OCEAN CAPE CON/HTRW
REMOVAL ACTION REPORT

FORMERLY USED DEFENSE SITE, F10AK0747-01
YAKUTAT, ALASKA

October 2013

Contract Number W911KB-12-C-0016

Prepared For:

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APPROVAL PAGE

The following Removal Action report for the removal of the sewer system and associated appurtenances and materials at the Ocean Cape Radio Relay Station near Yakutat, Alaska has been prepared by Ahtna Engineering Services, LLC. The following people have reviewed and approved this report.

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ACRONYMS AND ABBREVIATIONS

%....................percent
°F....................degrees Fahrenheit
AES................Ahtna Engineering Services, Limited Liability Company
ADEC.............Alaska Department of Environmental Conservation
bgs..................below ground surface
BTEX.............benzene, toluene, ethylbenzene, xylenes
CERCLA........Comprehensive Environmental Response, Compensation, and Liability Act
COC...............chain of custody
CQCSM..........contractor quality control systems manager
cy....................cubic yards
DL..................detection limit
DOD QSM.....Department of Defense Quality Systems Manual
DQO...............data quality objective
DRO...............diesel-range organics
E&E................Ecology and Environment
ELAP.............Environmental Laboratory Accreditation Program
EPA................United Stated Environmental Protection Agency
FUDS.............Formerly Used Defense Site
GAC...............granular activated charcoal
GNSS.............global navigation satellite system
GPS................global positioning system
IBC.................intermodal bulk container
LCS................laboratory control sample
LCSD.............laboratory control sample duplicate
LOD...............limit of detection
LOQ...............limit of quantitation
mg/kg.............milligrams per kilogram
µg/L................micrograms per liter
MB.................method blank
MH.................manhole
MS..................matrix spike
MSD...............matrix spike duplicate
OCRRS..........Ocean Cape Radio Relay Station
PAH...............polynuclear aromatic hydrocarbons
PCE................tetrachloroethene
PID................photoionization detector
PCB................polychlorinated biphenyls
POL................petroleum, oil, and lubricants
ppm................parts per million
QC..................quality control
RCA...............Recording Company of America, Alaska Communications, Inc.
RCRA.............Resource Conservation and Recovery Act
RPD................relative percent difference
RSD................relative standard deviation

RRO ....residual-range organics
RTK................real-time kinematic
SDG................sample delivery group
SOP ....standard operating procedure
TAH ....total aromatic hydrocarbons
TAqH ....total aqueous hydrocarbons
TCE................trichloroethene
TCLP..............Toxicity Characteristic Leachate Procedure
TSCA ....Toxic Substances Control Act
TSDF..............treatment, storage, and disposal facility
UFP-QAPP.....Uniform Federal Policy Quality Assurance Project Plan
USACE ....United States Army Corps of Engineers
USAF ....United States Air Force
VOC...............volatile organic compounds
YTT................Yakutat Tlingit Tribe

EXECUTIVE SUMMARY

A removal action was conducted by Ahtna Engineering Services from May 4 to June 8, 2013 to remove the sewer system at the Former Radio Relay Station at Ocean Cape in Yakutat, Alaska. The removal action consisted of excavating and disposing approximately 1,100 linear feet of concrete and cast iron sewer piping that connected the Former Radio Relay Building and the former Composite Building to a septic tank, and connected a garage floor drain system to a leach crib. Three concrete manholes and a concrete lift station that were present along the sewer line were also removed. All excavated areas were backfilled upon completion of work.

Field screening of the soils beneath the pipeline, manholes, lift station, and leach crib was conducted during the excavations using a photoionization detector. Analytical samples were collected under each structure, downgradient of each structure, and beneath each 100-feet of sewer line at the location of the highest field screening result. No impacts of soils that were left in place were found, with one exception. In the area south of the mid-line of the Composite Building, a soil sample for diesel-range organics reported a concentration of 300 mg/kg, exceeding the 230 mg/kg cleanup level. These soils remain in place.

Analytical samples were collected from the top four feet of excavated soil in the areas of the former Radio Relay Building, the former Composite Building, and the former Garage Building to evaluate the presence and magnitude of polychlorinated biphenyls (PCBs). No impacts were found and the soil was used for backfill.

One analytical sample taken from soils directly below the south floor drain of the Garage Building showed a lead concentration of 4,600 mg/kg. These soils were excavated and disposed as Resource Conservation and Recovery Act (RCRA)-hazardous waste. Confirmation sampling found that no lead-impacted soil remains.

Analytical samples were collected from each potential waste stream.

- All concrete samples collected from the concrete sewer pipeline and manholes showed no impacts. A sludge sample collected from the lift station showed no impacts. These structures were combined into one waste stream that was disposed of as non-hazardous waste.
- Sludge samples collected from cast iron sewer piping in the areas of the north Composite Building and Radio Relay Building showed no impacts. These sections of piping were disposed of as non-hazardous waste.
- Sludge samples collected from cast iron piping in the area of the south Composite Building and the Garage Building floor drains showed lead concentrations above the RCRA characteristic of toxicity levels. The sections of piping from the centerline of the Composite Building to the south terminus and the Garage Building floor drains were disposed of as RCRA-hazardous waste
- Sludge samples collected from material removed from the septic tank showed PCB concentrations above Alaska Department of Environmental Conservation (ADEC) cleanup levels but below Toxic Substance Control Act (TSCA)-regulated waste levels. This sludge was disposed of as non-hazardous waste.

- Sludge samples collected from material within Manhole #1 showed PCB concentrations above TSCA regulated waste levels. This sludge was disposed of as TSCA-regulated waste.
- Fluid removed from the septic tank was treated with a series of filters and granular activated carbon, sampled and confirmed to meet Alaska water quality standards, and discharged on the ground surface in the project area upgradient of the septic tank.
- Site conservation and restoration occurred throughout the project and culminated at the completion of the excavation and backfill operations. Trees removed to access the sewer line and structures were transported off site for recycling/reuse at locations designated by the property owner, Yak-Tat Kwaan. All excavations were backfilled, compacted, and graded to match the surrounding ground surface. All cleared, bare areas were tracked with the excavator to create texture and erosion control materials were installed on steeper slopes to further mitigate erosion. The seawall, which covered the lower portion of the sewer line and septic tank, was replaced following backfilling of the sewer line and septic tank.

1.0 INTRODUCTION

Ahtna Engineering Services, Limited Liability Company (AES) was contracted by the United States Army Corps of Engineers (USACE) to remove and dispose of sewer lines, manholes, and vaults that outfall onto the beach at the Formerly Used Defense Site (FUDS) F10AK0747-01, Ocean Cape Radio Relay Station (OCRRS) near Yakutat, Alaska. The project also included removal and disposal of the contents of the sewer lines, manholes, and vaults which were known to be contaminated with petroleum, oil, and lubricants (POL), polychlorinated biphenyls (PCB), and metals above the Alaska Department of Environmental Conservation (ADEC) cleanup levels.

1.1 Purpose

This report describes the activities undertaken to complete the project and variances from the planning documents. Planning documents include the Final Work Plan dated September 2012 (AES, 2012) and the Addendum No. 1 to the Work Plan, Revision One dated May 2013 (AES, 2013).Chemical data is presented, drawings and figures of the site activities are included, and project documents are appended to this report.

1.2 Project Modifications

The scope of the project underwent modifications during planning phases and at the start of field work. The following modifications altered the scope of the work and the project objectives.

- Concrete structures on the beach near the outfall of the sewer system that were thought to be vaults were discovered to be manways to a large septic tank in September 2012.
- PCB contamination may have been present in surface soils in the areas surrounding the former Radio Relay Building, former Composite Building, and former Garage Building that were re-graded during demolition. Due to this, surface PCB sampling was requested by ADEC in April 2013.
- An additional manhole, Manhole #3 (MH3) was discovered upgradient of Manhole #2 (MH2) in May 2013.
- No sewer line was found to connect the former Garage Building to the septic tank.

1.3 Objectives

The project objectives that were identified in the project work plan, and amended based upon the project modifications, included the following.

- Remove and properly dispose of the septic tank, outfall, two manholes, the garage drains, and all their contents.
- Remove and properly dispose of the sewer lines and their contents from between the following locations.
    - Septic tank and the outfall
    - Septic tank and Manhole #1 (MH1)

  - MH1 and the former Composite Building
  - MH1 and MH2
  - MH2 and MH3
  - MH3 and the former Radio Relay Building
- Removal and properly dispose of the drain piping and contents between the Garage Building floor drains and the drain crib.
- Provide confirmation soil sampling and laboratory analysis under the manholes, outfall, and along the sewer lines. Provide soil confirmation sampling directly down gradient of the bottom of the manholes, sewer line outfall, and breaks in the sewer line.

Due to the nature of the project including a variety of unknown site conditions, the following options were provided as needed to meet the project objectives.

- Excavation and disposal of up to 18 tons of PCB-, POL-, and/or metal-contaminated soil found under or next to the sewer system for contamination levels less than Resource Conservation and Recovery Act (RCRA) or Toxic Substances Control Act (TSCA) limits.
- Removal and disposal of up to three additional manholes encountered during the sewer system removal.
- Transport and dispose of up to 54 tons of non-hazardous sewer pipe.

1.4 Site Overview

In 1960, the United States Air Force (USAF) acquired 78.6 acres of land from the United States Forest Service and 96.96 acres of tidelands from the State of Alaska Division of Lands to construct a radio link between Cape Yakataga and Hoonah, Alaska. The OCRRS served as a tropospheric communications station as part of the Ballistic Missile Early Warning System under the White Alice Communication System. An additional 69.27 acres were obtained from the United States Bureau of Land Management in 1967 and 1968 for gravel removal.

The OCRRS included eight industrial buildings, 17 miscellaneous support facilities, including water and fuel tanks, fuel and water lines, four 60-foot tropospheric antennas, an access road, a bridge, and utility lines. The facilities were leased to the Recording Company of America, Alaska Communications, Inc. (RCA) between 1974 and 1976. The OCRRS was declared excess by the USAF in June 1976. The land was relinquished to the BLM in 1977, and conveyed to the Yak-Tat Kwaan, Inc. village corporation in 1983. Since then it has remained the property of Yak-Tat Kwaan, Inc. Under RCRA, the United States Environmental Protection Agency (EPA) has assigned the regulated handler code of AK6570028690 to the OCRRS site.

The tropospheric dishes, industrial buildings, and associate equipment at the OCRRS were removed during USACE cleanup activities in 1984. A large fuel tank, a heavy equipment maintenance shop (Garage Building), a water tower, a water pumphouse, and a fuel pumphouse remained at the site. The large fuel tank and fuel pumphouse and the water tower and water pumphouse were removed from the site prior to 2013. In 2011 the Garage Building was demolished and disposed, including asbestos-containing siding and PCB-containing siding and caulking. The concrete slab was left in place and floor drains were covered with pieces of plywood bolted to the slab.

1.5 Location and Physical Setting

The project site is located on the Phipps Peninsula at the end of Point Carrew Road at Ocean Cape, approximately 5 miles west of the city of Yakutat, Alaska (Figure 1). The site is surrounded by the Gulf of Alaska, Yakutat Bay, and inland tidal waterways. It varies in elevation from 50 feet above sea level in the area of the former Radio Relay Building to less than 20 feet above sea level near the septic tank located on the beach (Figure 2).

Weather conditions in Yakutat can vary tremendously with an annual temperature range from 22 to 60 degrees Fahrenheit (ºF) and a mean of 155 inches of precipitation per year (ACRC, 2013). Precipitation occurs an average of 243 days per year. The climate is classified as sub-polar oceanic characterized by mild summers and cool winters with cloud cover near constant. Average snowfall is 143 inches per year (ACRC, 2013).

Site-specific conditions at OCRRS include steep bluffs along the beach, broken terrain, and other natural hazards such as grizzly bears, insects, ocean wave surges, and extreme weather conditions such as high wind.

1.6 Brief Site Sampling History

In 1997, Ecology and Environment (E&E) performed a site inspection of the Yakutat Air Base and OCRRS sites for EPA Region 10 under a Superfund Technical Assessment and Response Team contract. At the OCRRS site, the following samples were collected (E&E, 1997).

- three surface soil samples were collected from the Fuel Storage Area,
- one sediment sample was collected from the north floor drain of the Garage Building,
- one sediment sample was collected from a manhole (designated MH1 in this report) which was located approximately 200 feet west of the Garage Building, and
- two surface soil samples were collected from two locations at the former radio relay antennae locations.

Sample results were compared with the EPA Region 3 Risk-Based Concentrations for the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) contaminants and to ADEC Level A matrix score cleanup levels for the petroleum hydrocarbon results (E&E, 1997).

Diesel-range organics (DRO) was reported to exceed the ADEC Level A matrix score cleanup level in each of the three surface soil samples. None of the detected CERCLA-regulated contaminants exceeded regulatory guidelines (E&E, 1997).

The sediment sample from the north floor drain at the Garage Building was reported to contain concentrations of Aroclor 1254 (one of many PCBs), Aroclor 1260 (PCB), and lead that exceeded the CERCLA regulatory guidelines and concentrations of DRO and residual-range organics (RRO) that exceeded the ADEC Level A matrix score cleanup levels. The sediment sample from MH1 contained concentrations of benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, Aroclor 1254, Aroclor 1260, cadmium, and lead that exceeded the CERCLA regulatory guidelines. The sample also contained concentrations of DRO and RRO that exceeded the ADEC Level A matrix score cleanup levels (E&E, 1997).

The two surface soil samples collected from the area of the former radio relay antennae (tropospheric dishes) contained low concentrations of DRO, RRO, PCBs, and lead, none of which exceeded the CERCLA or ADEC regulatory levels (E&E, 1997).

In 2007, the Yakutat Tlingit Tribe (YTT) sampled sludge from one of the garage drains and detected approximately 4 parts per million (ppm) of PCB contamination. YTT sampled the garage drains in 2008 and 2009 and detected PCBs, DRO, and RRO above applicable cleanup levels in the sludge and PCBs and metals in the liquid. Sludge in MH1 was sampled by YTT in 2008 and PCB contamination was indicated (YTT, 2008; YTT, 2009).

In 2010, YTT collected a sludge/sediment sample from the north manway to the septic tank and detected DRO, RRO, and PCBs above applicable cleanup levels. YTT sampled the siding and caulking of the Garage Building for PCBs in 2010 in preparation for demolition. The siding and caulking were reported to contain 1,480 milligrams per kilogram (mg/kg) and 161,000 mg/kg PCBs, respectively. Two grab soil samples were also collected from the garage perimeter to evaluate potential impacts from the PCBs in the siding. No PCBs were detected above action limits in the soil samples. In 2010, YTT also collected 15 soil samples, including a field duplicate, for PCBs at the former tower locations. PCBs were detected in most samples, but all were below the ADEC action level of 1 mg/kg for total PCBs. Several of the samples did exceed EPA soil screening levels. PCBs were detected in all samples collected at the north tower. Total PCB levels ranged from 0.041 to 0.460 mg/kg. In the south tower area, PCBs were detected in all but one sample. Detected results ranged from 0.046 to 0.320 mg/kg (YTT, 2011).

In 2011, YTT collected one composite soil sample for PCB analysis from each of the four sides of the Garage Building. Analytical results for the Garage Building perimeter samples indicated that PCBs are present in soils at concentrations that exceed ADEC cleanup levels on the west side of the garage with a PCB concentration of 4.4 mg/kg and on the east side of the garage with a PCB concentration of 7.3 mg/kg (YTT, 2012a).

In 2012, YTT systematically sampled the Garage Building concrete floor (slab) for PCBs and all results were below 1 mg/kg (YTT, 2012b).

1.7 Contaminants of Concern

Based on the historical samples discussed in Section 1.6, contaminants of concern at the site include DRO, RRO, PCBs, polynuclear aromatic hydrocarbons (PAH) and RCRA metals. Volatile organic compounds (VOCs) were identified as a potential contaminant of concern at the Garage Building only. Results of these contaminants were compared to the ADEC cleanup levels set out in 18 AAC 75 (ADEC, 2012).

2.0 NARRATIVE OF FIELD ACTIVITIES

The following sections describe the work that was completed at the site between May 4 and June 8, 2013. An overview of the site and excavation areas is shown on Figure 2. Associated project documents including field notes and photographs of site activities are included in Appendices A though G.

2.1 Site Preparation

Permits were provided by USACE for access and use of the land. Permits included the following, which are appended in Appendix C.

- Department of Natural Resources, Division of Mining, Land, and Water to enter submerged land below mean high water along the beach in the project area.
- Department of the Army Right-of-Entry for environmental assessment and response.

2.1.1 Grubbing and Clearing

The area where the sewer system was installed below grade had been overgrown with alders and spruce trees that prevented equipment and vehicle access. In the area between MH1 and the septic tank, a beach erosion protection wall had been erected with large boulders and cobbles that obscured the ground surface. Prior to digging in each area, the surface was cleared of vegetation and boulders by loppers, chainsaws, an excavator with a thumb attachment, and a front-end loader. All salvageable timber deemed suitable for firewood was stacked in a staging area, cut into manageable lengths and transported to Yak-Tat Kwaan's designated storage location in Yakutat. All smaller trees, brush, and branches were stacked in a staging area and transported off site to the Yak-Tat Kwaan sorting facility.

The area that was grubbed and cleared along the sewer pipeline was approximately 30 feet wide to allow for opening a trench to remove the piping and manholes and to stockpile the removed soil adjacent to the trench. In the area from MH1 to the septic tank, the beach erosion wall prevented stockpiling soil adjacent to the trench and therefore the cleared area was only approximately 20 feet wide along this section.

No clearing was required in the Garage Building area or waste staging area.

2.1.2 Waste Staging Area

A waste staging area was set up in the area of the former fuel tank, south of the site entrance road (Figure 2). Sharp rocks, sticks, and other objects that were protruding and could puncture liner material were removed and piled to the east of the area. Three lined cells were constructed using a single sheet of 20-mil plastic liner material, timber/log berms, and sand for ballast. The waste staging cells were named C1, C2, and C3 and were approximately 18 feet by 25 feet, 13 feet by 15 feet, and 13 feet by 15 feet, respectively. As they were filled, the contents of each cell were covered with a 12-mil plastic liner with sand bags used for ballast. The 275-gallon Intermodal Bulk Containers (IBC) tanks (filled with 250 gallons of fluid each) and twelve 55-gallon, steel, open-top drums that contained sludge removed from the septic tank were placed on 6-mil reinforced polyethylene liner. A containment cell was not constructed for these containers based on the containers' structural integrity to resist leaking. The location of the waste staging area cells are shown on Figure 2.

2.2 Sewer Pipeline Removal

Concern existed regarding the possibility of PCB contamination in surface and near-surface soils, specifically in areas that had been re-worked by heavy equipment following previous demolition and site work. The re-worked areas include the area south and east of the former Radio Relay Building where extensive grading occurred and the area east of MH1 near the former Composite Building.

At the areas of concern noted above, near-surface soil from 0 to 4 feet below ground surface (bgs) was excavated and stockpiled on polyethylene sheeting laid on the ground alongside the trench and subject to sampling for PCBs. Soils excavated from 4 to approximately 8 feet bgs (typical depth of sewer pipe) were stockpiled separately and not on a liner. In some cases, the sewer pipe was located at depths of only 1.5 to 2 feet bgs (near the former Radio Relay Building and beneath the former Composite Building) and transitioned to greater depths along the route. In these situations, all of the soil above the pipe was excavated, stockpiled on a polyethylene liner, and subject to PCB sampling until the depth of pipe exceeded 5 feet bgs. When the depth of pipe exceeded 5 feet bgs, segregation and sampling of the soil from 0 to 4 bgs was performed. Soil samples were collected from the near-surface stockpiled soil for analysis for PCBs from the following locations and further discussed in Section 3.2.2.4:

- The soils (0 to 4 feet bgs) from the sewer pipe trench between MH1 and the former Composite Building, an estimated distance of 75 feet to the end of the pipe;
- The soils (0 to 4 feet bgs) from the sewer pipe trench between the former Radio Relay Building and a location south of the former southernmost tropospheric disks, a distance of approximately 120 feet.

The concrete sewer pipeline was removed beginning at MH2 and working upgradient toward the beginning of the piping run at the former Radio Relay Building. The concrete pipe was found to be in 3-foot sections, with a bell on the upgradient end to connect to the previous section. The concrete pipe was generally intact and each 3-foot section was removed using a John Deere 160C excavator with a thumb attachment and placed into a 1-cubic yard (cy) SuperSack for transport and disposal. The piping was broken into pieces in the SuperSack to reduce volume using a hand maul. Approximately 60 feet of piping filled each 1-cy SuperSack.

An additional manhole, MH3, was found approximately 150 feet upgradient of MH2, buried under surface soil. The riser had been damaged and covered, likely during the building demolition and re-working activities in 1984, and MH3 was filled with soil. The pipeline was approximately 6 feet bgs at MH2, reached a maximum depth of 13 feet bgs approximately 75 feet upgradient, and was approximately 9 feet bgs at MH3.

On the upgradient side of MH3 the pipeline angled approximately 45 degrees to the east in line with the center of the former Radio Relay Building, and adjacent to a former covered walkway. The piping run from MH3 to the furthest upgradient point at the former Radio Relay Building was approximately 150 feet. The pipeline was approximately 9 feet bgs at MH3 and 5 feet bgs at the terminus. At 135 feet upgradient, a cast iron reducer was found in the concrete pipeline, and various cast iron pipe sections, fittings, and stand pipe were removed that connected the concrete pipeline to the building. This area is shown on Figure 3.

Following removal of the pipeline upgradient of MH2, the piping run from MH2 downgradient to MH1 was removed. This section measured 165 feet and the pipeline was approximately 6 feet bgs at MH2 and 4.5 feet bgs at MH1.

The piping run connecting the former Composite Building to MH1 was approximately 75 feet. The piping was concrete in 3-foot sections until it switched to cast-iron in approximately 5-foot sections at 60 feet east of MH1. Additional cast iron sewer pipe was removed from inside the footprint of the former Composite Building to the north and south of the pipe section removed to MH1. The north section and south sections each measured approximately 100 feet for a total of approximately 275 feet of concrete and cast iron sewer pipe removed from the former Composite Building spur, and an additional 25 feet of cast iron piping of connections, stand pipes, cleanouts, etc. This area is shown on Figure 4.

The concrete piping run connecting MH1 to the septic tank was approximately 240 feet. The pipeline was approximately 5 feet bgs from MH1 to the entrance to the septic tank. This area is shown on Figures 4 and 5.

Two adjacent and parallel cast iron piping runs exited on the south side of the septic tank at approximately 5 feet bgs and angled toward a lift station found approximately 20 feet downgradient and southwest of the septic tank. Each cast iron pipe removed from the septic tank to the lift station was approximately 20 feet in length.

A 3-foot section of outfall pipe that included a cast iron T-fitting was removed downgradient of the lift station. A 5-foot section of unattached broken pipe was also removed from the lift station area and a 5-foot section of cast iron pipe was discovered on the beach in the septic tank area (see the Daily Report dated 27 May 2013 for further detail regarding the pipe removal). Exploration of the area surrounding the lift station outfall pipe confirmed that this was the terminus of the outfall. This area is shown on Figure 5.

The total length of sewer piping removed was approximately 1,100 feet. With the exception of the broken pipe noted above in the area of the outfall, all pipe was observed to be connected, as designed and installed, and intact. No sewer pipe was found to extend between the former Garage Building and the sewer system described above.

2.3 Manhole Removal

Three manholes were removed at the OCRRS: MH1, MH2, and MH3. Each manhole base was found to be the same dimensions and appeared to be pre-cast in one section. Each was approximately 4 feet tall and 4 feet in diameter with metal rungs set in the side of the concrete for access. At MH2 and MH1, concrete riser rings were poured in 1-foot tall sections to raise the pre-cast manhole to the desired above-ground height.

MH3 was able to be exposed to its bottom and removed in one piece with an excavator fitted with a thumb attachment. It was transported to the waste staging area on a pallet with a front-end loader and was placed in a lined containment basin where it was covered for protection from the elements. No riser rings or cover were found on MH3 and the pre-cast section was filled with soil. Broken riser rings were unearthed during the excavation of MH3 and it is suspected that the cover and riser rings were shorn off and the pre-cast section filled with soil during the re-grading that occurred following the demolition of the former Radio Relay Building.

MH2 was exposed to approximately half its depth and three riser rings and the cover were removed. The bottom half of the manhole was removed in one piece with an excavator. It was placed in a lined containment basin in the waste staging area and covered for protection from the elements. MH2 contained no sludge, sediment, soil, or water in sufficient quantity to permit removal.

MH1 was determined prior to field mobilization to contain soil/sludge with PCB concentrations over the TSCA action level of 50 mg/kg. The two concrete riser rings and cover were removed and the manhole was entered by personnel. Confined space entry protocols were followed, including entry briefing and orientation, continuous air monitoring before and during occupation, and continuous entrant observation while in the non-permit confined space. The field forms for confined space entry are included in Appendix C. The contents of MH1 were removed with a shovel and placed in a steel 55-gallon open-top drum. MH1 was rinsed with water and wiped clean with cloth. Following sludge removal and cleaning, the pre-cast portion of MH1 was removed in one piece, transported on a pallet with a front-end loader to the waste staging area and placed in a lined containment area where it was covered for protection from the elements.

