05 |
| | 4 | | | | | | | | |
| | 5 | | | | 0.7 | | | less moisture, more sand | 15:08 |
| | 6 | | | | 3.5 | SP | | Brown, medium and coarse sand, wet, dense | 15:12 |
| | | | | | | | | Rock refusal @ 6' bgs | |
| | 7 | | | | | | | | |
| | 8 | | | | | | | | |
| | 9 | | | | | | | | |
| | 10 | | | | | | | | |
| | 11 | | | | | | | | |
| | 12 | | | | | | | | |
| | 13 | | | | | | | | |
| | 14 | | | | | | | | |
| | 15 | | | | | | | | |
| | 16 | | | | | | | | |
| | 17 | | | | | | | | |
| | 18 | | | | | | | | |
| | 19 | | | | | | | | |
| | 20 | | | | | | | | |



| | |
|---|--------------------------|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-708 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand auger | Total Borehole Depth | 3.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Hand Auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|----|----------|-----------|-------------|--|----------------------|-------------------------|
| | | Type | ID | Blows/ft | OMI (ppm) | | | | |
| 0 | | | | | | OL | Brown organic silt with sand, wet, very soft & spongy, strong gasoline odor with a sheen | | |
| 1 | | | -1 | 6.870 | | | water rises to 1' bgs in hole | 10:50 | |
| 2 | | | -2 | 9.450 | | | | 10:52 | |
| 3 | | | | 5.670 | | | | 10:55 | |
| 4 | | | | | | | Refusal (formation) at 3.5' bgs | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |



| | |
|---|--------------------------|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-707 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand Auger | Total Borehole Depth | 7 |
| | Drilling Contractor | Denali | Drill Rig Type | Hand Auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|-----------|-------------|---|----------------------|-------------------------|
| | | Type | ID | Blows/ft | OMV (ppm) | | | | |
| 0 | | | | | | OL | Dark brown silt with peat, slight fuel odor, no staining, very soft | 11:00 | |
| | | | | 226 | | | | | |
| 1 | | | | 2,370 | | | wet, fuel odor | | |
| 2 | | | -2.5 | 3,783 | | | wet, fuel odor | | |
| | | | | 64.5 | | | damp | 11:10 | |
| 3 | | | | 9.6 | | | increasing sand content | | |
| | | | | 7.1 | | SM | Dark brown silty sand, damp, no odor, no staining | | |
| 4 | | | | 3.7 | | SP | Brown medium & coarse sand with silt, no odor, no staining | | |
| | | | | 0 | | | | | |
| 5 | | | | 0 | | | | 11:30 | |
| | | | | 0 | | CL | Brown clay, wet, no odor, no staining | | |
| 6 | | | | 0 | | SC | Brown clayey sand, wet, no odor, no staining | | |
| | | | -7 | 2,455 | | | | 12:20 | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |
| 16 | | | | | | | | | |
| 17 | | | | | | | | | |
| 18 | | | | | | | | | |
| 19 | | | | | | | | | |
| 20 | | | | | | | | | |



| | |
|---|--------------------------|
| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-706 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand Auger | Total Borehole Depth | 7.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Hand Auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|-----------|-------------|------|---|-------------------------|
| | | Type | ID | Blows/ft | OMV (ppm) | | | | |
| 0 | | | | | 23.9 | | OL | Brown organic silt, wet, soft, no odor, no staining | 14:05 |
| | | | -1 | | | | ML | Brown sandy silt, moist, no odor, no staining | |
| 1 | | | -1.5 | | 31.7 | | | | 14:07 |
| | | | | | 35.9 | | | | 14:10 |
| 2 | | | | | | | | | |
| 3 | | | | | 20.8 | | | | 14:15 |
| 4 | | | | | 22.8 | | | | 14:20 |
| 5 | | | | | 16 | | | wet moist, no odor, no staining | 14:25 |
| 6 | | | | | 12 | | | gravel at bottom Refusal at rock/formation at 7.5' bgs | 14:30 |
| 7 | | | | | | | | | |
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| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-705 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand Auger | Total Borehole Depth | 4.5 |
| | Drilling Contractor | Denali | Drill Rig Type | Hand Auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|------|----------|-----------|-------------|------|---|-------------------------|
| | | Type | ID | Blows/ft | OMV (ppm) | | | | |
| 0 | | | | | 2.4 | | OL | Dark brown organic silt, wet, slight fuel odor, no staining | 12:25 |
| | | | -1 | | 107 | | SP | Dark brown medium & fine sand with silt, wet, fuel odor, no staining | |
| 1 | | | | | 30.6 | | | damp | 12:27 |
| | | | | | 61.7 | | | damp | |
| 2 | | | | | 56.8 | | GP | Dark brown gravel & sand with silt, wet, fuel odor, no staining | |
| 3 | | | | | | | | | |
| 4 | | | -4.5 | | 137 | | SP | Rusty orange medium & coarse sand, wet, slight fuel odor, no staining | 12:40 |
| 5 | | | | | | | | Rock refusal @ 4.5' bgs | 12:42 |
| 6 | | | | | | | | | |
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| Project: 2010 Additional Petroleum Characterization | BORING NO. 14-704 |
| Project Location: Tank Farm B, Adak, Alaska | |
| Project Number: 33762004 | |

Sheet 1 of 1

| | | | | |
|-----------------|---------------------|------------|----------------------|-------------|
| Location Sketch | Date(s) Drilled | 23-Jun-10 | Logged By | J Wellmeyer |
| | Drill Bit Size/Type | Hand Auger | Total Borehole Depth | 3 |
| | Drilling Contractor | Denali | Drill Rig Type | Hand Auger |
| | Sampling Method(s) | | Hammer Data | |
| | Level/Date Measured | | Surface Elevation | |
| | | | | |

| Elevation (ft) | Depth (ft) | SAMPLES | | | | Graphic Log | USCS | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|----------------|------------|---------|----|----------|-----------|-------------|-------|---|-------------------------|
| | | Type | ID | Blows/ft | OMV (ppm) | | | | |
| 0 | | | | | 0.5 | | OL | Black brown organic silt, wet, soft, no odor, no staining | 13:10 |
| | | | -1 | | 3.2 | | | | |
| 1 | | | | | 0 | | SM | Brown silty sand with some gravel, damp, no odor, no staining | 13:12 |
| | | | -2 | | 8.3 | | SP/SM | Brown silty sand with some gravel, damp, no odor, no staining | |
| 2 | | | | | 0 | | | | 13:18 |
| | | | | | 0 | | | | |
| 3 | | | | | | | | Rock refusal @3' | 1325 |
| | | | | | | | | | |
| 4 | | | | | | | | Field duplicate collected at 2' bgs - "14-704D" | |
| 5 | | | | | | | | | |
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