With the exception of the above-grade portion of MH3 missing and filled with soil (presumably the result of previous facility decommissioning) each of the manholes were observed to be intact and competent. All pipe connections to manholes were intact and no cracks or holes in the manholes were noted.

2.4 Septic Tank Removal

The septic tank was found to be a rectangular poured concrete structure buried approximately 4 feet bgs. It was approximately 23 feet long north to south, 6 feet wide, and 7 feet tall in internal dimensions. Two manways of poured concrete were present – one on the north end and one on the south end. The manways were approximately 2.5-feet by 2.5-feet by 6 feet in height and protruded above the ground surface on the public-access beach. The septic tank was found filled with water and sludge. The manways were a public concern for children playing in the beach area.

The septic tank was exposed to its top surface and the manways were cut with a concrete saw flush with the top of the tank to allow worker access into the septic tank. Confined space entry protocols were followed, including entry briefing and orientation, continuous air monitoring before and during occupation, and continuous entrant observation while in the non-permit confined space. The field forms for confined space entry are included in Appendix C.

The tank was divided into 6 compartments by baffles or walls. The north half of the tank was composed of one large compartment with a baffle located 3 feet south of the inlet point to the tank. The southern half of the tank was divided into a middle compartment and a southern compartment. The middle and southern compartments each contained one baffle. Fluid and sludge were removed from the north and middle compartments. Fluid and debris were removed from the southern compartment.

All fluid was pumped from the septic tank with a sump pump into two pre-filters set up in series and then into two 55-gallon granular-activated charcoal (GAC) filters set up in series. The flow rate was approximately 10 gallons per minute. A total of approximately 2,000 gallons were pumped out of the tank before the water became sediment-filled and turned to sludge. The treated water was stored in a holding tank while awaiting sampling results.

The sludge was removed with a 3-inch diaphragm pump and hosing and manually with 5 gallon buckets. The sludge was pumped or bailed into nine 275-gallon IBC tanks (filled with 250 gallons each) and twelve 55-gallon, steel, open-top drums for a total of approximately 2,850 gallons. Following removal of all fluid and sludge, the septic tank was cleaned with a pressure washer, brushes, and a Shop Vac® vacuum. The water used to clean the tank was pumped into 55-gallon drums that also contained septic sludge. The top of the tank on the north half was removed in order to access the middle portion of the septic tank to remove sludge with the diaphragm pump.

Following cleaning, PCB concrete samples were collected from the walls and floor of the septic tank. The septic tank was observed to be competent and no holes or cracks were observed in the base or sidewalls. Results were determined to be below the ADEC cleanup level. Following approval from ADEC to bury the tank, holes were made in the base of the tank and the septic tank was buried in place. The two concrete manways and riser sections of concrete from MH1 and MH2 were placed in the septic tank as backfill material. The manways and concrete riser sections were broken apart with the excavator bucket once placed inside the septic tank. Fill from the nearby upland area was used to fill and cover the septic tank.

2.5 Lift Station Removal

The lift station found during excavation of the downgradient piping from the septic tank was made of poured concrete approximately 5-feet by 4-feet by 3-feet tall and approximately 10-inches thick. It was found approximately 4 feet bgs and was filled with soil.

Soil contained in the lift station was placed in a 1 cy SuperSack for disposal. The lift station concrete structure was removed in one piece, transported on a pallet by the Volvo front-end loader and placed in the waste staging area prior to disposal. The concrete of the lift station was intact and competent. No holes or cracks were noted.

2.6 Garage Drains and Drain Pipe Removal

Concern existed regarding the possibility of PCB contamination in surface and near-surface soils surrounding the former Garage Building. PCBs at this location are suspected to have originated from PCB-amended paint that was present on the exterior of the building. Near-surface soil from

0 to 4 feet bgs was excavated and stockpiled on polyethylene sheeting laid on the ground alongside the trench and subject to sampling for PCBs. The pipeline was located approximately 4 feet bgs and all soils were stockpiled subject to PCB sampling. Soil samples were collected from the stockpiled soil for analysis of PCBs from the following locations and further discussed in Section 3.2.2.4:

- The soils (0 to 4 feet bgs) from the floor drain pipe exiting the south wall of the Garage Building to the floor drain crib.

Three drains were found along the centerline of the Garage Building floor slab: north (1), middle (2), and south (3). An additional cleanout was found adjacent to the north drain, and a sink drain was located near the southern foundation wall, west of the south drain. The drains are shown on Figure 6. Each drain had been covered with plywood bolted to the concrete slab. Upon removal of the plywood, the drains were found to have approximately 8-inch grated covers over 4-inch diameter cast iron piping.

A concrete saw was used to cut the concrete around each drain, and cuts were made to allow a 35-foot by 8-foot section of the slab surrounding the drains to be lifted with the excavator. A jackhammer was used to break up a section of the concrete slab to allow the excavator bucket access to lift the slab. The section of concrete slab was removed from the areas around the drains, allowing access for removal and sampling but leaving the drains intact.

Upon removal of the slab, it was found that the floor drains and cleanout were connected via cast iron piping that traced south, through the Garage Building foundation. The sink drain piping also exited south through the foundation. The two piping runs merged into one run approximately 5 feet south of the building foundation and continued southeast for approximately 20 feet where the piping run ended in a leach crib. The piping was approximately 2 feet bgs at the foundation and 3 feet bgs at the terminus at the leach crib.

Soil samples collected from directly below the south floor drain piping (4.3 feet and 4.8 feet below the garage building concrete floor surface) had lead results of 4,600 mg/kg and 81 mg/kg, respectively. The ADEC cleanup level for lead is 400 mg/kg. The excavator was used to remove approximately one cubic yard of soil to l.5 feet (5.8 feet below the concrete floor surface) below the soil sample location below the south floor drain. The excavated area measured approximately 4 feet by 4 feet. The confirmation soil sample collected from the base of the 1.5 feet of removed soil had a result of 3.3 mg/kg. The lead-contaminated soil removed from south floor drain was deemed a RCRA hazardous waste and managed accordingly. Soil samples were similarly collected from beneath the middle and northern floor drain. No soil contamination was identified.

In general, all drain pipe connections were observed to be intact with no noticeable cracks, holes, or leaks.

2.7 Garage Crib Removal

The Garage Crib was excavated to remove impacted soils based on visual staining, location of a plastic liner, location of large cobbles, and olfactory evidence. The crib was encountered at a depth of approximately 3 feet bgs and was constructed of large cobbles covered with a plastic liner, presumably to keep soil from infiltrating the open areas within the cobble pile. The Garage Building floor drain pipe entered the crib near the top of the cobbles. A total of 4.7 cy were removed and stockpiled including many large cobbles that were subsequently returned to the excavation. The final excavation was 6-feet square at its base and approximately 4 feet bgs. The sidewalls sloped gradually from the base. At the surface grade the east and west sidewalls were 7 feet long, the north sidewall was 9 feet long, and the south sidewall was 10 feet long. Confirmation samples collected from the base and sidewalls of the crib area excavation were below the applicable ADEC cleanup levels.

A soil sample collected from the temporary stockpiled soil removed from the crib area had a DRO result of 710 mg/kg, above the ADEC cleanup level which is 230 mg/kg. The contaminated soil was segregated from the cobbles and gravels larger than 2 inches on the temporary stockpile liner as the soil was placed into two 1-cy supersacks for off-site disposal. The segregated cobbles and gravels were returned to the excavation.

2.8 Surveying

Project surveying was performed May 7 through June 6, 2013 using Real Time Kinematic (RTK) global positioning system (GPS) survey methods. Two Trimble R8 dual-frequency global navigation satellite system (GNSS) receivers with integrated antennae and a Trimble TSC2 field controller with Trimble Access software was used to collected the RTK data. A detailed report of survey methods is included in Appendix E.

A total of 365 points were collected to prepare a topographic map with elevation contours of the project site. Data points were collected along the beach and beach slopes bordering the north, west, and southern edges of the project area as well as interior project locations extending from the former Radio Relay Building to the northwest to the primary site access road (site entrance) to the southeast.

A variety of points were collected to allow for geo-referencing aerial photography. A total of 346 points were collected along the roadways, 100 points were collected along loosely vegetated paths that appeared to be former trails, the four corners of the Garage Building, 8 points around the former water tank ring wall, and 8 points around the former fuel tank ring wall.

A total of 303 points were collected along the edges of the excavated areas, typically 10 to 20 feet apart, to allow for interpolation between points to create the excavation boundaries.

All field screening locations were surveyed. In areas where the trench was unsafe for occupation, the GPS location was collected at the edge of the excavation adjacent to the location where the screening sample was collected. For this reason, the field screening locations are off-set by a few feet from the actual sample location.

All analytical sample locations were surveyed. In areas where the sample was collected from the excavator bucket, an attempt was made to locate the in-trench location from where the bucket collected soil. In areas where the trench was excavated to a depth greater than four feet bgs and was unsafe for occupation by personnel, the bottom of the excavation was surveyed using alternative methods. Alternative methods employed consisted of remotely placing the GPS unit equipped with a rod extension directly in the trench. A total of 62 points were collected solely for this purpose.

Additional features were surveyed, some multiple times to ensure accuracy. Each manhole and each Garage Building drain was surveyed in the center of the cover. The four corners of each manway entrance to the septic tank and the edges and corners of the septic tank were all collected. A total of 19 points were collected along the pipeline at the former Garage Building. A total of 44 points were collected around the boundaries of the waste staging area and the individual lined waste staging cells.

All survey locations are tabulated and reported in Appendix E. Figures 2 through 6 were prepared using surveyed locations. Note that in situations where personnel could not safely enter the trench to conduct surveying and for presentation purposes, all GPS locations collected along the excavation trench edge are shown within the trench at the location that represents the actual screening location. The translation of GPS points along the edge of the trench to the trench bottom was performed using measured horizontal offsets.

3.0 FIELD AND LABORATORY SAMPLING

A Uniform Federal Policy for Quality Assurance Project Plans (UFP-QAPP) Work Plan was submitted and approved prior to commencing field work. This plan contained the requirements and procedures for the collection of field screening and analytical sampling related to the sewer system removal. The approved plan was supplemented with Work Plan Addendum #1, dated May 2013. The addendum described specific procedures for sampling the concrete sewer pipe and other concrete for PCBs and the methods and procedures for the removal, on-site treatment, containment, sampling, and discharge of liquids from the septic tank.

3.1 Field Screening

Field screening was performed by ADEC-qualified AES personnel using a MiniRae 3000 photo-ionization detector (PID). The instrument was calibrated daily using compressed isobutylene calibration gas at a concentration of 100 ppm. The sampler also visually surveyed the excavation to identify any staining, odor, or breaks in the sewer piping.

The screening sample was collected by hand with a new disposable nitrile sampling glove and placed into a quart-sized, re-sealable, plastic bag for field screening. Following field screening with the PID, the screened soil bags were placed on ice in a cooler until a target analytical sample location was chosen and the appropriate laboratory sample containers could be filled from the field screening bag (no volatile analyses included in task analytical suite). Photographs are included in Appendix F. All field screening locations are shown on Figures 3 through 6. The screening sample was identified with the following identification system.

- Prefix: All sample names began with "FS" to denote field screening
- Identifier of the location along the pipe in footage upgradient of the nearest manhole or tank (i.e. MH2+75 would be 75 feet upgradient of MH2)
- Suffix: All sample names ended with a three-digit, site-wide chronological number

Three types of field screening samples were collected in the course of this removal action: below the pipeline removed, within stockpiled soil, and along the sidewalls and floor of the Garage Crib excavation. The following sections describe each screening type. A summary of screening samples is tabulated in Table 1.

3.1.1 Screening Below Pipelines

One screening sample was collected for every 20 linear feet of sewer pipeline removed. The sample was collected directly from the excavator bucket. In instances where soil from beneath the sewer pipe was collected along with the 3-foot section of pipe, soil was collected as it was removed. In instances where the pipe was retrieved with the excavator bucket tooth and no soil was removed, the soil immediately below the pipe would be retrieved subsequently with a surface scrape with the excavator bucket.

The location from which the screening sample was collected was surveyed with a survey-grade RTK GPS unit from the edge of the excavation trench as the trench was not deemed safe for entry.

3.1.2 Screening Stockpiled Soil

Three potentially clean soil stockpiles that required field screening were generated during the removal action: soil from within MH3, soil from the lift station, and soil from within the Garage crib. Other stockpiles were segregated during the field activities but were not subject to field screening. The description and sampling of these unscreened soil stockpiles are described in Section 3.2.2.4. The stockpile from MH3 was approximately 4 cy, the stockpile from the lift station was approximately 6 cy, and the stockpile from the Garage crib was approximately 5 cy. Each one of these stockpiles was screened according to the ADEC Draft Field Sampling Guidance (ADEC, 2010), with five screening samples collected in a uniform distribution about the stockpile. One screening sample was collected from each of the four corners and one from the center of the stockpile from depths of approximately 18 inches.

3.1.3 Screening Garage Crib Excavation

Screening was conducted at the Garage leach crib excavation in accordance with the ADEC Draft Field Sampling Guidance (ADEC, 2010). Five screening samples were collected from the base at a depth of approximately 6 to 12-inches into the base soil. One screening sample was collected from each sidewall at a depth of 18 inches into the sidewall soil.

3.2 Laboratory Sample Collection

Two types of analytical samples were collected in the course of this removal action: confirmation samples to identify whether any contamination was present beneath or surrounding removed structures and waste characterization samples to identify waste streams and ensure proper disposal and documentation. The following sections describe analytical sampling.

3.2.1 Sample Identification

Samples were identified with the following naming convention, which was modified in the field on May 13, 2013 from the convention specified in the UFP-QAPP.

- Prefix: All sample names began with “OC13-” to denote the Ocean Cape Radio Relay Station in the year 2013.
- Type:
    - Waste samples were labeled “WS”
    - Confirmation samples were labeled “CS”
- Area of interest:
    - Manholes were labeled “MH” with the corresponding number (-1, -2, or -3)
    - Septic Tank was labeled “Septic” or “Septic1”
    - Floor drains were labeled “FD” with the corresponding number (-1,-2, or -3)
    - Sewer pipe was labeled “SP” with an identifier of the location along the pipe in footage upgradient of the nearest manhole or tank (i.e. MH2+75)
    - Sewer pipe between the septic tank and the outfall was labeled “SP” with the identifier “OF” and the footage downgradient of the septic tank (i.e. OF+20)

  - Surface soils were labeled with the nearest building identifier "RB" for Radio Relay Building, "GB" for Garage Building, and "CB" for Composite Building with an identifier of the cubic yardage of soil excavated (i.e. 0-50)
- Matrix:
  - Soil was labeled "(SS)"
  - Sludge was labeled "(SG)"
  - Liquid was labeled "(W)"
  - Concrete was labeled "(C)"
- Suffix: All sample names ended with a three-digit, site-wide chronological number.

Duplicate samples were given a unique identifier, usually a similar sample designation as the primary sample with a different chronological number. Matrix spike (MS) and matrix spike duplicate (MSD) samples were given the same identification as the primary sample and were noted on the chain-of-custody.

Some samples were collected in September 2012 and April 2013 prior to mobilization to the field for the removal effort. Those samples did not conform exactly to this naming convention.

3.2.2 Soil Confirmation Sampling

Confirmation sampling was conducted of soils below and surrounding structures that were removed. The following sections detail the various samples collected. A summary of the confirmation samples is tabulated in Table 2a.

3.2.2.1 Soil Below Pipelines

An analytical soil sample was collected at the location with the highest field screening over 100 linear feet of pipeline. This included the approximately 750 feet of concrete and cast iron sewer pipeline connecting the former Radio Relay Building to the outfall, the 75 feet of concrete and cast iron pipeline connecting MH1 with the former Composite Building, the 100 feet of cast iron pipeline connecting the center of the former Composite Building to the north end, the 100 feet of cast iron pipeline connecting the former Composite Building to the south end, and the 25 feet of cast iron pipeline connecting the Garage floor drains to the crib.

Each of the analytical samples collected from below the pipelines were analyzed for DRO, RRO, PAH, PCB, and RCRA metals. In addition, the sample collected from below the pipeline running from the Garage floor drains to the crib was also analyzed for VOCs.

A total of 13 samples and two duplicates were collected from below pipelines. In general, the samples were collected from the sealed plastic bag used for field screening where the field screening samples had been collected from the excavator bucket. However, in instances where the trench was able to be entered safely, the sample was collected by hand from its location under the pipeline. For all samples submitted for VOC analysis, the samples were collected directly from the ground and immediately preserved with methanol. VOC samples were limited to the Garage Building area; shallow excavations that did not require sample collection from the excavator bucket. VOC samples were collected directly from the target sample locations in the excavation.

3.2.2.2 Soil Below Manholes, Outfall, and Lift Station

Following removal of each manhole from the ground, the outfall of the sewer pipeline, and the lift station, a soil sample was collected from directly beneath the feature. In addition, a sample was collected from "downgradient," taken to be vertically through the soil horizon as if by gravity in the absence of the water table, at approximately 2 feet below the initial sample. The samples were collected from the excavator bucket for the manhole samples as the excavation was not safe for entry. At the outfall and lift station, the sample was collected directly from the ground.

A total of 10 samples and 2 duplicates and were collected from below these features and analyzed for DRO, RRO, PAH, PCB, and RCRA metals.

3.2.2.3 Soil Below Floor Drains and Crib

Three floor drains were located in the concrete floor of the Garage Building concrete slab. Upon exposure of the ground surface below the floor slab, and prior to removal of the drains, a sample was collected directly below each of the three floor drains. Additionally, a 2-inch bucket hand auger was used to bore approximately 2 feet below the bottom of each floor drain to test the soils vertically downgradient of the drains.

Soils surrounding the southern floor drain were excavated based on elevated sample readings. Following excavation, a sample was collected at the excavation floor for confirmation of impacted soil removal.

A total of 9 samples and 1 duplicate were collected from below the floor drains for analysis of DRO, RRO, PAH, PCB, RCRA Metals, and VOCs.

Soil was excavated from the Garage crib area and placed into a lined stockpile pending sampling. At the completion of the excavation, soil samples were collected from the base and sidewalls of the excavation for field screening. One sample was collected from the excavation floor at the location of the highest screening reading. Two samples were collected from the excavation sidewalls at the two locations of the highest screening readings. A total of 3 samples were collected for analysis of DRO, RRO, PAH, PCB, RCRA metals, and VOCs.

3.2.2.4 Surface Soil

In similar other Radio Relay Station sites around Alaska, results have shown PCB contamination in surface soils. During the demolition and re-grading at the OCRRS site in 1984, no PCB samples were collected of the surface soil. To ensure that no impacts were present, ADEC requested samples to be collected from the surface soils (0 to 4 feet bgs) in areas that were re-graded during the demolition: the area between MH3 and the former Radio Relay Building and the area between MH1 and the former Composite Building.

Additionally, the former Garage Building was thought to have contained PCB-amended paint on its exterior, and the area within a 10-foot radius of the Garage Building was of concern for PCBs in surface soil.

In these three areas, the soil that was excavated in order to access the buried pipeline was placed on a liner and a stockpile created. The guidelines for stockpile sampling established in the ADEC Draft Field Sampling Guidance were followed. In the area between MH3 and the former Radio Relay Building, and the area between MH1 and the former Composite Building, two samples were collected from the first 50 cy of soil generated, and two additional samples were collected, one from each additional 50 cy removed. A total of 120 cy was stockpiled in the MH3 to former Radio Relay Building area (total of four primary samples). A total of 110 cy was stockpiled in the MH1 to former Composite Building area (total of four primary samples).

In the area between the Garage and the crib, a total of 7 cy was removed in the 10-ft buffer zone surrounding the building and only one sample was collected.

A total of nine samples and two duplicates were collected from the surface soils and analyzed for PCBs.

3.2.2.5 Soil Stockpiles

One sample was collected each from the MH3 soil stockpile, lift station stockpile, and the Garage crib stockpile from the location with the highest field screening reading. A total of three samples were collected from stockpiles. The samples were analyzed for DRO, RRO, PAH, PCB, and RCRA metals.

3.2.3 Waste Characterization Sampling

Waste characterization sampling was conducted of various materials that would be disposed as waste from the removal action. The following sections detail the various waste streams and samples collected. A summary of the waste characterization samples is tabulated in Table 2b.

3.2.3.1 Concrete Structures

The Uniform Federal Policy (UFP) Quality Assurance Project Plan (QAPP) work plan indicated that the concrete waste to be generated from concrete piping and concrete structures would be characterized using the sludge from within the piping or structure. During a site visit in September 2012, sludge was sampled from the three sewer pipes connected to MH1 and within MH1 and MH2. The sewer pipes included sludge upgradient toward the former Radio Relay Building, downgradient toward the septic tank, and east toward the former Composite Building. A total of 5 samples and 1 duplicate were collected for analysis of DRO, RRO, PCBs, and Toxicity Characteristic Leachate Procedure (TCLP) RCRA metals.

Observations in September 2012 indicated the sewer pipes and MH2 were relatively clean and did not contain sludge or sediment. It was therefore determined that insufficient sludge was present to characterize the concrete. A work plan addendum was submitted and approved to characterize the concrete by collecting concrete samples. The EPA Standard Operating Procedure (SOP) for sampling concrete was employed to characterize concrete that had been in contact with potentially-impacted fluids. The concrete included the sewer pipeline, the three manholes, and the septic tank. Five sections of the concrete sewer pipe were sampled, each from the effluent pipe of the following nearest structures.

- Former Radio Relay Building,
- MH3,
- MH2,
- MH1,
- Former Composite Building, and
- Septic tank.

Each 3-foot section of concrete pipeline needed for sampling was set aside and taken to a sampling area where it was broken into pieces to allow access to the internal area exposed to fluids. A Milwaukee Hammer Drill with a 1-inch carbide steel drill bit decontaminated with hexane was used to drill approximately eight holes around the perimeter of the pipe. Holes extended to a maximum depth of 2 centimeters. The drilling generated concrete powder, which was collected and placed in a laboratory-supplied jar for PCB analysis. Care was taken to ensure that the holes were located in the areas of fluid exposure as shown by visible staining of the concrete.

A total of five samples were collected from the concrete sewer pipeline and analyzed for PCBs.

The manhole concrete was characterized in a similar manner. Following removal from the ground, cleaning (if appropriate), and placement in a lined containment cell, each manhole was sampled along its floor in the concave areas where fluid was conveyed. The hammer drill was used to drill approximately 20 holes, the concrete powder was collected and homogenized, and a sample was placed in a laboratory-supplied jar for analysis.

One sample was collected from each manhole base and analyzed for PCBs. One field duplicate sample was collected from MH1and analyzed for PCBs.

The septic tank concrete was sampled in six places along its walls and three places along the floor in a pattern that was determined based on its structure and baffling. The sampling locations are shown in Figure 5. Personnel entered the septic tank while it remained in place. The hammer drill was used to drill a number of holes on the wall where the visible fluid stain line began to within 1 foot above the floor at each wall sample location. The floor was sampled in the north portion of the tank and in the two southernmost compartments where the outfall pipes exited the septic tank. The concrete powder was collected and homogenized, and each sample was placed in a laboratory-supplied jar for PCB analysis.

A total of nine samples and one duplicate were collected from the septic tank concrete walls and floor and analyzed for PCBs.

3.2.3.2 Cast Iron Piping Sludge

Cast iron sewer piping was encountered at the former Radio Relay Building, the former Composite Building north and south areas, and the lift station. If present, the sludge contained within the most-upgradient section of each pipeline was sampled. This included the former Radio Relay Building standpipe, the former Composite Building north standpipe, the former Composite Building south standpipe, and the connecting pipe known as Composite Building northeast. A total of 4 sludge samples were collected and analyzed for DRO, RRO, PCB, and TCLP RCRA metals.

The sludge from the Garage Building floor drains was considered the most upgradient for that pipeline and was sampled following removal with a ShopVac into a steel 55-gallon open-top drum. Previous results had indicated that the sludge was impacted with PCBs. This sample was also used to characterize the sludge itself for disposal. One sludge sample and one duplicate were collected and analyzed for DRO, RRO, PCB, TCLP RCRA metals, and TCLP VOCs.

3.2.3.3 Manhole and Lift Station Sludge

MH1 contained approximately one foot of sludge in the bottom of the structure. One primary sample and a field duplicate were collected in September 2012 prior to mobilization to the field for the removal action and analyzed for DRO, RRO, PCB, and TCLP RCRA metals.

MH2 contained a minimal amount of sludge in the bottom of the structure. This material was sampled in September 2012 prior to mobilization to the field for the removal action, but results were considered insufficient. MH3 did not contain sludge.

The lift station contained sludge in addition to the stockpiled soil removed from above the lift station. The soil removed from the lift station was excavated and placed in one SuperSack for disposal. One sample was collected from the soil in the SuperSack and analyzed for DRO, RRO, PCBs, and TCLP RCRA metals (sludge).

3.2.3.4 Septic Tank Contents

Liquid and sludge in the septic tank were sampled from within the tank during a site visit in April 2013 prior to mobilization to the field for the removal action. One sludge sample and one fluid sample with a duplicate were collected and analyzed for DRO, RRO, PCB, and TCLP RCRA metals (sludge) or RCRA Metals (fluid). Results showed DRO, RRO, and PCB above cleanup levels in both water and sludge.

During the removal action, the fluid was pumped out of the septic tank and treated by filtering. One water sample and a duplicate were collected of the filtered water to confirm that the treatment was successful. The sample was analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), PAHs, and PCBs to confirm whether it would meet surface water criteria for safe discharge to the ground surface.

A sludge and water sample collected in April 2013 and one sludge sample collected from the east effluent pipe of the septic tank were used to characterize the sludge pumped out of the septic tank and stored in IBC tanks and 55-gallon drums. The sludge samples were analyzed for DRO, RRO, PCB, and TCLP RCRA metals. The water sample was analyzed for DRO, RRO, PCB, and RCRA metals.

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4.0 DEVIATIONS FROM PLANS

Approved deviations from the initial work plan were provided in Addendum 1. Addendum 1 described methods and procedures for removing and containing liquids and solids from the septic tank; the process for treating and discharging water processed through the water treatment system; PCB soil sampling from 0 to 4 feet bgs in the former Radio Relay Building area, former Composite Building area, and the former Garage Building area; and sampling concrete pipe and structures for PCBs using the approved EPA SOP for PCB sampling in concrete.

The water sample that was collected following the treatment of water removed from the septic tank was not collected as described in Addendum 1. The treated water was stored in a single 2,100 gallon tank instead of multiple 55-gallon drums. Addendum 1 described the water sample would be collected from the last 50 gallons of treated water. A scientist was not available to collect the sample from the last 50 gallons of treated water when the pump was turned off and the treatment process was complete. The water sample was subsequently collected directly from the storage tank by the AES contractor quality control system manager (CQCSM), an ADEC-qualified sampler. The water sample was collected by dipping a clean glass container into the water in the storage tank and transferring the water into the appropriate laboratory containers. Because a single shallow storage tank contained the treated water, the water was well mixed through the process of filling, and target analytes included petroleum hydrocarbons and PCBs, collection of the water sample using this method was deemed representative of the contents of the storage tank.

Sample naming was changed in the field due to changing conditions. The sample naming that is presented in Section 3.1 is the latest approved naming convention.

An additional manhole was encountered between MH2 and the former Radio Relay Building and was designated MH3.

No sewage pipeline was found between the septic tank and the former Garage Building. The Garage Building drains exited to the southeast and ended in a leach crib.

The sewage pipeline was discovered running north and south, with three additional small (less than 10-foot) spurs to the east, in the area under the former Composite Building. Sludge removed from inside the cast iron piping at the inlet side of the piping run was used to characterize the pipe for disposal.

The waste storage area was set up in the area of the former fuel tank instead of the former Composite Building area due to heavy vegetative growth in the former Composite Building area.

The Contractor Staging Area was relocated to the northwest corner of the project site in an area that was not slated for any removal action. This area is shown on Figure 2.

Samples were analyzed for RCRA metals using EPA Method 6020 instead of 6010. No laboratory documentation was available to explain the change; however, the methods produce comparable results and should not impact the usability of the data.

The septic tank was left in place instead of being removed. The concrete manways were cut down to the top of the tank and the tank cover was removed. The concrete manways were placed in the septic tank during backfilling of the tank area and broken into pieces with the excavator bucket. The riser rings for MH1 and MH2 were placed into the septic tank with backfill material and broken into pieces by the excavator bucket.

A lift station was discovered during excavation of the septic outfall pipe from the tank to the beach area. The lift station was disposed of as non-hazardous waste in the same manner as the manhole bases. The sludge removed from the lift station was used to characterize the lift station concrete for disposal rather than a concrete sample collected from the lift station concrete.

5.0 RESULTS

The following sections present the analytical sampling results for both soil confirmation samples and waste characterization samples. Sample results are shown on Figures 3 through 6.

5.1 Soil Confirmation Sampling

A few samples were noted to have concentrations of arsenic and chromium greater than the applicable ADEC cleanup levels and were compared to the results of an arsenic and chromium background study performed by the USACE in 2009 (USACE, 2009). Based on this study, the background concentrations for arsenic and chromium in the Yakutat area are 11.6 mg/kg and 37 mg/kg, respectively. For this reason, only concentrations greater than the applicable background concentrations are reported in the following sections as above cleanup levels.

Confirmation sampling results are tabulated in Table 3 and organized to correlate to the following report sections.

5.1.1 Soil Below Pipelines

A total of 13 samples with two duplicates were collected from below the sewer pipeline. All RRO, PCB, PAHs, and RCRA metals were less than the applicable cleanup levels. DRO was less than the applicable cleanup levels in all but one sample, the sample from the former Composite Building south spur at 40 feet south of the east-west center line of the building. The DRO result was 300 mg/kg, and the duplicate of that sample was 10 mg/kg.

A review of the chromatograms from both samples was performed by TestAmerica laboratory. The chromatogram of the sample reported to contain 300 mg/kg DRO was not observed to have a definitive petroleum-type pattern and appeared biogenic.

All VOCs were less than the applicable cleanup levels in the one sample collected from below the Garage Building drain pipeline. That sample contained methylene chloride, a typical lab contaminant, at a concentration of 23 µg/kg which was qualified "B" for contamination present in the laboratory method blank.

5.1.2 Soil Below Manholes, Outfall, and Lift Station

Ten samples with two duplicates were collected from below and downgradient of the manholes, outfall, and lift station. All DRO, RRO, PCB, PAHs, and RCRA metals results were less than the applicable cleanup levels.

5.1.3 Soil Below Floor Drains and Crib

A total of nine samples with one duplicate were collected from below and downgradient of the Garage floor drains and the sidewalls and floor of the Garage crib excavation. The sample collected directly beneath the south floor drain (#3) had a lead concentration of 4,600 mg/kg, which was above the applicable ADEC cleanup level. Additional excavation was conducted in this area, and a subsequent sample collected following the excavation showed no elevated lead concentrations. All other DRO, RRO, PCB, PAH, RCRA metals, and VOC results were less than the applicable cleanup levels.

Five of the garage floor drain samples had elevated methylene chloride, a typical lab contaminant, at concentrations greater than the applicable ADEC cleanup level. Project sample results detected for methylene chloride ranged from 0.011 mg/kg to 0.030 mg/kg. Trip blank results for methylene chloride ranged from 0.063 mg/kg to 0.070 mg/kg. Please refer to data validation reports 580-38573 and 580-386715 for details regarding methylene chloride results. These samples were flagged "B" to indicate contamination was also found in the method blank. Methylene chloride is not suspected to be a site contaminant. Discussion of the occurrence and suspected cause of methylene chloride in the project samples are further discussed in Section 5.3.

5.1.4 Surface Soil

Four samples were collected from the 120 cy surface soil stockpile at the Radio Relay Building area and four samples were collected from the 110 cy surface soil stockpile at the former Composite Building area. Only one sample was collected from the 7 cy surface soil stockpile at the Garage Building area. All samples had PCB concentrations less than the applicable ADEC cleanup levels.

5.1.5 Soil within MH3

One sample was collected from the 4 cy stockpile created from soil within MH3. The stockpile was screened with a PID in five locations. The highest PID result of 0.3 ppm was screened in the southeast corner of the stockpile; a sample was collected from that location (OC13-CS-MH3(SS)-032). All DRO, RRO, RCRA metals, PCB, and PAH concentrations were less than the applicable ADEC cleanup levels.

5.1.6 Soil within Lift Station

One sample was collected from the 6 cy stockpile created from soil surrounding the lift station. The stockpile was screened with a PID in five locations. The highest PID result of 11.7 ppm was screened in the center of the stockpile; a sample was collected from that location (OC13-CS-LS(SS)-065). All DRO, RRO, RCRA metals, PCB, and PAH concentrations were less than the applicable ADEC cleanup levels.

5.1.7 Soil within Garage Crib

One sample was collected from the 5 cy stockpile created from soil within the Garage crib. The stockpile was screened with a PID in 5 locations. The highest PID result of 2.3 ppm was screened in the southeast corner of the stockpile; a sample was collected from that location (OC12-CS-GB(SS)-071). All RRO, RCRA metals, PCB, PAH, and VOC concentrations were less than the applicable ADEC cleanup levels. The DRO result was 710 mg/kg, greater than the applicable ADEC cleanup level of 230 mg/kg. The material removed from the Garage crib consisted of cobbles and small boulders (for enhancing drainage) and soil from the margins. The contaminated soil was segregated from the clasts larger than 2 inches on the temporary stockpile liner and the soil was placed into two 1-cy Super Sacks for off-site disposal. The Super Sacks were stored in the waste storage area pending offsite transportation and disposal. The material greater than 2 inches was returned to the excavation.

5.1.8 Septic Tank Treated Fluid

A sample was collected of the fluid from the septic tank after it was pumped out and treated through a filtration system (OC13-CS-SEPTIC1(W)-072) and analyzed for PCBs, and PAH and BTEX to calculate total aromatic hydrocarbons (TAH) and total aqueous hydrocarbons (TAqH). TAH was 0.43 micrograms per liter (ug/L) and TAqH was 0.018 ug/L, both below the applicable ADEC water quality standards for discharge to the ground.

5.2 Waste Characterization Sampling

Waste characterization samples were collected to evaluate materials to be disposed as a result of the removal action. The waste characterization samples were evaluated against ADEC cleanup levels for DRO and RRO, RCRA hazardous waste levels for TCLP, and TSCA hazardous waste levels for PCBs. Waste characterization sampling results are tabulated in Table 4.

5.2.1 Concrete Structures

A total of 18 samples with two duplicates were collected from concrete piping and structures. All samples had PCB concentrations less than the applicable ADEC cleanup levels.

5.2.2 Cast Iron Piping Sludge

A total of four samples were collected from sludge within the cast iron sewer piping. All samples had DRO, RRO, PCB, and TCLP RCRA metals concentrations less than the applicable levels with one exception. The sludge from the south Composite Building had a TCLP lead result of 14 mg/L, which was above the RCRA hazardous waste level. This portion of piping was managed as a hazardous waste.

One sample and a duplicate were collected from drain sludge at the former Garage Building. TCLP VOCs were all below applicable levels. The DRO result was 3,100 mg/kg, RRO was 13,000 mg/kg, and PCBs were 1.6 mg/kg; all greater than the applicable cleanup levels. TCLP metals were below applicable RCRA levels with the exception of TCLP lead, which was 600 mg/L and above the RCRA hazardous waste level. Based on these results all of the drain piping was managed as a hazardous waste.

5.2.3 Manhole and Lift Station Sludge

One sample and a duplicate were collected from the sludge inside MH1 (OC-12-WS-MH1). The DRO result was 4,900 mg/kg and PCBs were 66 mg/kg, both greater than the applicable action levels. The PCB concentration was greater than the TSCA hazardous waste criteria of 50 mg/kg. TCLP RCRA metals were all less than the applicable RCRA levels. The RRO concentration was less than the applicable ADEC cleanup level.

One sample was collected from the sludge inside MH2 (OC-12-WS-MH2). The DRO, RRO, PCB, and TCLP RCRA metals results were all less than the applicable action levels.

No sludge was present in MH3; the soil was sampled as described in Section 3.2.2.5.

One sample was collected from the sludge in the lift station (OC13-WS-LS(SG)-066). The DRO result was 410 mg/kg, greater than the applicable ADEC cleanup levels. The PCB, TCLP RCRA metals, and RRO results were all less than the applicable action levels.

5.2.4 Septic Tank Contents

Two samples were collected from the sludge in the septic tank: OC13-WS-Septic 1 (s) and OC13-SEPTIC1(SG)-058. The DRO results were 8,100 and 2,200 mg/kg respectively, both greater than the applicable ADEC cleanup levels. The RRO results were 13,000 and 1,600 mg/kg respectively with the first sample exceeding the ADEC cleanup level. PCB results were 26.51 and 0.19 mg/kg respectively, both less than the criteria for TSCA waste disposal. TCLP RCRA metals were all less than the applicable RCRA levels.

One sample and a duplicate were collected from the fluid in the septic tank (OC13-WS-Septic1 (w)). The DRO result was 1.6 mg/L, RRO was 1.1 mg/L, and PCB was 0.98 ug/L; all were above the applicable action levels. RCRA metals were less than the applicable RCRA levels.

As described in Section 5.1.8, the water was treated on site and sampled for water quality criteria for discharge to the ground surface.

5.3 Data Quality Review and Summary

Laboratory samples were collected by ADEC-qualified field samplers, put in laboratory-supplied jars, packaged for shipment in coolers with cushioning and ice, and shipped via Alaska Air Cargo to TestAmerica-Seattle laboratory in Tacoma, Washington under chain-of-custody procedures. TestAmerica-Seattle is an ADEC-approved and Environmental Laboratory Accreditation Program (ELAP) laboratory. Nine sample delivery groups (SDGs) were reported from TestAmerica. Laboratory data reports, electronic deliverables, ADEC-checklists, and data quality reports are included in Appendix B for each SDG. Data was reviewed in accordance with the project-specific QAPP, the Department of Defense Quality Systems Manual (DoD QSM) for Environmental Laboratories, ADEC guidelines, and applicable federal guidelines. The nine SDGs listed in Table 5-1 were reviewed as part of the data quality review effort.

TABLE 5-1: SAMPLE DELIVERY GROUPS

Sample Delivery Group ID	Date Received by Laboratory	Sample Media
580-35224	10/1/2012	Soil
580-38170	4/23/2013	Soil, Water
580-38435	5/14/2013	Soil, Concrete
580-38482	5/16/2013	Soil, Concrete
580-38519	5/20/2013	Soil, Concrete
580-38573	5/23/2013	Soil, Concrete

Sample Delivery Group ID	Date Received by Laboratory	Sample Media
580-38666	5/30/2013	Soil
580-38715	6/3/2013	Soil, Water, Concrete
580-38732	6/4/2013	Soil

The analytical methods used for the project are listed in Table 5-2. These methods are outlined in the QAPP with one exception. The QAPP- and COC-specified method for total metals was 6010, but 6020 was used by the laboratory instead with no documentation for the change. However, the methods produce comparable results and should not impact the usability of the data.

TABLE 5-2: ANALYTICAL METHODS

Analysis	Prep Method	Analytical Method
SOLID		
Diesel Range/Residual Range Organics (DRO/RRO)	SW3550B	AK102/AK103
Polychlorinated Biphenyls (PCBs)	SW3550B/3665A	SW8082
RCRA Metals	3050B	SW6020/7471A
TCLP RCRA Metals	SW1311/3010A	SW6020/7470A
Polynuclear Aromatic Hydrocarbons (PAHs)	SW3550B	SW8270C-sim
Volatile Organic Compounds (VOCs)	SW5035	SW8260B
TCLP VOCs	SW1311/5030B	SW8260B
% solids determination		ASTM D-2216
LIQUID		
Polychlorinated Biphenyls (PCBs)	SW3510C/3665A	SW8082
Diesel Range/Residual Range Organics (DRO/RRO)	SW3510C	AK102/AK103
Diesel Range/Residual Range Organics (DRO/RRO)	SW3520C	AK102/AK103
Volatile Organic Compounds (VOCs)	SW3030B	SW8260B
Polynuclear Aromatic Hydrocarbons (PAHs)	SW3520C	SW8270C-sim
RCRA Metals	3005A	SW6020/7470A

The following items were reviewed to determine data quality.

- Sample receipt conditions:
    - Sample preservation,
    - Cooler temperatures upon receipt,
    - Chain-of-custody (CoC) condition/correspondence to submitted SDG, and
    - Presence/absence of custody seals.
- Extraction and analytical procedures:
    - Holding times,
    - Analytical reporting limits
    - Method blanks (MBs),
    - Laboratory control sample/laboratory control sample duplicate (LCS/LCSDs),
    - Matrix spike/matrix spike duplicate (MS/MSD) samples,
    - Laboratory duplicate samples, and

    - Surrogate recoveries.
- Sampling procedures:
    - Field blanks,
    - Trip blanks,
    - Equipment blanks (where applicable), and
    - Field duplicate samples.
- Correspondence to method criteria and project data quality objectives (DQOs)

The items listed above and six quality indicators (precision, accuracy, representativeness, comparability, completeness, and sensitivity) are discussed in the following sections.

5.3.1 Sample Receipt Conditions

Cooler temperature was below acceptable temperature range for SDG 35224, SDG 38170, and SDG 38715 but considered sufficient as samples were not frozen. No qualifications were made. All other temperatures were acceptable.

Chain of custody seals were intact, samples were received in good condition, and all holding times were met for the project.

5.3.2 Precision

Precision was assessed by calculating the relative percent difference (RPD) between the primary and duplicate of field samples, LCS, and MS samples.

5.3.2.1 Field Duplicates

Field duplicates were expected to be collected at a rate of 1 per 10 samples for each analyte and matrix for the entire project. Table 5-3 details the quantities of primary samples and field duplicate samples collected. One discrepancy was noted; one water sample collected from the treated water did not have a duplicate collected for BTEX and PAH. All other matrices and analytes met the field duplicate quality control (QC) rate of 10%.

TABLE 5-3: FIELD DUPLICATE SAMPLE RATES

Matrix	Analyte	Number of Primary Samples	Number of Duplicate Samples	Duplicate Rate (%)
Soil/Sludge	DRO	50	7	14
	RRO	50	7	14
	PCB	49	6	12
	RCRA Metals	36	4	11
	TCLP RCRA Metals	14	2	14
	PAH	36	4	11
	VOC	12	2	16
	TCLP VOC	1	1	100

Water	DRO	1	1	100
	RRO	1	1	100
	BTEX	1	0	**0**
	PAH	1	0	**0**
	PCB	2	1	50
	RCRA Metals	1	1	100
Concrete	PCB	17	2	11

RPDs were calculated for the 347 primary and duplicate pair results. Nine pairs did not meet the QC limit of 50% and are presented in Table 5-4. Field duplicates failing to meet the RPD are qualified as "QN" due to poor duplicate precision.

TABLE 5-4: PRIMARY AND DUPLICATE SAMPLE DIFFERENCES

Analyte	Method	Units	Sample	Duplicate:	RPD (%)
Lead	6020	mg/Kg	OC13-CS-MH1(SS)-027	OC13-CS-MH1(SS)-028	6.1 / 3.2 = 62
Lead	6020	mg/Kg	OC13-CS-MH1CB+40S(SS)-049	OC13-CS-MH1CB+40S(SS)-050	34 / 6.7 = 134
DRO	AK102	mg/Kg	OC13-CS-MH1CB+40S(SS)-049	OC13-CS-MH1CB+40S(SS)-050	300 / 10 = 187
RRO	AK103	mg/Kg	OC13-CS-MH1CB+40S(SS)-049	OC13-CS-MH1CB+40S(SS)-050	600 / 73 = 157
Benzo[a]anthracene	8270C SIM	µg/Kg	OC13-CS-Septic1(SS)-063	OC13-CS-Septic1(SS)-064	8.6 / 16 = 60
Benzo[a]pyrene	8270C SIM	µg/Kg	OC13-CS-Septic1(SS)-063	OC13-CS-Septic1(SS)-064	6.8 / 13 = 63
Benzo[ghi]perylene	8270C SIM	µg/Kg	OC13-CS-Septic1(SS)-063	OC13-CS-Septic1(SS)-064	3.6 / 6.3 = 55
Fluoranthene	8270C SIM	µg/Kg	OC13-CS-Septic1(SS)-063	OC13-CS-Septic1(SS)-064	8.7 / 17 = 65
Pyrene	8270C SIM	µg/Kg	OC13-CS-Septic1(SS)-063	OC13-CS-Septic1(SS)-064	16 / 29 = 58

5.3.2.2 Laboratory Control Samples

Where reported, laboratory duplicate RPDs were within acceptable QC limits with the following two exceptions.

- In SDG 38482, a laboratory duplicate was performed on samples OC13-CS-MH3(SS)-011 (580-38482-1) for RCRA metals. The duplicate RPD for Mercury (24%) is above QC limits (20%). This suggests that the sample may not be homogenous. The Mercury result for this sample is qualified as estimated (MN) with an uncertain bias.
- In SDG 38732, the total Mercury RPD (86%) exceeds QC limits (20%). The primary result is less that the limit of quantitation (LOQ), and the duplicate is a positive hit, but both values are very close to the LOQ. The sample may be non-homogeneous, but

the level of uncertainty increases the closer to the LOQ the results are. No qualifications were made.

5.3.2.3 Matrix Spike Samples

Site-specific MS/MSD samples were expected to be collected at a rate of 1 per 20 samples (5%) for each analyte and matrix for the entire project. Table 5-5 details the quantities of primary samples and site-specific MS/MSD samples collected. One discrepancy was noted; the concrete matrix did not have a site-specific MS/MSD collected for PCB analysis. All other matrices and analytes met the field duplicate QC rate of 5%.

TABLE 5-5: MS/MSD SAMPLE RATES

Matrix	Analyte	Number of Primary Samples	Number of MS/MSD Samples	Duplicate Rate (%)
Soil/Sludge	DRO	50	3	6
	RRO	50	3	6
	PCB	49	4	8
	RCRA Metals	36	2	5
	TCLP RCRA Metals	14	1	7
	PAH	36	2	5
	VOC	12	1	8
	TCLP VOC	1	1	100
Water	DRO	1	1	100
	RRO	1	1	100
	BTEX	1	1	100
	PAH	1	1	100
	PCB	2	1	50
	RCRA Metals	1	1	10
Concrete	PCB	17	0	**0**

RPDs were calculated for the matrix spike and matrix spike duplicate pair results. All pairs were within the acceptable QC limits with the following two exceptions.

- MS/MSD RPDs were outside acceptable QC limits in SDG 38170 for DRO and RRO in soil and results are qualified as “MN” as estimated with uncertain bias.
- MS/MSD RPD was outside acceptable QC limits in SDG 38732 for Cadmium in soil and the result is qualified as “MN” as estimated with uncertain bias.

5.3.3 Accuracy

Accuracy was assessed by calculating the relative standard deviation (RSD) for the initial calibration, the percent difference for the initial calibration verification and continuing calibration verification, and the percent recovery for LCS, MS and surrogates. Details on recoveries are included in the following sections.

5.3.3.1 Surrogate Recoveries

Surrogate recoveries within acceptable QC limits with the following four exceptions.

- VOCs/8260B: Trifluorotoluene surrogate recovery in samples OC13-CS-FD2(SS)-038 (70%) and OC13-CS-FD2(SS)-039 (66%) (580-38573-8, -9) are below QC limits (75-125%). The samples were reanalyzed with comparable results. The original analysis can be used for reporting purposes, and all results are qualified as estimated, biased low (ML).
- VOCs/8260B: Trifluorotoluene surrogate recovery in the original analysis for sample OC13-CS-FD3(SS)-041 (580-38573-11) was below QC limits. The sample was reanalyzed within hold time with acceptable surrogate recovery. The reanalysis results can be used for reporting purposes, and results are considered usable as reported.
- TCLP VOCs: Trifluorotoluene surrogate recovery in the MS performed on sample OC13-WS-FD(SG)-033 (70%, 580-38573-27) was below QC limits (80-120%). All other surrogate recoveries in the MS/MSD and parent sample are within limits, as are all other associated QC limits; therefore, no further qualifications were made.
- PCBs/8082: Decachlorobiphenyl surrogate recovery in samples OC13-CS-GB+5(SS)-043 (53%) and OC13-WS-FD(SG)-033 (68%) (580-38573-13, -27) are below QC limits (60-125%). Evidence of matrix interferences was noted in the case narrative. PCB results for these two samples are qualified as estimated, biased low (ML).

5.3.3.2 LCS/LCSD Recoveries

LCS/LCSD recoveries were within acceptable QC limits with the following exception.

- 1,2-Dichloropropane, benzo[a]pyrene, anthracene, acenaphthylene, and benzo[a]anthracene had LCS/LCSD recoveries outside acceptable QC limits but no qualifications were made due to either results being non-detect or the DOD QSM marginal acceptance criteria being met.

5.3.3.3 MS/MSD Recoveries

MS/MSD recoveries were within acceptable QC limits with the following seven exceptions.

- MS/MSD recoveries were outside acceptable QC limits in SDG 35224 for PCB-1016 and PCB-1260 and are qualified as “ML” as estimated biased low due to matrix effects.
- MS/MSD recoveries were outside acceptable QC limits in SDG 35224 and SDG 38170 for DRO and RRO in soil and are qualified as “MN” as estimated with uncertain bias due to matrix effects.
- MS/MSD recoveries were outside acceptable QC limits in SDG 38435, SDG 38482, SDG 38519, SDG 38573, SDG 38666, and SDG 38715 for Chromium in soil and results are qualified “ML” as estimated with low bias.

- MS/MSD recoveries were outside acceptable QC limits in SDG 38519 for TCLP Mercury in soil and results are qualified “ML” as estimated with low bias.
- MS/MSD recoveries were outside acceptable QC limits in SDG 38573 and SDG 38666 for PCB-1260 in soil and results are qualified “MN” as estimated with an unknown bias.
- MS/MSD recoveries were outside acceptable QC limits in SDG 38573 for 1,2-Dichloropropane, chloroform, and tetrachloroethene in soil and results are qualified “ML” as estimated with low bias.
- MS/MSD recoveries were outside acceptable QC limits in SDG 38573 for TCLP Lead, PCB-1016, TCLP Benzene, TCLP Chlorobenzene, DRO, and RRO in sludge and results are qualified as “ML” as estimated with low bias, “MH” as estimated with high bias, or as “MN” as estimated with an unknown bias.

5.3.4 Representativeness

Screening samples were collected for every 20 feet of disturbed area and analytical samples for every 100 feet. This rate is sufficient for adequately characterizing the soil in the excavation and is consistent with the project data quality objectives. Samples were collected from the areas with the highest screening results such that the analytical results are biased high for the site conditions. This was the intent of the project plan to ensure cleanup was completed. Results can be considered representative.

5.3.5 Comparability

Field screening of soils was conducted using a PID and may correlate to the analytical DRO result. No other screening methods were conducted to be able to compare to other analytical results. Using an action level of 230 mg/kg for DRO and 15 ppm for the PID, the PID and DRO results were 84% comparable with nearly all results indicating no impacts.

All analytical results were performed by one laboratory such that all methods, procedures, quantitation units and reporting formats are comparable.

5.3.6 Completeness

All data is useable as qualified and therefore completeness is 100%. No data were rejected.

5.3.7 Sensitivity

Sensitivity was assessed by reviewing the method detection limits, and comparing the method blanks, initial calibration blanks, and continuing calibrations blanks to the reporting limits.

All method detection and limits of detection (LOD) are below project quantitation limit goals.

5.3.7.1 Trip and Equipment Blanks

No trip blanks required for any methods with the exception of VOCs.

- In SDG 38573 the VOC trip blank OC13-CS-TRIPBLANK-051 had Methylene Chloride detected above the LOQ at 70 µg/Kg. Methylene Chloride concentrations in all Total VOCs samples are less than the 70 µg/Kg found as the blank concentration, and are qualified as estimated (B).
- Methylene Chloride was detected above the LOQ in the soil TB OC13-CS-TRIPBLANK-074 at 63 µg/Kg. This result was flagged (B) by the laboratory due to MB contamination. All associated samples are non-detect for this compound; therefore, no qualifications were made.

Note that methylene chloride is not suspected to be a site contaminant. Methylene chloride is suspected to be a contaminant in a batch of methanol provided by the laboratory. Samples submitted under SDG# 580-38573 contained reported methylene chloride in the samples and trip blank above the LOQ with methylene chloride reported at higher concentrations in the trip blank. The problem was identified by the laboratory and the methanol for subsequent sampling was replaced (but not the trip blanks originally provided). The subsequent samples submitted under SDG# 580-38715 were not reported to contain methylene chloride above the LOQ but the trip blank was reported to contain concentrations above the LOQ. This data and the fact that low concentrations of tetrachloroethene (PCE) and trichloroethene (TCE) (more common solvents for the reported facility period of use) were reported above the LOD and/or LOQ under both SDGs suggest that methylene chloride is not a site contaminant.

One equipment blank was submitted for the steel hammer drill bit used for collecting concrete samples from the sewer pipeline, manholes, and septic tank. The matrix was hexane. No detections were noted.

5.3.7.2 Method Blanks

All analytes in method blanks were non-detect with the following exceptions.

- Six TCLP Mercury concentrations in SDG 35224 were qualified as “B” for potentially biased high results due to detections in the method blank.
- Pyrene was detected in the method blank associated with batch 580-135561/1-A at 1.68 J µg/Kg. This value is less than one-half the LOQ, and less than 10% of the detected sample concentrations with the following exception: sample OC13-CS-SP-MH3+7(SS)-003 (580-38435-3) was reported with a Pyrene concentration of 2.9 J µg/Kg. This result is qualified (B).
- DRO was detected in the method blank associated with batch 580-135888/1-A at 4.91 J µg/Kg. This value is less than one-half the LOQ, but above the detection limit (DL) and greater than 5% of the sample concentrations. All DRO samples in this SDG are associated with this blank, and are qualified as estimated (B).
- DRO was detected in Method Blank 580-136081/1-A at 2.99J mg/Kg, which is below the LOQ, but above the DL. DRO results in associated samples OC13-CS-MH1CB+28(SS)-019, OC13-CS-MH1CB+55N(SS)-022, OC13-WS-MH1CB+80N(SG)-024, OC13-WS-MH1CB+15NE(SG)-025, and OC13-CS-MH1(SS)-027 (580-38519-2, -5, -7, -8, and -10, respectively) are qualified as estimated (B).

- RRO was detected in Method Blank MB 580-136468/1-A at 11.4 J mg/Kg, which is below the LOQ, but above the DL. Detected RRO results in associated samples OC13-CS-MH1+10(SS)-031, OC13-CS-MH3(SS)-032, OC13-CS-SEPTIC+130(SS)-034, OC13-CS-SEPTIC+16(SS)-035, OC13-CS-FD1(SS)-036, OC13-CS-FD1(SS)-037, OC13-CS-FD2(SS)-040, OC13-CS-FD3(SS)-041, and OC13-CS-FD3(SS)-042 (580-38573-2 through -7, -10, -11, and -12, respectively) are qualified as estimated (B).
- Mercury was detected in TCLP Method Blank MB 580-136432/14-A at 0.000792 J mg/L, which is below the LOQ, but above the DL. Detected TCLP Mercury results in associated samples OC13-WS-MH1CB+78S(SG)-048 and OC13-WS-FD(SG)-057 (580-38573-18 and -28) are qualified as estimated (B).
- Methylene Chloride was detected above the LOQ in the soil 8260B MB 580-136872/1-A at 35.7 µg/Kg. All associated samples are non-detect for this compound; therefore, no qualifications were made.
- Ethylbenzene was detected above the DL in water MB580-136915/5 at 0.291 J µg/L. Sample OC13-CS-Septic 1(W)-072 (580-38715-1) is qualified (B). All other associated samples are non-detect for this compound.
- m,p-Xylene was detected above the DL in water MB580-136915/5 at 0.371 J µg/L. All associated samples are non-detect for this compound; therefore, no qualifications were made.
- Toluene was detected above the DL in water MB580-136915/5 at 0.454 J µg/L. Samples OC13-CS-Septic 1(W)-072, OC13-CS-Septic 1(W)-073, and OC13-CS-TRIPBLANK (W)-075 (580-38715-1, -2, and -3, respectively) are qualified (B). All other associated samples are non-detect for this compound.
- Toluene was detected above the DL in the water TB OC13-CS-TRIPBLANK(W)-075 at 0.28 J µg/L. Samples OC13-CS-Septic 1(W)-072 and OC13-CS-Septic 1(W)-073 (580-38715-1, -2) are qualified as estimated (B).
- Ethylbenzene in sample OC13-CS-Septic 1(W)-072 (580-38715-1) is qualified (B) due to method blank contamination.
- Toluene in samples OC13-CS-Septic 1(W)-072, OC13-CS-Septic 1(W)-073, and OC13-CS-TRIPBLANK (W)-075 (580-38715-1, -2, and -3, respectively) are qualified (B) due to blank contamination.

5.3.8 Data Summary

Based on the review completed on the laboratory data and summarized above, no data were rejected. Qualifications were necessary due to precision issues for nine sample analytes based on field duplicate RPD, two sample analytes for laboratory control sample RPD, and three sample analytes for MS/MSD RPD. Qualifications were necessary due to accuracy issues for three sample analytes for surrogate recovery and for MS/MSD recoveries. No qualifications were necessary for representativeness, comparability, or completeness. Qualifications were necessary due to sensitivity issues for one contaminated trip blank and 11 contaminated method blanks. All data are usable as qualified.

6.0 SITE RESTORATION

Following receipt of analytical results confirmation that soil was not impacted below the excavated pipeline or within the surface soil stockpiles, the trench was backfilled with the excavated soil using a front-end loader or excavator with a finishing bucket. During the excavation, soil was stockpiled adjacent to the trench from where it was removed. An attempt was made to backfill the trench with the soil removed from that area located adjacent to the trench. Care was taken to remove pieces of plastic liner in areas where surface soil was stockpiled for PCB sampling.

The sewer pipeline corridor between MH1 and the septic tank and the area around the septic tank was armored with boulders in a constructed seawall to prevent erosion of the land in these areas. The boulders that were closely packed and stacked in this area were large and generally ranged from 500 to 5,000 pounds. Trees had grown amongst these rocks and required removal prior to clearing the corridor of the boulders. Due to the size and limited area to stage the boulders, the pipeline corridor between MH1 and the septic tank was narrow with no area for the storage of excavated soil adjacent to the trench. In the area between MH1 and the septic tank, concurrent backfilling was employed. Soil was placed upgradient into the open, cleared, and sampled trench as the excavation proceeded downgradient. Following the receipt of analytical results, the soil was moved back downgradient from where it was excavated.

Following backfilling of the pipeline trench, the boulders between MH1 and the septic tank that had been displaced to allow access for the excavator were replaced and the seawall was reconstructed. The reconstruction of the seawall armors the area against erosion and prevents site access through the lower end of the pipeline corridor.

Samples collected from the concrete inside the septic tank that had been exposed to waste fluid and sludge documented that PCB concentrations were less than the ADEC cleanup levels and indicated that the waste removal and cleaning processes were effective and complete. The septic tank was buried in place with the concrete manways and riser concrete rings from MH1 and MH2 placed inside the tank and broken apart in the tank during backfilling. Backfill material to fill and cover the septic tank was obtained from highland locations to the north. Following backfilling of the septic tank area, the removed boulders were placed over and around the buried tank to prevent access and erosion.

The Garage Building area was left as is with the slab partially intact. The area excavated to remove the floor drain piping was backfilled to the surface of the remaining concrete floor. The removed concrete floor rubble was placed to the north of the garage building with other concrete rubble removed from previous site work activities not associated with this project.

The disturbed areas along the sewer line route, above the reconstructed seawall, were tracked with the excavator to create texture perpendicular to the slope of the land to mitigate erosion until revegetation can occur. Additionally, lengths of straw wattles were staked across the steepest portion of the slope (between MH2 and MH3) to further mitigate erosion.

All liner and berm materials were removed from the waste staging area and the surface soils were smoothed. All field materials were removed from the project area, including the job trailer, vehicles, debris, and waste.

7.0 WASTE DISPOSAL

Based on results from the waste characterization sampling, eight waste streams were generated. The following sections describe the waste streams, handling, and disposal. A summary log of the waste containers and characterization and transportation data is included in Table 5. Disposal documentation is included in Appendix G.

7.1 Concrete and Cast Iron Piping

All concrete samples from the sewer pipeline and manholes showed no PCB impacts. All cast iron piping sludge showed no impacts, with the exception of the section of cast iron pipe on the south spur at the former Composite Building and Garage floor drains. It was previously determined during project planning that no material waste would be disposed at the local Yakutat Landfill due to the likelihood that the materials were in contact with contaminants during their life cycle.

For this reason, all concrete sewer pipeline, most cast iron piping, and the bases of all concrete manholes were disposed as non-hazardous concrete waste and were transported to Waste Management's Columbia Ridge Landfill in Arlington, Oregon. The section of piping from the south spur at the former Composite Building and Garage floor drains was characterized as a RCRA hazardous waste due to lead. This piping was managed as a hazardous waste and transported to Chemical Waste Management NW in Arlington, Oregon.

7.2 Soil and Sludge

Sludge collected from the septic tank showed PCBs below the TSCA level but above the ADEC cleanup level. Lift station sludge was added to this waste stream although the PCB results were below the ADEC cleanup level. The sludge from both the lift station and septic tank had results above the ADEC cleanup level for DRO. The septic tank sludge was above ADEC cleanup levels for RRO.

The GAC filter material from the two GAC drums used to treat the water removed from the septic tank was placed into one 1 cy SuperSack and added to this waste stream. The sludge, soil and GAC filter material were disposed of as non-hazardous waste at the Waste Management disposal facility in Arlington, Oregon.

7.3 TSCA Sludge

Sludge from MH1 showed TSCA hazardous levels for PCB. The sludge and associated personal protective equipment used to remove the sludge from MH1 were placed into one 55 gallon steel open top drum and disposed of as TSCA hazardous waste at the Chemical Waste Management NW disposal facility in Arlington, Oregon.

7.4 RCRA Lead Soil

The sludge from the Garage Building floor drains exceeded RCRA TCLP levels for lead, therefore, the Garage floor drain cast iron piping and contents were disposed of as RCRA hazardous waste. The cast iron piping from the south end of the Composite Building also exceeded RCRA TCLP levels for lead. Soil from the excavation of the south Garage Building floor drain area showed elevated levels of lead (4,600 mg/kg) and was managed as a RCRA hazardous waste for lead in lieu of definitive sampling. These three wastes were combined into one waste stream and disposed as RCRA hazardous waste for lead at the Chemical Waste Management NW disposal facility in Arlington, Oregon.

7.5 Trees and Slash

Trees and slash gathered from grubbing and clearing were temporarily staged on site near the Garage Building. All trees that were salvageable for firewood were limbed, bucked, and transported to the Yak-Tat Kwaan for use as firewood. All slash material was hauled offsite to the Yak-Tat Kwaan's sorting yard.

7.6 Oily Waste

One 55-gallon drum of oily waste, typically sorbents used during fueling of vehicles and chainsaws was transported to Anchorage and disposed of through Emerald Alaska.

7.7 General Trash

General debris such as rags, paper towels, sampling gloves, Tyvek suits used for sampling non-hazardous material, paper waste from reporting, food scraps, etc. were bagged in plastic garbage bags and disposed at the Yakutat Landfill.

7.8 Septic Tank Water

All fluid removed from the septic tank and treated through a GAC filtration system was shown to have no exceedance of water quality standards and was discharged onto the ground in a wooded area located northeast and upgradient of the septic tank.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of our efforts, sampling, and analytical test results, AES provides the following conclusions:

- Approximately 1,100 linear feet of concrete and cast iron piping, three manholes, one septic tank, one lift station, and three floor drains associated with the sewer system and Garage Building drain system were excavated, characterized, and managed accordingly during this project. With the exception of the above grade portion of MH3 missing (presumably removed during previous facility decommission), MH3 being filled with soil and the detached and/or broken cast iron pipe found at the outfall of the lift station and septic tank area, all pipe was observed to be connected, as designed and installed, and intact. All pipe connections to the manhole structures were competent and no cracks or holes were observed in the pipes or concrete structures.

- Approximately 1,100 linear feet of concrete and cast iron piping associated with the sewer system and Garage Building drain system were excavated, contained, and characterized for disposal in accordance with project plans and state and federal regulations. Approximately 100 feet of cast iron sewer pipe from the south spur of piping beneath the Composite Building and approximately 67 feet of cast iron drain piping from the Garage Building were determined RCRA Characteristic Hazardous Waste due to lead. The remaining pipe was documented to be a non-hazardous waste. Both the non-hazardous and hazardous pipe wastes were transported to an approved treatment, storage, and disposal facility (TSDF) in Oregon.

- Three concrete manholes and a concrete lift station were encountered during the removal of the sewer line. The structures were excavated, contained, and characterized for disposal in accordance with project plans and state and federal regulations. All concrete, with the exception of the riser rings and covers of MH1 and MH2, was determined to be a non-hazardous waste and was transported to an approved TSDF in Oregon. The riser rings and covers of MH1 and MH2 were not exposed to fluids and were buried on site inside the septic tank.

- One septic tank was encountered during removal of the sewer system. The water and sludge within the tank were characterized for contaminant levels by samples collected prior to tank decommissioning. Both the water and sludge were determined to be contaminated with petroleum hydrocarbons and PCBs above the ADEC cleanup levels but below RCRA or TSCA regulated levels. Water in the tank was processed through an on-site filtration and GAC treatment system and discharged on-site following testing and ADEC approval. Sludge was removed from the tank and placed into containers for offsite transport and disposal. The septic tank was cleaned and concrete samples from multiple locations within the tank were collected and submitted for PCB analysis. All results were well below the ADEC cleanup level and the tank was abandoned in place. The septic tank cover, manways, and riser rings for

MH1 and MH2 were placed inside the tank and broken up prior to backfilling with soil.

- Sludge and/or sediment within the sewer system were encountered at MH1, the septic tank, and the lift station. One 55-gallon drum of TSCA-regulated sludge/sediment was identified and removed from MH1. Approximately 34,000 pounds of non-hazardous petroleum and PCB-contaminated sludge and debris were removed from the septic tank and placed in containers. Approximately 1,750 pounds of non-hazardous sludge/sediment were removed from the sewer lift station. Both the non-hazardous and TSCA-regulated wastes were transported to an approved TSDF in Oregon.

- One drum of sediment/sludge and debris from the floor drain system at the Garage Building was characterized as a RCRA Characteristic Hazardous Waste due to lead. In addition, one cubic yard of soil that was excavated from beneath the south floor drain was determined to be a RCRA Characteristic Hazardous Waste for lead. Soil from the Garage crib stockpile was characterized as petroleum impacted soil (710 mg/kg DRO). Following the removal of cobbles, approximately two cubic yards of soil was contained and managed as a non-hazardous waste. All wastes were transported to an approved TSDF in Oregon.

- Field screening and sampling was performed beneath piping and structures in accordance with project plans and approved ADEC methods. In addition, stockpiling and sampling of shallow soils excavated from above the pipe in the vicinity of the former Radio Relay Building, former Composite Building, and the former Garage Building was performed to evaluate the soil for PCBs. Soil analytical results identified only one sample location that exceeded the ADEC soil cleanup levels. One area along the south portion of the Composite Building sewer spur showed a DRO concentration of 300 mg/kg, above the ADEC cleanup level of 230 mg/kg. This area was noted, but was backfilled and left in place.

- Site conservation and restoration occurred throughout the project duration and were completed after all excavation and backfilling operations were completed. Trees requiring removal were transported off site to recycling/re-use locations designated by Yak-Tat Kwaan. All excavations were backfilled, compacted, and graded to match the surrounding topography. Cleared, bare areas were tracked with the excavator to create texture and straw wattles were installed on steeper slopes to further mitigate erosion. The seawall extending from MH1 to the septic tank was reconstructed to match the previous condition.

Based on the conclusions presented above, AES offers the following recommendations:

- One soil sample location from the south spur of the sewer pipe beneath the former Composite Building was reported to contain 300 mg/kg DRO, above the ADEC soil cleanup level of 230 mg/kg. A field duplicate was collected in association with this sample and the DRO concentration was reported as estimated at 10 mg/kg. The laboratory noted that DRO and RRO results in the primary sample (OC13-CS-MH1CB+40S(SS)-049) included a complex mixture of motor oil and possible biogenics. The laboratory noted the same for the RRO reported in the duplicate sample (OC13-CS-MH1CB+40S(SS)-050). The disparity between the DRO and RRO results in the sample and duplicate, considered with the potential presence of biogenic compounds, suggests that reported DRO contamination in the primary sample may not be completely attributable to petroleum hydrocarbons.

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TABLES

Table 1a: Field Screening Results - Below Pipeline and Structures
Ocean Cape Removal Action, Yakutat, Alaska

Pipeline	Sample Name	Date Collected	Time Collected	Matrix	Depth (ft)	PID Screen (ppm)	Analytical Sample
MAIN LINE FROM RRB TO SEPTIC TANK	FS-MH2+5-001	5/9/2013	9:55	Soil	6.5	1.1	
	FS-MH2+25-002	5/9/2013	10:45	Soil	8	1.0	
	FS-MH2+40-003	5/9/2013	15:05	Soil	9	**2.8**	OC13-CS-SP-MH2+40(SS)-002
	FS-MH2+60-004	5/9/2013	17:25	Soil	8	1.5	
	FS-MH2+74-005	5/10/2013	14:15	Soil	9	0.7	
	FS-MH2+90-006	5/10/2013	14:45	Soil	10	0.6	
	FS-MH2+115-007	5/10/2013	15:50	Soil	8	1.1	
	FS-MH2+135-008	5/10/2013	16:35	Soil	8	1.6	
	FS-MH3+7-009	5/11/2013	15:45	Soil	5	**2.0**	OC13-CS-SP-MH3+7(SS)-003
	FS-MH3+30-010	5/11/2013	17:45	Soil	5	0.7	
	FS-MH3+50-011	5/11/2013	18:20	Soil	5	1.2	
	FS-MH3+60-012	5/12/2013	9:05	Soil	5	0.3	
	FS-MH3+85-013	5/12/2013	9:45	Soil	5	0.4	
	FS-MH3+100-014	5/12/2013	10:50	Soil	5	0.8	
	FS-MH3+118-015	5/12/2013	14:05	Soil	5	0.8	
	FS-MH3+140-016	5/12/2013	14:55	Soil	4	0.1	
	FS-MH3+150-017	5/12/2013	16:00	Soil	4	**1.4**	OC13-CS-SP-MH3+150-017
	FS-MH1+157-018	5/15/2013	14:40	Soil	6	0.6	
	FS-MH1+131-019	5/15/2013	15:05	Soil	5.5	0.3	
	FS-MH1+115-020	5/15/2013	15:25	Soil	5	0.3	
	FS-MH1+100-021	5/15/2013	15:50	Soil	4.5	**0.9**	OC13-CS-MH1+100(SS)-018
	FS-MH1+85-022	5/15/2013	16:00	Soil	4.5	0.4	
	FS-MH1+65-023	5/15/2013	16:45	Soil	4.5	0.8	
	FS-MH1+50-024	5/15/2013	17:00	Soil	4	1.1	
	FS-MH1+30-025	5/15/2013	17:15	Soil	4.5	1.5	
	FS-MH1+10-026	5/15/2013	17:35	Soil	4	**6.2**	OC13-CS-MH1+10(SS)-031
	FS-SEPTIC+220-038	5/19/2013	14:30	Soil	4.5	0.7	
	FS-SEPTIC+205-039	5/19/2013	17:40	Soil	4.5	0.4	
	FS-ST+185-045	5/20/2013	9:00	Soil	4.5	0.1	
	FS-ST+168-046	5/20/2013	9:20	Soil	4.5	0.1	
	FS-ST+148-047	5/20/2013	10:00	Soil	4.5	0.8	
	FS-ST+130-055	5/20/2013	17:05	Soil	5.5	**1.0**	OC13-CS-SEPTIC+130(SS)-034
	FS-ST+117-054	5/20/2013	16:40	Soil	4.5	0.3	
	FS-ST+0-048	5/20/2013	13:30	Soil	4	0.3	
	FS-ST+16-049	5/20/2013	14:05	Soil	4.5	**2.3**	OC13-CS-SEPTIC+16(SS)-035
	FS-ST+40-050	5/20/2013	14:35	Soil	4.5	0.9	
	FS-ST+56-051	5/20/2013	15:05	Soil	5	1.6	
	FS-ST+75-052	5/20/2013	15:35	Soil	5	0.7	
	FS-ST+95-053	5/20/2013	16:05	Soil	4.5	1.0	
COMPOSITE BLDG SPUR	FS-MH1/CB+8-027	5/16/2013	11:15	Soil	4.5	1.7	
	FS-MH1/CB+28-028	5/16/2013	11:45	Soil	4.5	**2.9**	OC13-CS-MH1CB+28(SS)-019
	FS-MH1/CB+45-029	5/16/2013	12:20	Soil	4	0.6	
	FS-MH1/CB+60-030	5/16/2013	14:05	Soil	3	0.7	
	FS-MH1/CB+70-031	5/16/2013	14:25	Soil	2	0.7	
	FS-MH1/CB+13N-032	5/16/2013	16:55	Soil	2	0.5	
	FS-MH1/CB+30N-033	5/16/2013	17:20	Soil	2	0.6	
	FS-MH1/CB+55N-034	5/16/2013	18:00	Soil	2	**4.4**	OC13-CS-MH1CB+55N(SS)-022
	FS-MH1/CB+75N-035	5/17/2013	9:50	Soil	1.5	1.5	
	FS-MH1/CB+80N-036	5/17/2013	10:05	Soil	1	3.0	
	FS-MH1/CB+10NE-037	5/17/2013	10:40	Soil	2	**30.7**	OC13-CS-MH1CB+10NE(SS)-023
	FS-MH1/CB+15NE-038	5/17/2013	11:00	Soil	2	11.8	
	FS-MH1CB+18S-056	5/21/2013	9:15	Soil	1	0.6	
	FS-MH1CB+40S-057	5/21/2013	9:30	Soil	2	**1.2**	OC13-CS-MH1CB+40S(SS)-049
	FS-MH1CB+5SE-058	5/21/2013	9:45	Soil	1	0.8	
	FS-MH1CB+58S-059	5/21/2013	10:20	Soil	1	0.9	
	FS-MH1CB+78S-060	5/21/2013	10:30	Soil	1	0.5	
	FS-MH1CB+5SE-061	5/21/2013	10:40	Soil	1	0.6	
	FS-MH1CB+15SE-062	5/21/2013	11:20	Soil	1	1.0	
	FS-MH1CB+8SSE-063	5/21/2013	11:30	Soil	1	1.2	
GARAGE SPUR	FS-GB+5-064	5/21/2013	16:40	Soil	2.5	**5.6**	OC13-CS-GB+5(SS)-043
	FS-GB+15-065	5/21/2013	16:45	Soil	2.5	1.7	
	FS-GB+25-066	5/21/2013	16:50	Soil	3	1.0	
SEPTIC TANK OUTFALL	FS-OFW+0-067	5/26/2013	14:55	Soil		**1.0**	OC13-CS-SEPTIC1+0(SS)-063
	FS-OFW+12-068	5/26/2013	15:10	Soil		0.5	
	FS-OFW+18-069	5/26/2013	15:25	Soil		0.8	
	FS-OFE+0-070	5/26/2013	15:40	Soil		0.6	
	FS-OFE+12-071	5/26/2013	15:55	Soil		0.8	
	FS-OFE+18-072	5/26/2013	16:10	Soil		0.6	

Key:
Bold - Analytical sample collected
ft - feet
PID - Photoionization Detector
ppm - parts per million

Table 1b: Field Screening Results - Stockpiles and Excavations
Ocean Cape Removal Action, Yakutat, Alaska

Area	Sample Name	Date Collected	Time Collected	Matrix	Depth (ft)	PID Screen (ppm)	Analytical Sample
MH3 STOCKPILE	FS-MH3-Center-040	5/20/2013	8:00	Soil	N/A	0.1	
	FS-MH3-NE-041	5/20/2013	8:00	Soil	N/A	0.2	
	FS-MH3-NW-042	5/20/2013	8:00	Soil	N/A	0.1	
	FS-MH3-SE-043	5/20/2013	8:00	Soil	N/A	**0.3**	OC13-CS-MH3(SS)-032
	FS-MH3-SW-044	5/20/2013	8:00	Soil	N/A	0.1	
GARAGE BUILDING CRIB	FS-GBC-073	5/28/2013	11:55	Soil	1	2.4	
	FS-GBC-074	5/28/2013	12:25	Soil	3	0.6	
	FS-GBC-075	5/28/2013	12:30	Soil	4	0.6	
	FS-GBC-076	5/28/2013	12:31	Soil	4	1.1	
LIFT STATION STOCKPILE	FS-LS-CENTER-077	5/28/2013	17:10	Soil	N/A	**11.7**	OC13-CS-LS(SS)-065
	FS-LS-NW-078	5/28/2013	17:13	Soil	N/A	7.3	
	FS-LS-NE-079	5/28/2013	17:15	Soil	N/A	0.4	
	FS-LS-SE-080	5/28/2013	17:18	Soil	N/A	0.9	
	FS-LS-SW-081	5/28/2013	17:22	Soil	N/A	6.8	
GARAGE BUILDING CRIB - SIDEWALLS	FS-WSW-082	5/30/2013	11:02	Soil	2.5	**4.0**	OC13-CS-GB(SS)-067
	FS-NSW-083	5/30/2013	11:05	Soil	3.5	**4.3**	OC13-CS-GB(SS)-068
	FS-ESW-084	5/30/2013	11:09	Soil	2.5	3.5	
	FS-SSW-085	5/30/2013	11:13	Soil	3.5	1.9	
GARAGE BUILDING CRIB - FLOOR	FS-NWB-086	5/30/2013	11:18	Soil	4	**9.8**	OC13-CS-GB(SS)-069
	FS-NEB-087	5/30/2013	11:22	Soil	4	3.1	
	FS-CB-088	5/30/2013	11:26	Soil	4	3.6	
	FS-NEB-089	5/30/2013	11:31	Soil	4	2.1	
	FS-SWB-090	5/30/2013	11:35	Soil	4	3.1	
GARAGE BUILDING CRIB - STOCKPILE	FS-GBSNW-091	5/30/2013	13:12	Soil	N/A	1.7	
	FS-GBSC-092	5/30/2013	13:14	Soil	N/A	1.8	
	FS-GBSNE-093	5/30/2013	13:16	Soil	N/A	1.1	
	FS-GBSSE-094	5/30/2013	13:19	Soil	N/A	**2.3**	OC13-CS-GB(SS)-071
	FS-GBSSW-095	5/30/2013	13:22	Soil	N/A	1.4	
GARAGE BUILDING SOUTH FLOOR AREA	FS-FD3-096	6/2/2013	14:02	Soil	4	8.6	

Key:
Bold - Analytical sample collected
ft - feet
N/A - Not applicable
PID - photoionization detector
ppm - parts per million

Table 2a: Soil Confirmation Samples Summary
Ocean Cape Removal Action, Yakutat, Alaska

Location ID	Sample Type	Sample Depth (ft bgs)	Sample ID	Date Collected	Time Collected	Matrix	Sample QC Type	Analysis Lab	SDG	Sampler Initials	Cooler Name	Turn Around Time	RCRA Metals (6020)	RCRA Mercury 7471A	PCBs (8082)	VOCs (8260B/DoD)	PAHs (8270C SIM)	DRO and RRO (AK102 & 103)	Solids and Moisture (D 2216)
Soil Below Pipelines																			
002	Excavation Grab	7.2	OC13-CS-SP-MH2+40(SS)-002	5/12/13	7:10	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
003	Excavation Grab	3.5	OC13-CS-SP-MH3+7(SS)-003	5/12/13	7:15	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
007	Excavation Grab	3.6	OC13-CS-SP-MH3+150(SS)-007	5/12/13	17:00	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
018	Excavation Grab	3.7	OC13-CS-MH1+100(SS)-018	5/15/13	18:50	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
019	Excavation Grab	3.5	OC13-CS-MH1CB+28(SS)-019	5/17/13	7:40	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
022	Excavation Grab	1.3	OC13-CS-MH1CB+55N(SS)-022	5/17/13	12:15	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
023	Excavation Grab	2.0	OC13-CS-MH1CB+10NE(SS)-023	5/17/13	12:25	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
031	Excavation Grab	4.7	OC13-CS-MH1+10(SS)-031	5/20/13	7:35	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
034	Excavation Grab	5.7	OC13-CS-SEPTIC+130(SS)-034	5/20/13	18:30	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
035	Excavation Grab	4.4	OC13-CS-SEPTIC+16(SS)-035	5/20/13	18:35	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
043	Excavation Grab	2.3	OC13-CS-GB+5(SS)-043	5/21/13	17:05	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
049	Excavation Grab	0.5	OC13-CS-MH1CB+40S(SS)-049	5/21/13	18:25	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 8oz	Soil jar 8oz	Soil jar 8oz		Soil jar 8oz	Soil jar 8oz	Soil jar 8oz
	Excavation Grab	0.5	OC13-CS-MH1CB+40S(SS)-050	5/21/13	18:30	Soil	Duplicate	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 8oz	Soil jar 8oz	Soil jar 8oz		Soil jar 8oz	Soil jar 8oz	Soil jar 8oz
063	Excavation Grab	6.8	OC13-CS-SEPTIC1(SS)-063	5/27/13	19:45	Soil	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
	Excavation Grab	6.8	OC13-CS-SEPTIC1(SS)-064	5/27/13	19:50	Soil	Duplicate	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
Soil Below Manholes and Lift Station																			
011	Excavation Grab	6.3	OC13-CS-MH3(SS)-011	5/15/13	9:30	Soil	Primary	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	
012	Excavation Grab	7.6	OC13-CS-MH3(SS)-012	5/15/13	9:45	Soil	Primary	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	
013	Excavation Grab	7.8	OC13-CS-MH2(SS)-013	5/15/13	10:40	Soil	Primary	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	
	Excavation Grab	7.8	OC13-CS-MH2(SS)-014	5/15/13	10:50	Soil	Duplicate	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	
015	Excavation Grab	9.4	OC13-CS-MH2(SS)-015	5/15/13	11:00	Soil	Primary	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	
027	Excavation Grab	7.2	OC13-CS-MH1(SS)-027	5/19/13	11:50	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
	Excavation Grab	7.2	OC13-CS-MH1(SS)-028	5/19/13	12:00	Soil	Duplicate	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
029	Excavation Grab	8.4	OC13-CS-MH1(SS)-029	5/19/13	12:00	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
059	Excavation Grab	4.3	OC13-CS-SEPTIC1(SS)-059	5/27/13	17:45	Soil	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
060	Excavation Grab	5.5	OC13-CS-SEPTIC1(SS)-060	5/27/13	17:50	Soil	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
061	Excavation Grab	4.6	OC13-CS-LS(SS)-061	5/27/13	18:15	Soil	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
062	Excavation Grab	5.6	OC13-CS-LS(SS)-062	5/27/13	18:25	Soil	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
Soil Below Floor Drains																			
036	Excavation Grab	3.8	OC13-CS-FD1(SS)-036	5/21/13	12:20	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
037	Excavation Grab	5.2	OC13-CS-FD1(SS)-037	5/21/13	13:00	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
038	Excavation Grab	5.2	OC13-CS-FD2(SS)-038	5/21/13	13:40	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
	Excavation Grab	5.2	OC13-CS-FD2(SS)-039	5/21/13	13:50	Soil	Duplicate	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH				Soil jar 4oz - with Methanol			Soil jar 4oz
040	Excavation Grab	4.8	OC13-CS-FD2(SS)-040	5/21/13	14:00	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
041	Excavation Grab	4.3	OC13-CS-FD3(SS)-041	5/21/13	14:15	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
042	Excavation Grab	4.8	OC13-CS-FD3(SS)-042	5/21/13	14:30	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz - with Methanol	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
087	Excavation Grab	5.8	OC13-CS-FD3(SS)-087	6/2/13	13:55	Soil	Primary	TestAmerica Seattle	580-38715	TD	Box 3	1_Day_RUSH	Soil jar 4oz						Soil Jar 4oz Amber
088	Excavation Grab	5.3	OC13-CS-FD(SS)-088	6/3/13	9:30	Soil	Primary	TestAmerica Seattle	580-38732	TD	sm blue white	7_Days	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
Soil Below Garage Crib																			
067	Excavation Grab	2.6	OC13-CS-GB(SS)-067	5/30/13	11:55	Soil	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil jar 4oz - with Methanol	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
068	Excavation Grab	3.5	OC13-CS-GB(SS)-068	5/30/13	12:10	Soil	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil jar 4oz - with Methanol	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
069	Excavation Grab	4.3	OC13-CS-GB(SS)-069	5/30/13	12:20	Soil	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil jar 4oz - with Methanol	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
	Excavation Grab	4.3	OC13-CS-GB(SS)-070	5/30/13	12:25	Soil	Duplicate	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH				Soil jar 4oz - with Methanol		Soil Jar 4oz Amber	Soil Jar 4oz Amber
Soil Within Manhole 3																			
032	Stockpile Grab	-	OC13-CS-MH3(SS)-032	5/20/13	8:30	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz	Soil jar 4oz
Soil Within Lift Station																			
065	Stockpile Grab	-	OC13-CS-LS(SS)-065	5/28/13	17:35	Soil	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
Soil Within Garage Crib																			
071	Stockpile Grab	-	OC13-CS-GB(SS)-071	5/30/13	13:40	Soil	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil jar 4oz - with Methanol	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber
Surface Soil																			
004	Stockpile Composite	-	OC13-CS-RB-0-50(SS)-004	5/12/13	12:50	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH			Soil Jar 4oz Amber				Soil Jar 4oz Amber
005	Stockpile Composite	-	OC13-CS-RB-0-50(SS)-005	5/12/13	12:55	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH			Soil Jar 4oz Amber				Soil Jar 4oz Amber
006	Stockpile Composite	-	OC13-CS-RB-50-100(SS)-006	5/12/13	13:00	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH			Soil Jar 4oz Amber				Soil Jar 4oz Amber
	Stockpile Composite	-	OC13-CS-RB-50-100(SS)-010	5/12/13	13:05	Soil	Duplicate	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH			Soil Jar 4oz Amber				Soil Jar 4oz Amber
008	Stockpile Composite	-	OC13-CS-RB-100-120(SS)-008	5/12/13	17:15	Soil	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH			Soil Jar 4oz Amber				Soil Jar 4oz Amber
020	Stockpile Composite	-	OC13-CS-CB-0-50(SS)-020	5/17/13	7:45	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH			Soil jar 4oz				Soil jar 4oz
021	Stockpile Composite	-	OC13-CS-CB-0-50(SS)-021	5/17/13	7:50	Soil	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH			Soil jar 4oz				Soil jar 4oz
044	Stockpile Composite	-	OC13-CS-GB-0-7(SS)-044	5/21/13	17:45	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz				Soil jar 4oz
045	Stockpile Composite	-	OC13-CS-CB-50-100(SS)-045	5/21/13	18:00	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz				Soil jar 4oz
	Stockpile Composite	-	OC13-CS-CB-50-100(SS)-046	5/21/13	18:10	Soil	Duplicate	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz				Soil jar 4oz
047	Stockpile Composite	-	OC13-CS-CB-100-110(SS)-047	5/21/13	18:15	Soil	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz				Soil jar 4oz
Septic Tank Water																			
072	Waste Grab	-	OC13-CS-SEPTIC1(W)-072	5/30/13	14:50	Water	Primary	TestAmerica Tacoma	580-38715	TD	Box 1	1_Day_RUSH			Amber Glass 1 liter - unpreserved	Voa Vial 40ml - Hydrochloric Acid	Amber Glass 1 liter - unpreserved		
	Waste Grab	-	OC13-CS-SEPTIC1(W)-073	5/30/13	15:00	Water	Duplicate	TestAmerica Tacoma	580-38715	TD	Box 2	1_Day_RUSH			Amber Glass 1 liter - unpreserved	Voa Vial 40ml - Hydrochloric Acid	Amber Glass 1 liter - unpreserved		
Trip Blanks																			
074	Waste Grab	-	OC13-CS-TRIPBLANK-074	5/30/13	16:20	Soil	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH				Soil jar 4oz - with Methanol			
075	Waste Grab	-	OC13-CS-TRIPBLANK(W)-075	5/30/13	16:30	Water	Primary	TestAmerica Tacoma	580-38715	TD	Box 2	1_Day_RUSH				Voa Vial 40ml - Hydrochloric Acid			

Key:
DRO - desel-range organics
ft bgs - feet below ground surface
ID - identification
oz - ounce
mL - milliliter
PAH - polycyclic aromatic hydrocarbons
PCB - polychlorinated biphenyls
QC - quality control
RCRA - Resource Conservation & Recovery Act
RRO - residual-range organics
SDG - sample delivery group
VOA - volatile organic analysis
VOC - volatile organic compound

Table 2b: Waste Characterization Samples Summary
Ocean Cape Removal Action, Yakutat, Alaska

Location ID	Sample Type	Sample ID	Date Collected	Time Collected	Matrix	Sample QC Type	Analysis Lab	SDG	Sampler Initials	Cooler Name	Turn Around Time	TCLP RCRA Metals (6020)	TCLP RCRA Mercury (7470A)	PCBs (8082)	TCLP VOCs (8260B)	DRO and RRO (AK102 & 103)	Solids and Moisture (D 2216)
Concrete Samples																	
001	Waste Composite	OC13-WS-SP-MH2+150(C)-001	5/11/13	11:30	Concrete	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
016	Waste Composite	OC13-WS-MH3+135(C)-016	5/15/13	11:45	Concrete	Primary	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH			Soil jar 4oz			
017	Waste Composite	OC13-WS-MH1+165(C)-017	5/15/13	12:15	Concrete	Primary	TestAmerica Seattle	580-38482	OS	Med red white	1_Day_RUSH			Soil jar 4oz			
026	Waste Composite	OC13-WS-MH1CB+60(C)-026	5/18/13	15:35	Concrete	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH			Soil jar 4oz			Soil jar 4oz
030	Waste Composite	OC13-WS-SEPTIC+240(C)-030	5/19/13	16:45	Concrete	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz			Soil jar 4oz
052	Waste Composite	OC13-WS-MH1(C)-052	5/22/13	13:30	Concrete	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz			Soil jar 4oz
	Waste Composite	OC13-WS-MH1(C)-053	5/22/13	13:45	Concrete	Duplicate	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz			Soil jar 4oz
055	Waste Composite	OC13-WS-MH2(C)-055	5/22/13	14:15	Concrete	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz			Soil jar 4oz
056	Waste Composite	OC13-WS-MH3(C)-056	5/22/13	14:30	Concrete	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			Soil jar 4oz			Soil jar 4oz
077	Waste Composite	OC13-WS-SEPTIC1(C)-077	6/2/13	9:05	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
078	Waste Composite	OC13-WS-SEPTIC1(C)-078	6/2/13	9:20	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
079	Waste Composite	OC13-WS-SEPTIC1(C)-079	6/2/13	9:30	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
080	Waste Composite	OC13-WS-SEPTIC1(C)-080	6/2/13	9:35	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
081	Waste Composite	OC13-WS-SEPTIC1(C)-081	6/2/13	9:38	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
082	Waste Composite	OC13-WS-SEPTIC1(C)-082	6/2/13	9:45	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
083	Waste Composite	OC13-WS-SEPTIC1(C)-083	6/2/13	10:15	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
084	Waste Composite	OC13-WS-SEPTIC1(C)-084	6/2/13	10:25	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
085	Waste Composite	OC13-WS-SEPTIC1(C)-085	6/2/13	10:45	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
086	Waste Composite	OC13-WS-SEPTIC1(C)-086	6/2/13	10:55	Concrete	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH			Soil Jar 4oz Amber			Soil Jar 4oz Amber
Cast Iron Piping Sludge Samples																	
009	Waste Grab	OC13-WS-SP-MH3+140(SG)-009	5/12/13	17:30	Sludge	Primary	TestAmerica Seattle	580-38435	OS	Med Red/White	24_Hour_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
024	Waste Grab	OC13-WS-MH1CB+80N(SG)-024	5/17/13	12:30	Sludge	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz
025	Waste Grab	OC13-WS-MH1CB+15NE(SG)-025	5/17/13	12:40	Sludge	Primary	TestAmerica Seattle	580-38519	OS	Lg. Blue/white	1_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz
033	Waste Grab	OC13-WS-FD(SG)-033	5/20/13	17:15	Sludge	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 16oz	Soil jar 8oz	Soil jar 4oz	Soil jar 16oz	Soil jar 4oz	Soil jar 8oz
	Waste Grab	OC13-WS-FD(SG)-057	5/22/13	15:00	Sludge	Duplicate	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 8oz	Soil jar 8oz	Soil jar 4oz	Soil jar 8oz	Soil jar 4oz	Soil jar 4oz
048	Stockpile Composite	OC13-WS-MH1CB+78S(SG)-048	5/21/13	18:20	Sludge	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH	Soil jar 4oz	Soil jar 4oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz
Manhole, Concrete Piping, and Lift Station Contents Samples																	
12-CP	Waste Grab	OC-12-WS-CP	9/26/12	16:20	Sludge	Primary	TestAmerica Tacoma	580-35224	JS	lg blue white	14_Days	Soil Jar 4oz Amber	Soil Jar 4oz Amber	No Container		Soil Jar 4oz Amber	Soil Jar 4oz Amber
12-EP	Waste Grab	OC-12-WS-EP	9/26/12	16:25	Sludge	Primary	TestAmerica Tacoma	580-35224	JS	lg blue white	14_Days	Soil Jar 4oz Amber		Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
12-IP	Waste Grab	OC-12-WS-IP	9/26/12	16:15	Sludge	Primary	TestAmerica Tacoma	580-35224	JS	lg blue white	14_Days	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
12-MH1	Waste Grab	OC-12-WS-MH1	9/26/12	16:00	Sludge	Primary	TestAmerica Tacoma	580-35224	JS	lg blue white	14_Days	Soil Jar 4oz Amber		Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
	Waste Grab	OC-12-WS-MH10	9/26/12	16:10	Sludge	Duplicate	TestAmerica Tacoma	580-35224	JS	lg blue white	14_Days	Soil Jar 4oz Amber		Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
12-MH2	Waste Grab	OC-12-WS-MH2	9/26/12	17:00	Sludge	Primary	TestAmerica Tacoma	580-35224	JS	lg blue white	14_Days	Soil Jar 4oz Amber		Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
066	Waste Grab	OC13-WS-LS(SG)-066	5/28/13	17:55	Sludge	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
Septic Tank Contents Samples																	
13-Septic	Waste Grab	OC13-WS-Septic 1 (s)	4/21/13	12:30	Sludge	Primary	TestAmerica Tacoma	580-20214	JS		5_Day_RUSH	Soil jar 8oz	Soil jar 8oz	Soil jar 4oz		Soil jar 4oz	Soil jar 4oz
058	Waste Grab	OC13-WS-SEPTIC1(SG)-058	5/27/13	17:05	Sludge	Primary	TestAmerica Tacoma	580-38666	TD	Lg blue white	3_Day_RUSH	Soil Jar 4oz Amber	Soil Jar 4oz Amber	Soil Jar 4oz Amber		Soil Jar 4oz Amber	Soil Jar 4oz Amber
Soil Within Garage Crib																	
076	Stockpile Composite	OC13-WS-GB(SS)-076	6/1/13	17:45	Soil	Primary	TestAmerica Tacoma	580-38715	TD	Box 3	1_Day_RUSH	Soil Jar 4oz Amber	Soil jar 4oz				
Oily Waste															**TCLP BTEX (8260B)**		
089	Waste Grab	OC13-WS-089	7/26/13	15:00	Solid	Primary	TestAmerica Tacoma	580-39514	TD	sm blue white	10_Days				Soil jar 4oz		
Water Samples												**RCRA Metals**	**RCRA Mercury**	**PCBs**		**DRO & RRO**	
13-Septic	Waste Grab	OC13-WS-Septic 1 (w)	4/21/13	15:00	Water	Primary	TestAmerica Tacoma	580-20214	JS		5_Day_RUSH	Plastic 500mL - with Nitric Acid	Plastic 500mL - with Nitric Acid	Amber Glass 1 liter - unpreserved		Amber Glass 125mL - hydrochloric acid	
13-Septic	Waste Grab	OC13-WS-Septic 10 (w)	4/21/13	15:30	Water	Duplicate	TestAmerica Tacoma	580-20214	JS		5_Day_RUSH	Plastic 500mL - with Nitric Acid	Plastic 500mL - with Nitric Acid	Amber Glass 1 liter - unpreserved		Amber Glass 125mL - hydrochloric acid	
054	Waste Grab	OC13-WS-MH1(W)-054	5/22/13	14:00	Hexane	Primary	TestAmerica Seattle	580-38573	OS	Lg blue white	3_Day_RUSH			VOA Vial 40mL - unpreserved			

Key:
DRO - diesel-range organics
mL - milliliter
oz - ounce
PCB - polychlorinated biphenyls
QC - quality control
RCRA - Resource Conservation and Recovery Act
RRO - residual-range organics
SDG - sample delivery group
TCLP - Toxicity Characteristic Leaching Procedure
VOA - volatile organic analysis

Table 3a: Confirmation Sample Results - Soils
Ocean Cape Removal Action, Yakutat, Alaska

Soil Below Pipelines

			Location ID	002	003	007	018	019	022	023	031	034	035	043	049		063	
			SDG	580-38435	580-38435	580-38435	580-38519	580-38519	580-38519	580-38519	580-38573	580-38573	580-38573	580-38573	580-38573	580-38573	580-38666	580-38666
			Lab Sample ID	580-38435-2	580-38435-3	580-38435-7	580-38519-1	580-38519-2	580-38519-5	580-38519-6	580-38573-2	580-38573-4	580-38573-5	580-38573-13	580-38573-19	580-38573-20	580-38666-6	580-38666-7
			Sample ID	OC13-CS-SP-MH2+40(SS)-002	OC13-CS-SP-MH3+7(SS)-003	OC13-CS-SP-MH3+150(SS)-007	OC13-CS-MH1+100(SS)-018	OC13-CS-MH1CB+28(SS)-019	OC13-CS-MH1CB+55N(SS)-022	OC13-CS-MH1CB+10NE(SS)-023	OC13-CS-MH1+10(SS)-031	OC13-CS-SEPTIC+130(SS)-034	OC13-CS-SEPTIC+16(SS)-035	OC13-CS-GB+5(SS)-043	OC13-CS-MH1CB+40S(SS)-049	OC13-CS-MH1CB+40S(SS)-050	OC13-CS-SEPTIC1(SS)-063	OC13-CS-SEPTIC1(SS)-064
			Description	40 feet upgradient of MH2	7 feet upgradient of MH3	150 feet upgradient of MH3	100 feet upgradient of MH1	28 feet east of MH1 to CB	55 feet north of CB centerline	10 feet east of north end of CB	10 feet upgradient of MH1	130 feet upgradient of Septic Tank	16 feet upgradient of Septic Tank	5 feet downgradient of Garage foundation	40 feet south of CB centerline		West pipeline outlet of Septic Tank	
			Date Collected	5/12/2013	5/12/2013	5/12/2013	5/15/2013	5/17/2013	5/17/2013	5/17/2013	5/20/2013	5/20/2013	5/20/2013	5/21/2013	5/21/2013		5/27/2013	
			Time Collected	7:10	7:15	17:00	18:50	7:40	12:15	12:25	7:35	18:30	18:35	17:05	18:25	18:30	19:45	19:50
			Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil	
			Depth(ft bgs)	7.2	3.5	3.6	3.7	3.5	1.3	2	4.7	5.7	4.4	2.3	0.5		6.8	
Analyte	**Method**	**Units**	**Action Limits**															
DRO(nC10-<nC25)	AK 102	mg/kg	230	9.7 J	7.9 J	U (7.1)	U (7.6)	13 J B	11 J B	230	3.2 J	U (6.6)	U (7)	190	**300 QN**	10 J QN	27	23
RRO(nC25-nC36)	AK 103	mg/kg	8,300	20 J	41 J	34 J	23 J	62	22 J	55 J	42 J B	22 J B	21 J B	420	600	73	44 J	62
Analyte	**Method**	**Units**	**Action Limits**															
PCB-1016	SW 8082	mg/kg	--	U (0.0054)	U (0.0055)	U (0.0052)	U (0.006)	U (0.0053)	U (0.0053)	U (0.0058)	U (0.0053)	U (0.0054)	U (0.0054)	U (0.0056)	U (0.0056)	U (0.0051)	U (0.0059)	U (0.0057)
PCB-1221	SW 8082	mg/kg	--	U (0.011)	U (0.011)	U (0.01)	U (0.012)	U (0.011)	U (0.011)	U (0.012)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.01)	U (0.012)	U (0.011)
PCB-1232	SW 8082	mg/kg	--	U (0.011)	U (0.011)	U (0.01)	U (0.012)	U (0.011)	U (0.011)	U (0.012)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.01)	U (0.012)	U (0.011)
PCB-1242	SW 8082	mg/kg	--	U (0.0054)	U (0.0055)	U (0.0052)	U (0.006)	U (0.0053)	U (0.0053)	U (0.0058)	U (0.0053)	U (0.0054)	U (0.0054)	U (0.0056)	U (0.0056)	U (0.0051)	U (0.0059)	U (0.0057)
PCB-1248	SW 8082	mg/kg	--	U (0.0054)	U (0.0055)	U (0.0052)	U (0.006)	U (0.0053)	U (0.0053)	U (0.0058)	U (0.0053)	U (0.0054)	U (0.0054)	U (0.0056)	U (0.0056)	U (0.0051)	U (0.0059)	U (0.0057)
PCB-1254	SW 8082	mg/kg	--	U (0.0054)	U (0.0055)	U (0.0052)	U (0.006)	U (0.0053)	U (0.0053)	U (0.0058)	U (0.0053)	U (0.0054)	U (0.0054)	U (0.0056)	0.017	0.0079 J	U (0.0059)	U (0.0057)
PCB-1260	SW 8082	mg/kg	--	U (0.0054)	0.0048 J	0.024	U (0.006)	0.04	U (0.0053)	U (0.0058)	0.0041 J	U (0.0054)	U (0.0054)	0.019 ML	0.011	0.006 J	U (0.0059)	U (0.0057)
Total		mg/kg	1	U	0.0048	0.024	U	0.04	U	U	0.0041	U	U	0.019	0.028	0.0139	U	U
Analyte	**Method**	**Units**	**Action Limits**															
Arsenic	6020	mg/kg	3.7	**3.8**	3.3	**4.1**	3.0	3.2	**3.9**	3.2	3.0	2.9	2.8	3.5	3.2	3.5	2.8	2.8
Barium	6020	mg/kg	1,100	31	33	39	23	29	30	25	21	21	22	35	32	31	38	30
Cadmium	6020	mg/kg	5.0	0.064 J	0.095 J	0.11 J	0.046 J	0.14	0.077 J	0.072 J	0.03 J	0.036 J	0.03 J	0.33	0.097 J	0.066 J	0.032 J	0.029 J
Chromium	6020	mg/kg	25	20 J ML	21	20	17	18	17	15	22 J ML	22	23	17	20	20	25	**28**
Lead	6020	mg/kg	400	2.5	3.9	7.2	2.5	6.6	4.9	15	5.2	3	2.7	35	34 QN	6.7 QN	2.9	2.8
Selenium	6020	mg/kg	3.4	0.31 J	0.32 J	0.24 J	0.4 J	0.33 J	0.41 J	0.38 J	0.37 J	0.38 J	0.37 J	0.42 J	0.42 J	0.41 J	0.51 J	0.41 J
Silver	6020	mg/kg	11.2	0.02 J	0.026 J	0.036 J	0.015 J	0.04 J	0.032 J	0.024 J	0.015 J	0.016 J	0.015 J	0.026 J	0.028 J	0.025 J	0.019 J	0.013 J
Mercury	7471A	mg/kg	1.4	0.012 J	0.022	0.021	U (0.01)	0.019	0.011 J	0.0081 J	0.012 J	0.0096 J	0.0092 J	0.015 J	0.02	0.019	0.016	0.014 J
Analyte	**Method**	**Units**	**Action Limits**															
1-Methylnaphthalene	EPA 8270 SIM	µg/kg	6,200	U (2.7)	U (2.7)	3.7 J	U (3)	U (2.7)	15	U (2.9)	U (2.7)	U (2.6)	U (2.5)	16	15	14	8	11
2-Methylnaphthalene	EPA 8270 SIM	µg/kg	6,100	2.2 J	U (2.7)	4.5 J	4.8 J	U (2.7)	22	12 M	U (2.7)	U (2.6)	U (2.5)	18	18	18	16	18
Acenaphthene	EPA 8270 SIM	µg/kg	180,000	1.9 J	U (2.7)	1.7 J	1.8 J	U (2.7)	5.9	U (2.9)	U (2.7)	U (2.6)	2.5 U M	6.5	7.6	6.4	19	17
Acenaphthylene	EPA 8270 SIM	µg/kg	180,000	U (2.7)	U (2.7)	3.7 J	U (3)	2.7 U M	U (2.6)	7.2 M	U (2.7)	U (2.6)	U (2.5)	3.7 J	9.1	6.3	2.1 J	3.1 J
Anthracene	EPA 8270 SIM	µg/kg	3,000,000	2.7 U M	U (2.7)	6.9	U (3)	U (2.7)	7.6	9.6 M	U (2.7)	U (2.6)	2.5 U M	6.6	24 M	16	4.3 J	7.2
Benzo_a_anthracene	EPA 8270 SIM	µg/kg	3,600	U (2.7)	1.8 J	16	U (3)	U (2.7)	8.1	14	2.2 J	U (2.6)	U (2.5)	4.5 J	49	30	8.6 QN	16 QN
Benzo_a_pyrene	EPA 8270 SIM	µg/kg	400	U (2.7)	U (2.7)	13	U (3)	U (2.7)	4.6 J	20	2 J	U (2.6)	U (2.5)	3.2 J M	36	25	6.8 QN	13 QN
Benzo_b_fluoranthene	EPA 8270 SIM	µg/kg	4,000	U (2.7)	1.8 J	11 M	U (3)	1.6 J M	4.6 J	19 M	2.2 J	U (2.6)	2.5 U M	3.7 J M	27 M	20 M	6.3 M	10
Benzo_g,h,i_perylene	EPA 8270 SIM	µg/kg	1,100,000	U (2.7)	U (2.7)	5.8	2.4 J	2 J	1.8 J	17	2.1 J	U (2.6)	U (2.5)	2.2 J	15	9.5	3.6 J QN	6.3 QN
Benzo_k_fluoranthene	EPA 8270 SIM	µg/kg	40,000	U (2.7)	U (2.7)	5.3 J M	U (3)	U (2.7)	1.9 J M	8 M	1.8 J	U (2.6)	2.5 U M	2.9 U M	11 M	8.1 M	2.8 U M	3.7 J
Chrysene	EPA 8270 SIM	µg/kg	360,000	U (2.7)	1.8 J	22	U (3)	U (2.7)	11	29	2.5 J	U (2.6)	U (2.5)	10	58	36	11	20
Dibenz_a,h_anthracene	EPA 8270 SIM	µg/kg	400	U (2.7)	U (2.7)	1.7 J	U (3)	U (2.7)	2.6 U M	3.2 J	1.6 J	U (2.6)	U (2.5)	U (2.9)	5.5	4 J	2.8 U M	1.9 J
Fluoranthene	EPA 8270 SIM	µg/kg	1,400,000	U (2.7)	2.9 J	20	U (3)	1.7 J	19	23	2.1 J	U (2.6)	U (2.5)	4.8 J	76	49	8.7	17 QN
Fluorene	EPA 8270 SIM	µg/kg	220,000	U (2.7)	U (2.7)	4.3 J	U (3)	U (2.7)	17	7.4 M	U (2.7)	U (2.6)	2.5 U M	10	22	18	34	32
Indeno_1,2,3-cd_pyrene	EPA 8270 SIM	µg/kg	4,000	U (2.7)	U (2.7)	6.2	U (3)	U (2.7)	1.9 J	16	2.4 J	U (2.6)	U (2.5)	U (2.9)	17	11	4.5 J	7.3
Naphthalene	EPA 8270 SIM	µg/kg	20,000	U (2.7)	U (2.7)	U (2.7)	U (3)	U (2.7)	22	7.5	U (2.7)	U (2.6)	U (2.5)	4.5 J	11	9.6	11	13
Phenanthrene	EPA 8270 SIM	µg/kg	3,000,000	2.9 J M	2.3 J	30	1.9 J	2 J	57	41 M	1.9 J	U (2.6)	1.5 J M	26	130	92	20	33
Pyrene	EPA 8270 SIM	µg/kg	1,000,000	U (2.7)	2.9 J B	33	U (3)	2.7 J	33	51	2.5 J	U (2.6)	U (2.5)	11	110	73	16	29 QN

Key:
Action Limit - Most stringent ADEC 18 AAC 75 Method Two, Over 40-Inch Zone, Ingestion/Inhalation/Migration to Groundwater Soil Cleanup Level
Bold/Highlighted- Result is greater than the applicable Project Action Limit
B - Estimated due to method blank
ft bgs - feet below ground surface
J - Estimated
ML- Estimated low due to matrix effects
QH, QL, QN - Analyte result is considered an estimated value biased (high, low, uncertain)
U - Analyte not detected at the Limit of Quantitation shown in parentheses

Table 3b: Confirmation Sample Results - Soils
Ocean Cape Removal Action, Yakutat, Alaska

Soil Below Manholes, Outfall, and Lift Station

			Location ID	011	012	013		015	027		029	059	060	061	062
			SDG	580-38482	580-38482	580-38482	580-38482	580-38482	580-38519	580-38519	580-38519	580-38666	580-38666	580-38666	580-38666
			Lab Sample ID	580-38482-1	580-38482-2	580-38482-3	580-38482-4	580-38482-5	580-38519-10	580-38519-11	580-38519-12	580-38666-2	580-38666-3	580-38666-4	580-38666-5
			Sample ID	OC13-CS-MH3(SS)-011	OC13-CS-MH3(SS)-012	OC13-CS-MH2(SS)-013	OC13-CS-MH2(SS)-014	OC13-CS-MH2(SS)-015	OC13-CS-MH1(SS)-027	OC13-CS-MH1(SS)-028	OC13-CS-MH1(SS)-029	OC13-CS-SEPTIC1(SS)-059	OC13-CS-SEPTIC1(SS)-060	OC13-CS-LS(SS)-061	OC13-CS-LS(SS)-062
			Description	Directly below MH3	Downgradient (vertically) below MH3	Directly below MH2		Downgradient (vertically) below MH2	Directly below MH1		Downgradient (vertically) below MH1	Directly below outfall of Lift Station	Downgradient (vertically) below outfall	Directly below Lift Station	Downgradient (vertically) below Lift Station
			Date Collected	5/15/2013	5/15/2013	5/15/2013		5/15/2013	5/19/2013		5/19/2013	5/27/2013	5/27/2013	5/27/2013	5/27/2013
			Time Collected	9:30	9:45	10:40	10:50	11:00	11:50	12:00	12:00	17:45	17:50	18:15	18:25
			Matrix	Soil	Soil	Soil		Soil	Soil		Soil	Soil	Soil	Soil	Soil
			Depth (ft bgs)	6.3	7.6	7.8		9.4	7.2		8.4	4.3	5.5	4.6	5.6
Analyte	**Method**	**Units**	**Action Limits**												
DRO(nC10-<nC25)	AK 102	mg/kg	230	10 J B	18 J B	5.9 J B	6.8 J B	11 J B	5.7 J B	U (7)	U (7)	200	21	11 J	U (6.2)
RRO(nC25-nC36)	AK 103	mg/kg	8,300	57 J	42 J	U (26)	16 J	11 J	20 J	17 J	16 J	160	51 J	25 J	13 J
Analyte	**Method**	**Units**	**Action Limits**												
PCB-1016	SW 8082	mg/kg	--	U (0.0063)	U (0.0076)	U (0.0055)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0053)	U (0.0052)	U (0.0054)	U (0.005)	U (0.0056)	U (0.0051)
PCB-1221	SW 8082	mg/kg	--	U (0.013)	U (0.015)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.01)	U (0.011)	U (0.01)
PCB-1232	SW 8082	mg/kg	--	U (0.013)	U (0.015)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.01)	U (0.011)	U (0.01)
PCB-1242	SW 8082	mg/kg	--	U (0.0063)	U (0.0076)	U (0.0055)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0053)	U (0.0052)	U (0.0054)	U (0.005)	U (0.0056)	U (0.0051)
PCB-1248	SW 8082	mg/kg	--	U (0.0063)	U (0.0076)	U (0.0055)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0053)	U (0.0052)	U (0.0054)	U (0.005)	U (0.0056)	U (0.0051)
PCB-1254	SW 8082	mg/kg	--	U (0.0063)	U (0.0076)	U (0.0055)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0053)	U (0.0052)	U (0.0054)	U (0.005)	U (0.0056)	U (0.0051)
PCB-1260	SW 8082	mg/kg	--	U (0.0063)	U (0.0076)	U (0.0055)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0053)	U (0.0052)	0.16	0.06	0.015	0.0039 J MN
Total		mg/kg	1	U	U	U	U	U	U	U	U	0.16	0.06	0.015	0.0039
Analyte	**Method**	**Units**	**Action Limits**												
Arsenic	6020	mg/kg	3.7	**6.2**	**4.6**	**4.6**	**4.7**	**4.4**	3.3	3.0	3.5	3.1	2.5	2.5	1.6
Barium	6020	mg/kg	1,100	50	39	52	51	52	25	26	29	25	22	32	29
Cadmium	6020	mg/kg	5.0	0.13 J	0.088 J	0.086 J	0.092 J	0.079 J	0.052 J	0.066 J	0.046 J	2.5	0.17	0.065 J	0.069 J
Chromium	6020	mg/kg	25	23 J ML	**27**	23	23	**28**	20	19	18 J ML	19	18	23	23 J ML
Lead	6020	mg/kg	400	4.7	3.3	2.7	2.9	2.8	6.1 QN	3.2 QN	9.7	7.6	4.3	5	2.5
Selenium	6020	mg/kg	3.4	0.46 J	0.44 J	0.4 J	0.44 J	0.38 J	0.4 J	0.39 J	0.37 J	0.43 J	0.35 J	0.42 J	0.36 J
Silver	6020	mg/kg	11.2	0.067 J	0.13 J	0.035 J	0.037 J	0.029 J	0.021 J	0.016 J	0.031 J	0.092 J	0.064 J	0.045 J	0.019 J
Mercury	7471A	mg/kg	1.4	0.036 MN	0.018 J	0.017 J	0.017	0.017	0.012 J	0.012 J	0.011 J	0.046	0.02	0.025	0.014 J
Analyte	**Method**	**Units**	**Action Limits**												
1-Methylnaphthalene	EPA 8270 SIM	µg/kg	6,200	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	4.2 J	U (2.5)	U (2.7)	U (2.5)
2-Methylnaphthalene	EPA 8270 SIM	µg/kg	6,100	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	4.5 J	2 J	U (2.7)	U (2.5)
Acenaphthene	EPA 8270 SIM	µg/kg	180,000	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	2.7 U M	U (2.5)	U (2.7)	U (2.5)
Acenaphthylene	EPA 8270 SIM	µg/kg	180,000	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	2.7 U M	2.7 U M	U (2.7)	2.7 U M	U (2.5)	U (2.7)	U (2.5)
Anthracene	EPA 8270 SIM	µg/kg	3,000,000	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	1.6 J	U (2.5)	U (2.7)	U (2.5)
Benzo_a_anthracene	EPA 8270 SIM	µg/kg	3,600	7.5	9.9	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	4.7 J	3.5 J	3.6 J	U (2.5)
Benzo_a_pyrene	EPA 8270 SIM	µg/kg	400	7.8	8.4	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	4 J	2.9 J	3.4 J	U (2.5)
Benzo_b_fluoranthene	EPA 8270 SIM	µg/kg	4,000	11	12	U (2.6)	U (2.7)	U (2.6)	2.7 U M	U (2.7)	U (2.7)	4.2 J M	2.8 J M	3 J M	U (2.5)
Benzo_g,h,i_perylene	EPA 8270 SIM	µg/kg	1,100,000	4.9 J	5.5 J	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	3 J	2.1 J	2.1 J	U (2.5)
Benzo_k_fluoranthene	EPA 8270 SIM	µg/kg	40,000	4.1 J	6.1 J	U (2.6)	U (2.7)	U (2.6)	2.7 U M	U (2.7)	U (2.7)	2.7 U M	2.5 U M	2.7 U M	U (2.5)
Chrysene	EPA 8270 SIM	µg/kg	360,000	8.7	9.4	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	6.3	4.4 J	4.4 J	U (2.5)
Dibenz(a,h)anthracene	EPA 8270 SIM	µg/kg	400	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	U (2.7)	U (2.5)	U (2.7)	U (2.5)
Fluoranthene	EPA 8270 SIM	µg/kg	1,400,000	7.9	6.3 J	2.2 J	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	6.6	4.8 J	3.5 J	U (2.5)
Fluorene	EPA 8270 SIM	µg/kg	220,000	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	2.5 J	U (2.5)	U (2.7)	2.5 U M
Indeno_1,2,3-cd_pyrene	EPA 8270 SIM	µg/kg	4,000	5.8 J	6.8 J	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	3.2 J	2 J	2 J	U (2.5)
Naphthalene	EPA 8270 SIM	µg/kg	20,000	U (3.2)	U (3.8)	U (2.6)	U (2.7)	U (2.6)	U (2.7)	U (2.7)	U (2.7)	2.6 J	U (2.5)	U (2.7)	U (2.5)
Phenanthrene	EPA 8270 SIM	µg/kg	3,000,000	2.2 J	U (3.8)	1.8 J	1.9 J	2.3 J	2.1 J	U (2.7)	1.6 J	9.6	7.1	4.4 J	U (2.5)
Pyrene	EPA 8270 SIM	µg/kg	1,000,000	8.8	8.7	2.6 J	1.6 J	U (2.6)	U (2.7)	U (2.7)	U (2.7)	9.9	7.5	6.4	U (2.5)

Key:

Action Limit - Most stringent ADEC 18 AAC 75 Method Two, Over 40-Inch Zone, Ingestion/Inhalation/Migration to Groundwater Soil Cleanup Level

Bold/Highlighted- Result is greater than the applicable Project Action Limit

B - Estimated due to method blank

ft bgs - feet below ground surface

J - Estimated

ML- Estimated low due to matrix effects

MN - Estimated due to matrix effects

QH, QL, QN - Analyte result is considered an estimated value biased (high, low, uncertain)

U - Analyte not detected at the Limit of Quantitation shown in parentheses

Table 3c: Confirmation Sample Results - Soils
Ocean Cape Removal Action, Yakutat, Alaska

Surface Soil

			Location ID	004	005	006		008	020	021	045		047	044
			SDG	580-38435	580-38435	580-38435		580-38435	580-38519	580-38519	580-38573		580-38573	580-38573
			Lab Sample ID	580-38435-4	580-38435-5	580-38435-6	580-38435-10	580-38435-8	580-38519-3	580-38519-4	580-38573-15	580-38573-16	580-38573-17	580-38573-14
			Sample ID	OC13-CS-RB-0-50(SS)-004	OC13-CS-RB-0-50(SS)-005	OC13-CS-RB-50-100(SS)-006	OC13-CS-RB-50-100(SS)-010	OC13-CS-RB-100-120(SS)-008	OC13-CS-CB-0-50(SS)-020	OC13-CS-CB-0-50(SS)-021	OC13-CS-CB-50-100(SS)-045	OC13-CS-CB-50-100(SS)-046	OC13-CS-CB-100-110(SS)-047	OC13-CS-GB-0-7(SS)-044
			Description	Radio Relay Building area, 0-50 cy	Radio Relay Building area, 0-50 cy	Radio Relay Building area, 50-100 cy		Radio Relay Building area, 100-120 cy	Composite Building area, 0-50 cy	Composite Building area, 0-50 cy	Composite Building area, 50-100 cy		Composite Building area, 100-110 cy	Garage Building area, 0-7 cy
			Date Collected	5/12/2013	5/12/2013	5/12/2013		5/12/2013	5/17/2013	5/17/2013	5/21/2013		5/21/2013	5/21/2013
			Time Collected	12:50	12:55	13:00	13:05	17:15	7:45	7:50	18:00	18:10	18:15	17:45
			Matrix	Soil	Soil	Soil		Soil	Soil	Soil	Soil		Soil	Soil
			Depth(ft bgs)	-	-	-	-	-	-	-	-		-	-
Analyte	**Method**	**Units**	**Action Limits**											
PCB-1016	SW 8082	mg/kg	--	U (0.0054)	U (0.0053)	U (0.0051)	U (0.0054)	U (0.0052)	U (0.0053)	U (0.0052)	U (0.0055)	U (0.0053)	U (0.0054)	U (0.0054)
PCB-1221	SW 8082	mg/kg	--	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.01)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.011)	U (0.011)
PCB-1232	SW 8082	mg/kg	--	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.01)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.011)	U (0.011)
PCB-1242	SW 8082	mg/kg	--	U (0.0054)	U (0.0053)	U (0.0051)	U (0.0054)	U (0.0052)	U (0.0053)	U (0.0052)	U (0.0055)	U (0.0053)	U (0.0054)	U (0.0054)
PCB-1248	SW 8082	mg/kg	--	U (0.0054)	U (0.0053)	U (0.0051)	U (0.0054)	U (0.0052)	U (0.0053)	U (0.0052)	U (0.0055)	U (0.0053)	U (0.0054)	U (0.0054)
PCB-1254	SW 8082	mg/kg	--	U (0.0054)	U (0.0053)	U (0.0051)	U (0.0054)	U (0.0052)	U (0.0053)	U (0.0052)	0.024	0.026	0.015	0.042
PCB-1260	SW 8082	mg/kg	--	0.0088 J	0.0043 J	0.0086 J	0.0079 J	0.059 J	0.0058 J	0.017	0.014	0.018	0.011	0.76
Total		mg/kg	1	0.0088	0.0043	0.0086	0.0079	0.059	0.0058	0.017	0.038	0.044	0.0266	0.802

Key:
Action Limit - Most stringent ADEC 18 AAC 75 Method Two, Over 40-Inch Zone, Ingestion/Inhalation/Migration to Groundwater Soil Cleanup Level
Bold/Highlighted- Result is greater than the applicable Project Action Limit
ft bgs - feet below ground surface
"--" - No action limit specified
B - Estimated due to method blank
J - Estimated
ML- Estimated low due to matrix effects
MN - Estimated due to matrix effects
QH, QL, QN - Analyte result is considered an estimated value biased (high, low, uncertain)
U - Analyte not detected at the Limit of Quantitation shown in parentheses

Table 3d: Confirmation Sample Results - Soils
Ocean Cape Removal Action, Yakutat, Alaska

				Soil Below Floor Drains								Soil Below Garage Crib				Soil Within Manhole 3	Soil Within Lift Station	Soil Within Garage Crib
			Location ID	036	037	038	040	041	042	087	088	067	068	069		032	065	071
			SDG	580-38573	580-38573	580-38573	580-38573	580-38573	580-38573	580-38715	580-38732	580-38715	580-38715	580-38715	580-38715	580-38573	580-38666	580-38715
			Lab Sample ID	580-38573-6	580-38573-7	580-38573-8	580-38573-10	580-38573-11	580-38573-12	580-38715-21	580-38732-1	580-38715-4	580-38715-5	580-38715-6	580-38715-7	580-38573-3	580-38666-8	580-38715-8
			Sample ID	OC13-CS-FD1(SS)-036	OC13-CS-FD1(SS)-037	OC13-CS-FD2(SS)-038	OC13-CS-FD2(SS)-040	OC13-CS-FD3(SS)-041	OC13-CS-FD3(SS)-042	OC13-CS-FD3(SS)-087	OC13-CS-FD(SS)-088	OC13-CS-GB(SS)-067	OC13-CS-GB(SS)-068	OC13-CS-GB(SS)-069	OC13-CS-GB(SS)-070	OC13-CS-MH3(SS)-032	OC13-CS-LS(SS)-065	OC13-CS-GB(SS)-071
			Description	Directly Beneath Garage Drain North	Downgradient of Garage Drain North	Directly Beneath Garage Drain Mid	Downgradient of Garage Drain Mid	Directly Beneath Garage Drain South	Downgradient of Garage Drain South	Soil below floor drain excavation	Gray soil east of Garage Drain South	West sidewall	North sidewall	Northwest floor		MH3 stockpile	Lift Station stockpile	Garage Crib stockpile
			Date Collected	5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/21/2013	6/2/2013	6/3/2013	5/30/2013	5/30/2013	5/30/2013		5/20/2013	5/28/2013	5/30/2013
			Time Collected	12:20	13:00	13:40	14:00	14:15	14:30	13:55	9:30	11:55	12:10	12:20	12:25	8:30	17:35	13:40
			Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil	Soil	Soil
			Depth(ft bgs)	3.8	5.2	5.2	4.8	4.3	4.8	5.8	5.3	2.6	3.5	4.3		-	-	-
Analyte	**Method**	**Units**	**Action Limits**															
DRO(nC10-<nC25)	AK 102	mg/kg	230	U (7.6)	4.8 J	U (7.3)	9.2 J	U (7.5)	12 J	--	U (6.4)	U (6.6)	U (6.7)	110	91	U (7.6)	31	**710**
RRO(nC25-nC36)	AK 103	mg/kg	8,300	17 J B	45 J B	U (28)	41 J B	19 J B	43 J B	--	U (25)	U (25)	19 J	340	200	32 J B	71	6,200
Analyte	**Method**	**Units**	**Action Limits**															
PCB-1016	SW 8082	mg/kg	--	U (0.0059)	U (0.0055)	U (0.0054)	U (0.0055)	U (0.0055)	U (0.0055)	--	U (0.0051)	U (0.0049)	U (0.005)	U (0.0056)	--	U (0.0054)	U (0.0053)	U (0.0052)
PCB-1221	SW 8082	mg/kg	--	U (0.012)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	--	U (0.01)	U (0.0097)	U (0.01)	U (0.011)	--	U (0.011)	U (0.011)	U (0.01)
PCB-1232	SW 8082	mg/kg	--	U (0.012)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	U (0.011)	--	U (0.01)	U (0.0097)	U (0.01)	U (0.011)	--	U (0.011)	U (0.011)	U (0.01)
PCB-1242	SW 8082	mg/kg	--	U (0.0059)	U (0.0055)	U (0.0054)	U (0.0055)	U (0.0055)	U (0.0055)	--	U (0.0051)	U (0.0049)	U (0.005)	U (0.0056)	--	U (0.0054)	U (0.0053)	U (0.0052)
PCB-1248	SW 8082	mg/kg	--	U (0.0059)	U (0.0055)	U (0.0054)	U (0.0055)	U (0.0055)	U (0.0055)	--	U (0.0051)	U (0.0049)	U (0.005)	U (0.0056)	--	U (0.0054)	U (0.0053)	U (0.0052)
PCB-1254	SW 8082	mg/kg	--	U (0.0059)	U (0.0055)	U (0.0054)	U (0.0055)	U (0.0055)	U (0.0055)	--	U (0.0051)	U (0.0049)	U (0.005)	U (0.0056)	--	U (0.0054)	U (0.0053)	U (0.0052)
PCB-1260	SW 8082	mg/kg	--	U (0.0059)	U (0.0055)	0.0034 J	U (0.0055)	0.0066 J	U (0.0055)	--	U (0.0051)	U (0.0049)	U (0.005)	0.0095 J	--	0.0091 J	0.061	0.049
Total		mg/kg	1	U	U	0.0034	U	0.0066	U	--	U	U	U	0.0095	--	0.0091	0.061	0.049
Analyte	**Method**	**Units**	**Action Limits**															
Arsenic	6020	mg/kg	3.7	2.9	3.3	3.4	3.6	**4.9**	3.4	--	**4.9**	3.1	3.1	3.1	--	**5.0**	2.4	3.1
Barium	6020	mg/kg	1,100	28	27	32	37	41	29	--	47	24	27	25	--	44	18	27
Cadmium	6020	mg/kg	5.0	0.039 J	0.047 J	0.048 J	0.055 J	0.07 J	0.058 J	--	0.083 J MN	0.031 J	0.059 J	0.061 J	--	0.41	0.068 J	0.086 J
Chromium	6020	mg/kg	25	24	15	22	22	14	22	--	22	18 J ML	21	23	--	18	18	20
Lead	6020	mg/kg	400	3.9	3.5	4.3	3.9	**4,600**	81	3.3	3.6	3	4	7.5	--	9.5	3.9	6.0
Selenium	6020	mg/kg	3.4	0.41 J	0.27 J	0.38 J	0.39 J	0.3 J	0.36 J	--	0.36 J	0.41 J	0.35 J	0.41 J	--	0.42 J	0.42 J	0.46 J
Silver	6020	mg/kg	11.2	0.013 J	0.029 J	0.018 J	0.026 J	0.048 J	0.029 J	--	0.046 J	0.014 J	0.017 J	0.023 J	--	0.049 J	0.017 J	0.019 J
Mercury	7471A	mg/kg	1.4	0.0098 J	0.011 J	0.0089 J	0.019	0.012 J	0.018	--	0.0066 J	0.0045 J	0.011 J	0.025	--	0.022	0.016	0.023
Analyte	**Method**	**Units**	**Action Limits**															
1-Methylnaphthalene	EPA 8270 SIM	μg/kg	6,200	U (2.9)	U (2.5)	U (2.8)	3.3 J	U (2.7)	3.9 J	--	U (2.7)	U (2.4)	U (2.6)	5.4 J	--	U (2.9)	U (2.6)	1.7 J M
2-Methylnaphthalene	EPA 8270 SIM	μg/kg	6,100	U (2.9)	U (2.5)	U (2.8)	4.4 J	U (2.7)	4.8 J	--	U (2.7)	U (2.4)	U (2.6)	14	--	U (2.9)	U (2.6)	4 J M
Acenaphthene	EPA 8270 SIM	μg/kg	180,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	2.7 U M	1.6 J	--	U (2.7)	U (2.4)	U (2.6)	U (2.7)	--	U (2.9)	2.6 U M	U (2.5)
Acenaphthylene	EPA 8270 SIM	μg/kg	180,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	U (2.7)	U (2.7)	--	U (2.7)	2.4 U Q	2.6 U Q	2.7 U M Q	--	U (2.9)	U (2.6)	2.5 U M Q
Anthracene	EPA 8270 SIM	μg/kg	3,000,000	2.9 U M	2.5 U M	U (2.8)	U (2.8)	U (2.7)	U (2.7)	--	U (2.7)	2.4 U Q	2.6 U M Q	2.7 U M Q	--	U (2.9)	U (2.6)	2.5 U M Q
Benzo_a_anthracene	EPA 8270 SIM	μg/kg	3,600	2.9 U M	U (2.5)	U (2.8)	U (2.8)	2.7 U M	U (2.7)	--	U (2.7)	2.4 U Q	2.6 U Q	2.7 U Q	--	U (2.9)	1.9 J	2.5 U Q
Benzo_a_pyrene	EPA 8270 SIM	μg/kg	400	U (2.9)	U (2.5)	U (2.8)	U (2.8)	2.7 U M	U (2.7)	--	U (2.7)	U (2.4)	U (2.6)	U (2.7)	--	U (2.9)	1.7 J	2.8 J M
Benzo_b_fluoranthene	EPA 8270 SIM	μg/kg	4,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	2.7 U M	2.7 U M	--	U (2.7)	U (2.4)	U (2.6)	2.7 U M	--	2 J	1.9 J M	U (2.5)
Benzo_g,h,i_perylene	EPA 8270 SIM	μg/kg	1,100,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	U (2.7)	U (2.7)	--	U (2.7)	U (2.4)	U (2.6)	5.9	--	U (2.9)	U (2.6)	7.9
Benzo_k_fluoranthene	EPA 8270 SIM	μg/kg	40,000	2.9 U M	U (2.5)	U (2.8)	2.8 U M	2.7 U M	2.7 U M	--	U (2.7)	U (2.4)	U (2.6)	2.7 U M	--	U (2.9)	2.6 U M	U (2.5)
Chrysene	EPA 8270 SIM	μg/kg	360,000	2.9 U M	U (2.5)	U (2.8)	U (2.8)	U (2.7)	U (2.7)	--	U (2.7)	U (2.4)	U (2.6)	U (2.7)	--	2 J	2.6 J	U (2.5)
Dibenz(a,h)anthracene	EPA 8270 SIM	μg/kg	400	U (2.9)	U (2.5)	U (2.8)	U (2.8)	U (2.7)	U (2.7)	--	U (2.7)	U (2.4)	U (2.6)	U (2.7)	--	U (2.9)	U (2.6)	U (2.5)
Fluoranthene	EPA 8270 SIM	μg/kg	1,400,000	2.9 U M	U (2.5)	U (2.8)	U (2.8)	2.7 U M	U (2.7)	--	U (2.7)	U (2.4)	2.6 U M	2.7 U M	--	1.8 J	3 J QN	U (2.5)
Fluorene	EPA 8270 SIM	μg/kg	220,000	U (2.9)	2.5 U M	U (2.8)	1.9 J	2.7 U M	2.5 J	--	U (2.7)	2.4 U M	U (2.6)	2.7 J M	--	U (2.9)	U (2.6)	U (2.5)
Indeno_1,2,3-cd_pyrene	EPA 8270 SIM	μg/kg	4,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	U (2.7)	U (2.7)	--	U (2.7)	2.4 U M	U (2.6)	U (2.7)	--	U (2.9)	U (2.6)	U (2.5)
Naphthalene	EPA 8270 SIM	μg/kg	20,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	U (2.7)	2.1 J	--	U (2.7)	U (2.4)	U (2.6)	5.4 J	--	U (2.9)	U (2.6)	U (2.5)
Phenanthrene	EPA 8270 SIM	μg/kg	3,000,000	2.9 U M	2 J M	U (2.8)	5.1 J	1.7 J	6.1	--	2.5 J	2.3 J	2.4 J	6.2 M	--	3.5 J	4.8 J	6.5 M
Pyrene	EPA 8270 SIM	μg/kg	1,000,000	U (2.9)	U (2.5)	U (2.8)	U (2.8)	U (2.7)	2.1 J	--	U (2.7)	U (2.4)	2.6 U M	2.7 U M	--	2.1 J	4.5 J QN	2.5 U M

Key:
Action Limit - Most stringent ADEC 18 AAC 75 Method Two, Over 40-Inch Zone, Ingestion/Inhalation/Migration to Groundwater Soil Cleanup Level
Bold/Highlighted- Result is greater than the applicable Project Action Limit
"--" - Analysis not requested
B - Estimated due to method blank
ft bgs - feet below ground surface
J - Estimated
M - Manually integrated compound
ML- Estimated low due to matrix effects
MN - Estimated due to matrix effects
QH, QL, QN - Analyte result is considered an estimated value biased (high, low, uncertain)
U - Analyte not detected at the Limit of Quantitation shown in parentheses

Table 3e: VOC Confirmation Sample Results - Soils
Ocean Cape Removal Action, Yakutat, Alaska

			Location ID	036	037	038		040	041	042	043	067	068	069		071	074
			SDG	580-38573	580-38573	580-38573	580-38573	580-38573	580-38573	580-38573	580-38573	580-38715	580-38715	580-38715	580-38715	580-38715	580-38715
			Lab Sample ID	580-38573-6	58038573-7	580-38573-8	580-38573-9	580-38573-10	580-38573-11	580-38573-12	580-38573-13	580-38715-4	580-38715-5	580-38715-6	580-38715-7	580-38715-8	580-38715-9
			Sample ID	OC13-CS-FD1(SS)-036	OC13-CS-FD1(SS)-037	OC13-CS-FD2(SS)-038	OC13-CS-FD2(SS)-039	OC13-CS-FD2(SS)-040	OC13-CS-FD3(SS)-041	OC13-CS-FD3(SS)-042	OC13-CS-GB+5(SS)-043	OC13-CS-GB(SS)-067	OC13-CS-GB(SS)-068	OC13-CS-GB(SS)-069	OC13-CS-GB(SS)-070	OC13-CS-GB(SS)-071	OC13-CS-TRIPBLANK-074
			Description	Directly Beneath Garage Drain North	Downgradient of Garage Drain North	Directly Beneath Garage Drain Mid		Downgradient of Garage Drain Mid	Directly Beneath Garage Drain South	Downgradient of Garage Drain South	5 feet downgradient of Garage foundation	Crib - West Sidewall	Crib - North Sidewall	Crib - Northwest Floor		Crib Stockpile	Trip Blank
			Date Collected	5/21/2013	5/21/2013	5/21/2013		5/21/2013	5/21/2013	5/21/2013	5/21/2013	5/30/2013	5/30/2013	5/30/2013		5/30/2013	5/30/2013
			Time Collected	12:20	13:00	13:40	13:50	14:00	14:15	14:30	17:05	11:55	12:10	12:20	12:25	13:40	16:20
			Matrix	Soil	Soil	Soil		Soil	Soil	Soil	Soil	Soil	Soil	Soil		Soil	Soil
			Depth (ft bgs)	3.8	5.2	5.2		4.8	4.3	4.8	2.3	2.6	3.5	4.3		-	-
Analyte	**Method**	**Units**	**Action Limits**														
Benzene	EPA 8260	µg/kg	25	U (3.3)	U (3.1)	U (4.4)	U (4)	U (3.9)	U (2.7)	U (4.5)	U (3.3)	U (3.6)	U (3.9)	U (4.3)	U (4.3)	U (4.2)	U (10)
Ethylbenzene	EPA 8260	µg/kg	6,900	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
Toluene	EPA 8260	µg/kg	6,500	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
m,p-Xylene	EPA 8260	µg/kg	63,000	U (6.6)	U (6.2)	U (8.9)	U (8)	U (7.9)	U (5.4)	U (8.9)	U (6.5)	U (7.2)	U (7.9)	U (8.6)	U (8.6)	U (8.5)	U (20)
o-Xylene	EPA 8260	µg/kg		U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,1,1,2-Tetrachloroethane	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,1,1-Trichloroethane	EPA 8260	µg/kg	820	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,1,2,2-Tetrachloroethane	EPA 8260	µg/kg	17	U (2.9)	U (2.7)	U (3.9)	U (3.5)	U (3.5)	U (2.4)	U (3.9)	U (2.9)	U (3.2)	U (3.5)	U (3.8)	U (3.8)	U (3.7)	U (8.8)
1,1,2-Trichloroethane	EPA 8260	µg/kg	18	U (2.9)	U (2.7)	U (3.9)	U (3.5)	U (3.5)	U (2.4)	U (3.9)	U (2.9)	U (3.2)	U (3.5)	U (3.8)	U (3.8)	U (3.7)	U (8.8)
1,1-Dichloroethane	EPA 8260	µg/kg	25,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,1-Dichloroethene	EPA 8260	µg/kg	30	U (3.3)	U (3.1)	U (4.4)	U (4)	U (3.9)	U (2.7)	U (4.5)	U (3.3)	U (3.6)	U (3.9)	U (4.3)	U (4.3)	U (4.2)	U (10)
1,1-Dichloropropene	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,2,3-Trichlorobenzene	EPA 8260	µg/kg	-	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
1,2,3-Trichloropropane	EPA 8260	µg/kg	0.53	**U (9.9)**	**U (9.3)**	**U (13)**	**U (12)**	**U (12)**	**U (8.2)**	**U (13)**	**U (9.8)**	**U (11)**	**U (12)**	**U (13)**	**U (13)**	**U (13)**	**U (30)**
1,2,4-Trichlorobenzene	EPA 8260	µg/kg	850	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,2,4-Trimethylbenzene	EPA 8260	µg/kg	23,000	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
1,2-Dibromo-3-Chloropropane	EPA 8260	µg/kg	-	U (49)	U (47)	U (67)	U (60)	U (59)	U (41)	U (67)	U (49)	U (54)	U (59)	U (64)	U (64)	U (63)	U (150)
1,2-Dibromoethane	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,2-Dichlorobenzene	EPA 8260	µg/kg	5,100	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,2-Dichloroethane	EPA 8260	µg/kg	16	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,2-Dichloropropane	EPA 8260	µg/kg	18	3.3 U Q	3.1 U J Q ML	4.4 U Q ML	4 U Q ML	3.9 U Q	2.7 U Q	4.5 U Q	3.3 U Q	3.6 U Q	3.9 U Q	4.3 U Q	4.3 U Q	4.2 U Q	10 U Q
1,3,5-Trimethylbenzene	EPA 8260	µg/kg	23,000	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
1,3-Dichlorobenzene	EPA 8260	µg/kg	28,000	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
1,3-Dichloropropane	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
1,4-Dichlorobenzene	EPA 8260	µg/kg	640	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
2,2-Dichloropropane	EPA 8260	µg/kg	-	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
2-Butanone (MEK)	EPA 8260	µg/kg	59,000	U (99)	U (93)	U (130)	U (120)	U (120)	U (82)	U (130)	U (98)	U (110)	U (120)	U (130)	U (130)	U (130)	U (300)
2-Chlorotoluene	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
2-Hexanone	EPA 8260	µg/kg	-	U (49)	U (47)	U (67)	U (60)	U (59)	U (41)	U (67)	U (49)	U (54)	U (59)	U (64)	U (64)	U (63)	U (150)
4-Chlorotoluene	EPA 8260	µg/kg	-	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
4-Methyl-2-pentanone (MIBK)	EPA 8260	µg/kg	8100	U (49)	U (47)	U (67)	U (60)	U (59)	U (41)	U (67)	U (49)	U (54)	U (59)	U (64)	U (64)	U (63)	U (150)
Acetone	EPA 8260	µg/kg	88,000	U (49)	U (47)	U (67)	U (60)	U (59)	U (41)	U (67)	34 J	U (54)	U (59)	U (64)	U (64)	U (63)	U (150)
Bromobenzene	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Bromochloromethane	EPA 8260	µg/kg	-	U (9.9)	9.3 U J	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
Bromodichloromethane	EPA 8260	µg/kg	44	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Bromoform	EPA 8260	µg/kg	340	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
Bromomethane	EPA 8260	µg/kg	-	U (33)	U (31)	U (44)	U (40)	U (39)	U (27)	U (45)	U (33)	U (36)	U (39)	U (43)	U (43)	U (42)	U (100)
Carbon disulfide	EPA 8260	µg/kg	12,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Carbon tetrachloride	EPA 8260	µg/kg	23	U (3.3)	U (3.1)	U (4.4)	U (4)	U (3.9)	U (2.7)	U (4.5)	U (3.3)	U (3.6)	U (3.9)	U (4.3)	U (4.3)	U (4.2)	U (10)
Chlorobenzene	EPA 8260	µg/kg	630	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	13 U M	U (13)	U (30)
Chlorodibromomethane	EPA 8260	µg/kg	32	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Chloroethane	EPA 8260	µg/kg	580,000	U (99)	U (93)	U (130)	U (120)	U (120)	U (82)	U (130)	U (98)	U (110)	U (120)	U (130)	U (130)	U (130)	U (300)
Chloroform	EPA 8260	µg/kg	460	U (4.9)	4.7 U J ML	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Chloromethane	EPA 8260	µg/kg	-	U (99)	U (93)	U (130)	U (120)	U (120)	U (82)	U (130)	U (98)	U (110)	U (120)	U (130)	U (130)	U (130)	U (300)
cis-1,2-Dichloroethene	EPA 8260	µg/kg	240	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
cis-1,3-Dichloropropene	EPA 8260	µg/kg	33	U (3.3)	U (3.1)	U (4.4)	U (4)	U (3.9)	U (2.7)	U (4.5)	U (3.3)	U (3.6)	U (3.9)	U (4.3)	U (4.3)	U (4.2)	U (10)
Dibromomethane	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Dichlorodifluoromethane	EPA 8260	µg/kg	140,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Hexachlorobutadiene	EPA 8260	µg/kg	120	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Isopropylbenzene	EPA 8260	µg/kg	51,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Methyl tert-butyl ether	EPA 8260	µg/kg	1300	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
Methylene Chloride	EPA 8260	µg/kg	16	**17 B**	16 B	**30 B ML**	**26 B ML**	**18 B**	11 B	**20 B**	**23 B**	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	**63 B**
Naphthalene	EPA 8260	µg/kg	20,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
n-Butylbenzene	EPA 8260	µg/kg	15,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
N-Propylbenzene	EPA 8260	µg/kg	15,000	U (9.9)	U (9.3)	U (13)	U (12)	5.4 J	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
p-Isopropyltoluene	EPA 8260	µg/kg	-	U (4.9)	U (4.7)	U (6.7)	U (6)	4.5 J	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
sec-Butylbenzene	EPA 8260	µg/kg	12,000	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
Styrene	EPA 8260	µg/kg	960	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
tert-Butylbenzene	EPA 8260	µg/kg	12,000	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
Tetrachloroethene	EPA 8260	µg/kg	24	1.7 J	4.7 U J ML	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	3.2 J	6.4 U M	U (6.4)	U (6.3)	U (15)
trans-1,2-Dichloroethene	EPA 8260	µg/kg	370	U (4.9)	U (4.7)	U (6.7)	U (6)	U (5.9)	U (4.1)	U (6.7)	U (4.9)	U (5.4)	U (5.9)	U (6.4)	U (6.4)	U (6.3)	U (15)
trans-1,3-Dichloropropene	EPA 8260	µg/kg	33	U (3.3)	U (3.1)	U (4.4)	U (4)	U (3.9)	U (2.7)	U (4.5)	U (3.3)	U (3.6)	U (3.9)	U (4.3)	U (4.3)	U (4.2)	U (10)
Trichloroethene	EPA 8260	µg/kg	20	U (3.3)	U (3.1)	7.5 ML	5.5 J ML	U (3.9)	5.3	U (4.5)	5 J	U (3.6)	11	U (4.3)	U (4.3)	7	U (10)
Trichlorofluoromethane	EPA 8260	µg/kg	86,000	U (9.9)	U (9.3)	U (13)	U (12)	U (12)	U (8.2)	U (13)	U (9.8)	U (11)	U (12)	U (13)	U (13)	U (13)	U (30)
Vinyl chloride	EPA 8260	µg/kg	8.5	U (1.6)	U (1.6)	U (2.2)	U (2)	U (2)	U (1.4)	U (2.2)	U (1.6)	U (1.8)	U (2)	U (2.1)	U (2.1)	U (2.1)	U (5)

Key:

Action Limit - Most stringent ADEC 18 AAC 75 Method Two, Over 40-Inch Zone, Ingestion/Inhalation/Migration to Groundwater Soil Cleanup Level
All results in micrograms per kilogram (µg/kg)
"-" - No action limit specified for the analyte
Bold/Highlighted- Result is greater than the applicable Project Action Limit
B - Blank contamination: The analyte was detected above one-half the reporting limit in an associated blank

ft bgs - feet below ground surface
J - Estimated
ML - Result considered a low estimated value due to matrix effects
Q - One of more quality control failed
U - Analyte not detected at the Limit of Quantitation shown in parentheses

Table 3f: Confirmation Sample Results - Water
Ocean Cape Removal Action, Yakutat, Alaska

			Location ID	72
			SDG	580-38715
			Lab Sample ID	580-38715-1
			Sample ID	OC13-CS-SEPTIC1(W)-072
			Description	Following filtration and GAC
			Date Collected	5/30/13
			Time Collected	14:50
			Matrix	Water
Analyte-BTEX	**Method**	**Units**	**Action Limits**	
Benzene	EPA 8260	µg/L	5	U (0.45)
Ethylbenzene	EPA 8260	µg/L	700	0.16 J
Toluene	EPA 8260	µg/L	1,000	0.27 J
Xylenes, Total	EPA 8260	µg/L	10,000	U (0.45)
Total Aromatic Hydrocarbons	-	µg/L	10	0.43
Analyte-PAH	**Method**	**Units**	**Action Limits**	
1-Methylnaphthalene	EPA 8270 SIM	µg/L	150	U (0.015)
2-Methylnaphthalene	EPA 8270 SIM	µg/L	150	U (0.015)
Acenaphthene	EPA 8270 SIM	µg/L	2,200	0.007 J
Acenaphthylene	EPA 8270 SIM	µg/L	2,200	U (0.015)
Anthracene	EPA 8270 SIM	µg/L	11,000	U (0.015)
Benzo_a_anthracene	EPA 8270 SIM	µg/L	1.2	U (0.015)
Benzo_a_pyrene	EPA 8270 SIM	µg/L	0.2	0.015 U Q
Benzo_b_fluoranthene	EPA 8270 SIM	µg/L	1.2	U (0.015)
Benzo_g,h,i_perylene	EPA 8270 SIM	µg/L	1,100	U (0.015)
Benzo_k_fluoranthene	EPA 8270 SIM	µg/L	12	U (0.015)
Chrysene	EPA 8270 SIM	µg/L	120	U (0.015)
Dibenz(a,h)anthracene	EPA 8270 SIM	µg/L	0.12	U (0.015)
Fluoranthene	EPA 8270 SIM	µg/L	1,500	U (0.015)
Fluorene	EPA 8270 SIM	µg/L	1,500	U (0.015)
Indeno_1,2,3-cd_pyrene	EPA 8270 SIM	µg/L	1.2	U (0.015)
Naphthalene	EPA 8270 SIM	µg/L	730	0.009 J
Phenanthrene	EPA 8270 SIM	µg/L	11,000	U (0.015)
Pyrene	EPA 8270 SIM	µg/L	1,100	U (0.015)
Total Aqueous Hydrocarbons	-	µg/L	15	0.461
Analyte-PCB	**Method**	**Units**	**Action Limits**	
PCB-1016	SW 8082	µg/L	-	U (0.049)
PCB-1221	SW 8082	µg/L	-	U (0.098)
PCB-1232	SW 8082	µg/L	-	U (0.049)
PCB-1242	SW 8082	µg/L	-	U (0.049)
PCB-1248	SW 8082	µg/L	-	U (0.098)
PCB-1254	SW 8082	µg/L	-	U (0.049)
PCB-1260	SW 8082	µg/L	-	U (0.049)
Total	**-**	µg/L	0.5	U

Key:

All results in micrograms per liter (µg/L)

Action Limit- ADEC Table C, 18 AAC 75.345 (shown) and ADEC 18 AAC 70

Bold/Highlighed - Result is greater than the applicable action limit

J - Estimated

Q - One or more quality control criteria failed

U - Analyte not detected at the Limit of Quantitation shown in parentheses

Table 4a: Waste Characterization Sample Results - PCBs in Concrete
Ocean Cape Removal Action, Yakutat, Alaska

Concrete Samples

			Location ID	001	016	017	026	030	052		055	056	077	078	079		081	082	083	084	085	086
			SDG	580-38435	580-38482	580-38482	580-38519	580-38573	580-38573	580-38573	580-38573	580-38573	580-38715	580-38715	580-37815	580-37815	580-37815	580-37815	580-37815	580-37815	580-37815	580-37815
			Lab Sample ID	580-38435-1	580-38482-6	580-38482-7	580-38519-9	580-38573-1	580-38573-22	580-38573-23	580-38573-25	580-38573-26	580-38715-11	580-38715-12	580-37815-13	580-37815-14	580-37815-15	580-37815-16	580-37815-17	580-37815-18	580-37815-19	580-37815-20
			Sample ID	OC13-WS-SP-MH2+150(C)-001	OC13-WS-MH3+135(C)-016	OC13-WS-MH1+165(C)-017	OC13-WS-MH1CB+60(C)-026	OC13-WS-SEPTIC+240(C)-030	OC13-WS-MH1(C)-052	OC13-WS-MH1(C)-053	OC13-WS-MH2(C)-055	OC13-WS-MH3(C)-056	OC13-WS-SEPTIC1(C)-077	OC13-WS-SEPTIC1(C)-078	OC13-WS-SEPTIC1(C)-079	OC13-WS-SEPTIC1(C)-080	OC13-WS-SEPTIC1(C)-081	OC13-WS-SEPTIC1(C)-082	OC13-WS-SEPTIC1(C)-083	OC13-WS-SEPTIC1(C)-084	OC13-WS-SEPTIC1(C)-085	OC13-WS-SEPTIC1(C)-086
			Description	Manhole 3 Effluent	Radio Relay Building Effluent	Manhole 2 Effluent	Composite Building Effluent	Manhole 1 Effluent	Manhole 1 Floor		Manhole 2 Floor	Manhole 3 Floor	Septic Tank NW corner wall	Septic Tank NE corner wall	Septic Tank main compartment floor		Septic Tank main compartment east wall	Septic Tank main compartment west wall	Septic Tank - SE compartment east wall	Septic Tank - SW compartment west wall	Septic Tank - SE compartment floor	Septic Tank - SW compartment floor
			Date Collected	5/11/2013	5/15/2013	5/15/2013	5/18/2013	5/19/2013	5/22/2013		5/22/2013	5/22/2013	6/2/2013	6/2/2013	6/2/2013		6/2/2013	6/2/2013	6/2/2013	6/2/2013	6/2/2013	6/2/2013
			Time Collected	11:30	11:45	12:15	15:35	16:45	13:30	13:45	14:15	14:30	9:05	9:20	9:30	9:35	9:38	9:45	10:15	10:25	10:45	10:55
			Matrix	Concrete	Concrete	Concrete	Concrete	Concrete	Concrete		Concrete	Concrete	Concrete	Concrete	Concrete		Concrete	Concrete	Concrete	Concrete	Concrete	Concrete
Analyte	**Method**	**Units**	**Action Limit**																			
PCB-1016	8082	mg/kg	-	U (0.0051)	U (0.005)	U (0.0049)	U (0.0053)	U (0.005)	U (0.0054)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0049)	U (0.0051)	U (0.0053)	U (0.0054)	U (0.005)	U (0.0053)	U (0.0053)	U (0.0049)	U (0.0052)	U (0.0053)
PCB-1221	8082	mg/kg	-	U (0.01)	U (0.0099)	U (0.0098)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.0098)	U (0.01)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.0097)	U (0.01)	U (0.011)
PCB-1232	8082	mg/kg	-	U (0.01)	U (0.0099)	U (0.0098)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.0098)	U (0.01)	U (0.011)	U (0.011)	U (0.01)	U (0.011)	U (0.011)	U (0.0097)	U (0.01)	U (0.011)
PCB-1242	8082	mg/kg	-	U (0.0051)	U (0.005)	U (0.0049)	U (0.0053)	U (0.005)	U (0.0054)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0049)	U (0.0051)	U (0.0053)	U (0.0054)	U (0.005)	U (0.0053)	U (0.0053)	U (0.0049)	U (0.0052)	U (0.0053)
PCB-1248	8082	mg/kg	-	U (0.0051)	U (0.005)	U (0.0049)	U (0.0053)	U (0.005)	U (0.0054)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0049)	U (0.0051)	U (0.0053)	U (0.0054)	U (0.005)	U (0.0053)	U (0.0053)	U (0.0049)	U (0.0052)	U (0.0053)
PCB-1254	8082	mg/kg	-	U (0.0051)	U (0.005)	U (0.0049)	U (0.0053)	U (0.005)	U (0.0054)	U (0.0055)	U (0.0052)	U (0.0053)	U (0.0049)	U (0.0051)	U (0.0053)	U (0.0054)	U (0.005)	U (0.0053)	U (0.0053)	U (0.0049)	U (0.0052)	U (0.0053)
PCB-1260	8082	mg/kg	-	U (0.0051)	U (0.005)	U (0.0049)	0.21	0.38 J MN	0.044	0.03	0.033 J MH	0.076	0.01	U (0.0051)	U (0.0053)	U (0.0054)	0.029	0.12	0.011	0.0075 J	U (0.0052)	U (0.0053)
Total			1	U	U	U	0.21	0.38	0.044	0.03	0.033	0.076	0.01	U	U	U	0.029	0.12	0.011	0.0075	U	U

Key:

Action Limit - ADEC Method Two, Over 40-Inch Zone, Direct Contact (18 AAC 75)
J - Estimated as between detection limit and limit of quantitation
MH - Estimated high due to matrix effects
MN - Estimated due to matrix effects
mg/kg - milligrams per kilogram
U - Not detected at the Limit of Quantitation shown in parentheses

Table 4b: Waste Characterization Sample Results - Soil and Sludge
Ocean Cape Removal Action, Yakutat, Alaska

				Cast Iron Piping Samples						Manhole, Concrete Piping, and Lift Station Contents Samples							Septic Tank Contents Samples		Soil Stockpile	Oily Waste
			Location ID	009	024	025	033		048	12-CP	12-EP	12-IP	12-MH1		12-MH2	066	13-Septic	058	076	089
			SDG	580-38435	580-38519	580-38519	580-38573	580-38573	580-38573	580-35224	580-35224	580-35224	580-35224	580-35224	580-35224	580-38666	580-38170	580-38666	580-38715	580-39514
			Lab Sample ID	580-38435-9	580-38519-7	580-38519-8	580-38573-27	580-38573-28	580-38573-18	580-35224-4	580-35224-5	580-35224-3	580-35224-1	580-35224-2	580-35224-6	580-38666-9	580-38170-1	580-38666-1	580-38715-10	580-39514-1
			Sample ID	OC13-WS-SP-MH3+140(SG)-009	OC13-WS-MH1CB+80N(SG)-024	OC13-WS-MH1CB+15NE(SG)-025	OC13-WS-FD(SG)-033	OC13-WS-FD(SG)-057	OC13-WS-MH1CB+78S(SG)-048	OC-12-WS-CP	OC-12-WS-EP	OC-12-WS-IP	OC-12-WS-MH1	OC-12-WS-MH10	OC-12-WS-MH2	OC13-WS-LS(SG)-066	OC13-WS-Septic 1 (s)	OC13-WS-SEPTIC1(SG)-058	OC13-WS-GB(SS)-076	OC13-WS-089
			Description	Radio Relay Bldg piping sludge	Composite Bldg north piping sludge	Composite Bldg northeast piping sludge	Floor drain sludge		Composite Bldg south piping sludge	Radio Relay Bldg piping sludge at MH1	Septic Tank piping sludge at MH1	Composite Bldg piping sludge at MH1	Manhole 1 sludge		Manhole 2 sludge	Lift station sludge	Septic tank effluent sludge	Septic tank effluent sludge	Garage Building crib stockpile	Oily Waste
			Date Collected	5/12/2013	5/17/2013	5/17/2013	5/20/2013	5/22/2013	5/21/2013	9/26/2012	9/26/2012	9/26/2012	9/26/2012	9/26/2012	9/26/2012	5/28/2013	4/21/2013	5/27/2013	6/1/2013	7/26/2013
			Time Collected	17:30	12:30	12:40	17:15	15:00	18:20	16:20	16:25	16:15	16:00	16:10	17:00	17:55	12:30	17:05	17:45	15:00
			Matrix	Sludge	Sludge	Sludge	Sludge		Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Sludge	Soil	Solid
Analyte	**Method**	**Units**	**Action Limit**																	
DRO Result (nC10-<nC25)	AK 102	mg/kg	230	7 J	17 J B	57 B	**3100 J MH**	**2900**	26 J	**7700 J MN**	**1200**	**980**	**3000**	**4900**	78	**410**	**8100 J MN**	**2200**	-	-
RRO Result (nC25-nC36)	AK 103	mg/kg	8,300	62	36 J	80	**12000 J MN**	**13000**	200	**9800 J MN**	3300	2100	5100	8000	410	960	**13000 J MN**	1600	-	-
Analyte	**Method**	**Units**	**Action Limit**																	
PCB-1016	8082	mg/kg	-	U (0.0056)	U (0.0057)	U (0.0053)	0.0073 U J ML	U (0.0081)	U (0.0089)	0.022 U J ML	U (0.018)	U (0.012)	U (0.025)	U (0.019)	U (0.0066)	U (0.0056)	0.51	U (0.016)	-	-
PCB-1221	8082	mg/kg	-	U (0.011)	U (0.011)	U (0.011)	U (0.015)	U (0.016)	U (0.018)	U (0.044)	U (0.036)	U (0.024)	U (0.05)	U (0.038)	U (0.013)	U (0.011)	U (0.43)	U (0.032)	-	-
PCB-1232	8082	mg/kg	-	U (0.011)	U (0.011)	U (0.011)	U (0.015)	U (0.016)	U (0.018)	U (0.044)	U (0.036)	U (0.024)	U (0.05)	U (0.038)	U (0.013)	U (0.011)	U (0.043)	U (0.032)	-	-
PCB-1242	8082	mg/kg	-	U (0.0056)	U (0.0057)	U (0.0053)	U (0.0073)	U (0.0081)	U (0.0089)	U (0.022)	U (0.018)	U (0.012)	U (0.025)	U (0.019)	U (0.0066)	U (0.0056)	U (0.21)	U (0.016)	-	-
PCB-1248	8082	mg/kg	-	U (0.0056)	U (0.0057)	U (0.0053)	U (0.0073)	U (0.0081)	U (0.0089)	U (0.022)	U (0.018)	U (0.012)	U (0.025)	U (0.019)	U (0.0066)	U (0.0056)	U (0.21)	U (0.016)	-	-
PCB-1254	8082	mg/kg	-	U (0.0056)	U (0.0057)	U (0.0053)	0.69 ML	0.79	0.13	U (0.022)	U (0.018)	U (0.012)	U (0.025)	U (0.019)	U (0.0066)	U (0.0056)	5 MH	U (0.016)	-	-
PCB-1260	8082	mg/kg	-	U (0.0056)	U (0.0057)	0.043	0.68 J ML	0.81	0.15	32 J ML	37	20	29	66	0.24	0.17	21 MH	0.19	-	-
Total	-	mg/kg	1	U	U	0.043	**1.37**	**1.6**	0.28	**32.022**	**37**	**20**	**29**	**66**	0.24	0.17	**26.51**	0.19	-	-
Analyte	**Method**	**Units**	**Action Limit***																	
Arsenic	6020 TCLP	mg/L	5	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	0.016	0.017	0.014	0.016	0.016	U (0.008)	0.021	0.04	U (0.008)	U (0.008)	-
Barium	6020 TCLP	mg/L	100	0.68	0.46	0.68	1.3	1.5	0.49	0.75	0.56	0.44	0.64	0.4	1.2	0.25	0.54	0.32	0.36	-
Cadmium	6020 TCLP	mg/L	1.0	0.0031 J	0.0016 J	0.0017 J	0.053	0.061	0.021	0.18	0.1	0.076	0.36	0.28	0.13	0.0064	0.0037 J	U (0.0005)	0.0016 J	-
Chromium	6020 TCLP	mg/L	5	0.0035 J	0.0077	0.012	0.024	0.02	0.0043	0.0074	0.016	0.013	0.0084	0.0093	0.0037 J	U (0.003)	0.0038 J	0.04	0.0047	-
Lead	6020 TCLP	mg/L	5	0.0016 J	0.052	0.0045	**510 J ML**	**600**	**14**	0.13	0.069	0.15	0.11	0.065	1.1	0.0017 J	0.043	0.0048	0.0081	-
Selenium	6020 TCLP	mg/L	1	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	U (0.008)	-
Silver	6020 TCLP	mg/L	5	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	U (0.0005)	-
Mercury	7470A TCLP	mg/L	0.2	0.00052 J	U (0.001)	0.001 U J ML	U (0.001)	0.00078 J B	0.00074 J B	0.00064 J B	0.00062 J B	0.00058 J B	0.00054 J B	0.00054 J B	0.00061 J B	U (0.001)	U (0.001)	U (0.001)	U (0.0010)	-
Analyte	**Method**	**Units**	**Action Limit***																	
1,1-Dichloroethene	8260B TCLP	ug/L	700	-	-	-	U (45) J	U (45)												-
1,2-Dichloroethane	8260B TCLP	ug/L	500	-	-	-	U (45) J	U (45)												-
2-Butanone/MEK	8260B TCLP	ug/L	200,000	-	-	-	U (450) J	U (450)												-
Benzene	8260B TCLP	ug/L	500	-	-	-	U (45) J MH	U (45)												U (45)
Carbon tetrachloride	8260B TCLP	ug/L	500	-	-	-	U (45) J	U (45)												-
Chlorobenzene	8260B TCLP	ug/L	100,000	-	-	-	U (45) J MH	U (45)												-
Chloroform	8260B TCLP	ug/L	6,000	-	-	-	U (45) J	U (45)												-
Tetrachloroethene	8260B TCLP	ug/L	700	-	-	-	U (45) J	U (45)												-
Trichloroethene	8260B TCLP	ug/L	500	-	-	-	18 J	23 J												-
Vinyl chloride	8260B TCLP	ug/L	200	-	-	-	U (45) J	U (45)												-

Key:
Action Limit - ADEC Method Two, Over 40-Inch Zone, Migration to Groundwater/Direct Contact (18 AAC 75)
Action Limit* - 40 CFR 261.24
Bold/Highlighted - Result is greater than the applicable action limit.
"-" - Analysis not requested
B - Estimated due to method or trip blank concentrations
J - Estimated as between detection limit and limit of quantitation
MEK - Methyl ethyl ketone
MH - Estimated high due to matrix effects
ML - Estimated low due to matrix effects
MN - Estimated due to matrix effects
ug/L - micrograms per liter
mg/L - milligrams per liter
mg/kg - milligrams per kilogram
QN - Estimated value
TCLP - Toxicity Characteristic Leachate Procedure
U - Not detected at the Limit of Quantitation shown in parentheses

Table 4c: Waste Characterization Sample Results - Water
Ocean Cape Removal Action, Yakutat, Alaska

			Location ID	13-Septic	
			SDG	580-38170	580-38170
			Lab Sample ID	580-38170-2	580-38170-3
			Sample ID	OC13-WS-Septic 1 (w)	OC13-WS-Septic 10 (w)
			Description	Septic Tank effluent fluid	
			Date Collected	4/21/2013	4/21/2013
			Time Collected	15:00	15:30
			Matrix	Water	Water
Analyte	**Method**	**Units**	**Action Limit**		
Arsenic	6020	mg/L	0.01	U (0.004)	U (0.004)
Barium	6020	mg/L	2	0.052	0.056
Cadmium	6020	mg/L	0.005	0.00096 J	0.00094 J
Chromium	6020	mg/L	0.1	U (0.0015)	U (0.0015)
Lead	6020	mg/L	0.015	0.0028	0.0034
Selenium	6020	mg/L	0.05	U (0.004)	U (0.004)
Silver	6020	mg/L	0.1	U (0.00025)	U (0.00025)
Mercury	7471	mg/L	0.002	0.00005 J	0.000051 J
Analyte	**Method**	**Units**	**Action Limit**		
DRO Result(nC10-<nC25)	AK 102	mg/L	1.5	**1.6 QN**	**1.5 QN**
RRO Result(nC25-nC36)	AK 103	mg/L	1.1	1.0 QN	**1.1 QN**
Analyte	**Method**	**Units**	**Action Limit**		
PCB-1016	8082	ug/L	-	U (0.096)	U (0.098)
PCB-1221	8082	ug/L	-	U (0.12)	U (0.13)
PCB-1232	8082	ug/L	-	U (0.096)	U (0.098)
PCB-1242	8082	ug/L	-	U (0.096)	U (0.098)
PCB-1248	8082	ug/L	-	U (0.077)	U (0.078)
PCB-1254	8082	ug/L	-	0.37 J MH	0.17 J MH
PCB-1260	8082	ug/L	-	0.61 MH	0.7 MH
Total	-	ug/L	0.5	**0.98**	**0.87**

Key:
Action Limit - ADEC Table C (18 AAC 75.345)
Bold/highlight - Result is greater than the applicable action level.
B - Estimated due to method or trip blank concentrations
J - Estimated as between detection limit and limit of quantitation
mg/l - milligrams per liter
MH - Estimated high due to matrix effects
ML - Estimated low due to matrix effects
MN - Estimated due to matrix effects
QN - Estimated value
ug/L - micrograms per liter
U - Not detected at the Limit of Quantitation shown in parentheses

Table 5: Waste Characterization and Transport Log
Ocean Cape Removal Action, Yakutat, Alaska

Container #	Date Material Generated	Weight (pounds)	Container Type	Contents	Waste Characterization Sample	Waste Classification	Profile Number	Manifest Number	Date Moved Off-Site	Shipping Container Identifier	Final TSDF/ Location
OCCRS-001	5/7/2013 and 5/20/2013	174	55-gal OT steel drum	Sediment From Garage Building North Floor Drain Trap, PPE	OC13-WS-FD(SG)-033	RCRA - Pb	OR322813	007841685JJK	6/7/2013	AMLU333111	Chemical Waste Management NW
OCCRS-002	5/8/2013	1,500	I CY SuperSack	Concrete Sewer Pipe MH2+0 - MH2+50	OC13-WS-SP-MH2+150(c)-001	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCCRS-003	5/10/2013	630	I CY SuperSack	Concrete Sewer Pipe - MH2+50 - MH2+112	OC13-WS-SP-MH2+150(c)-001	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCCRS-004	5/11/2013	1,300	I CY SuperSack	Concrete Sewer Pipe - MH2+112 - MH2+150	OC13-WS-SP-MH2+150(c)-001	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCCRS-005	5/12/2013	1,805	I CY SuperSack	Concrete Sewer Pipe - MH3+0 - MH3+65	OC13-WS-MH3+135(c)-016	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCCRS-006	5/12/2013	1,840	I CY SuperSack	Concrete Sewer Pipe - MH3+65 - MH3+130	OC13-WS-MH3+135(c)-016	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCCRS-007	5/12/2013	315	I CY SuperSack	Concrete Sewer Pipe - MH3+130 - MH3+135	OC13-WS-MH3+135(c)-016	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-008	5/12/2013	481	I CY SuperSack	Cast Iron Sewer Pipe - MH3+135 - MH3+149	OC13-WS-SP-MH3+140(sg)-009	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-009	5/15/2013	1,898	I CY SuperSack	Concrete Sewer Pipe - MH1+165 - MH1+110	OC13-WS-MH1+165(c)-017	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-010	5/15/2013	1,470	I CY SuperSack	Concrete Sewer Pipe - MH1+110 - MH1+55	OC13-WS-MH1+165(c)-017	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-011	5/15/2013	1,814	I CY SuperSack	Concrete Sewer Pipe - MH1+55 - MH1+0	OC13-WS-MH1+165(c)-017	Non-Haz (PCB=ND)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-012	5/16/2013	1,975	I CY SuperSack	Concrete and Cast Iron Sewer Pipe - MH1/CB+0 - MH1/CB+75	OC13-WS-MH1CB+60(C)-026	Non-Haz (PCB=0.21)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-013	5/16/2013	2,082	I CY SuperSack	Cast Iron Sewer Pipe - MH1/CBN+0-MH1/CBN+80 & MH1/CBN+0-MH1/CBNE+15	OC13-WS-MH1CB+80N(SG)-024 OC13-WS-MH1CB+15NE(SG)-025	Non-Haz (PCB=ND -024 & PCB=0.043 -025)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-014	5/19/213	298	55-gal OT steel drum	TSCA sludge and debris removed from Manhole #1	OC-12-WS-MH1 /OC-12-WS-MH10	TSCA Waste (PCB>50 mg/kg)	OR322668	007841685JJK	6/7/2013	AMLU333111	Chemical Waste Management NW
OCRRS-015	5/19/2013	1,795	I CY SuperSack	Concrete Sewer Pipe - Septic+240-Septic+165	OC13-WS-SEPTIC+240(C)-030	Non-Haz (PCB=0.38)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-016	5/20/2013	1,042	I CY SuperSack	Concrete Sewer Pipe - Septic +165-Septic+120	OC13-WS-SEPTIC+240(C)-030	Non-Haz (PCB=0.38)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-017	5/20/2013	1,702	I CY SuperSack	Concrete Sewer Pipe - Septic+0-Septic+56	OC13-WS-SEPTIC+240(C)-030	Non-Haz (PCB=0.38)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-018	5/20/2013	2,112	I CY SuperSack	Concrete Sewer Pipe - Septic+56-Septic +120	OC13-WS-SEPTIC+240(C)-030	Non-Haz (PCB=0.38)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-019	5/21/2013	1,473	I CY SuperSack	Cast Iron Sewer Pipe - MH1/CBS+0-MH1/CBS+100	OC13-WS-MH1CB+78S(SG)-048	RCRA - Pb	OR322813	007841685JJK	6/7/2013	AMLU333111	Chemical Waste Management NW
OCRRS-020	5/21/2013	1404	I CY SuperSack	Cast Iron Sewer Pipe - IGB+0-IGB+42 (inside GB)	OC13-WS-FD(SG)-033	RCRA - Pb	OR322813	007841685JJK	6/7/2013	AMLU333111	Chemical Waste Management NW
OCRRS-021	5/21/2013	1,238	I CY SuperSack	Concrete Sewer Pipe - OGB+0-OGB+25 (outside GB)	OC13-WS-FD(SG)-033	RCRA - Pb	OR322813	007841685JJK	6/7/2013	AMLU333111	Chemical Waste Management NW
OCRRS-022	5/24/2013	714	1 CY supersack	Wood debris from south manway and south compartment septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-023	Begin filling 5/24/2013 filled 5/29/2013	2,750	275 gal Iso-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2012	AMLU333101	Columbia Ridge Landfill
OCRRS-024	5/25/2013	250	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2012	AMLU333101	Columbia Ridge Landfill
OCRRS-025	5/25/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2012	AMLU333101	Columbia Ridge Landfill
OCRRS-026	Begin filling 5/25/2013	150	1 CY Supersack	PPE, IDW, and septic tank debris	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-027	5/27/2013	1,088	I CY Supersack	Septic tank outfall pipe - 0' to 38' + 10' of broken pipe	OC13-WS-SEPTIC1(SG)-058	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-028	5/27/2013	1,752	1 CY Supersack	Sludge removed from Lift Station Structure	OC13-WS-LS(SG)-066	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-029	5/29/2013	2,750	275 gal Iso-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-030	5/29/2013	2,750	275 gal Iso-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-031	5/29/2013	2,750	275 gal Iso-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-032	5/29/2013	2,750	275 gal Iso-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-033	5/29/2013	200	55-GAL DRUM	water treatment filters, tank debris	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-034	5/30/2013	4,875	None	Concrete MH3	OC13-WS-MH3(C)-056	Non-Haz (PCB=0.076)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-035	5/30/2013	2,437	None	Concrete MH1	OC13-WS-MH1(C)-052/053	Non-Haz (PCB=0.044)	112807OR	OCRRS13-001	5/31/2013	WMXU-420641	Columbia Ridge Landfill
OCRRS-036	5/31/2013	2,750	275 gal ISO-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-037	5/31/2013	2,750	275 gal ISO-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill

Table 5: Waste Characterization and Transport Log
Ocean Cape Removal Action, Yakutat, Alaska

Container #	Date Material Generated	Weight (pounds)	Container Type	Contents	Waste Characterization Sample	Waste Classification	Profile Number	Manifest Number	Date Moved Off-Site	Shipping Container Identifier	Final TSDF/ Location
OCRRS-038	6/1/2013	2,750	275 gal ISO-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-039	6/1/2013	2750	275 gal ISO-tank	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-003	6/6/2013	AMLU333101	Columbia Ridge Landfill
OCRRS-040	6/1/2013	508	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-041	6/1/2013	481	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-042	6/1/2013	494	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-043	6/1/2013	330	I CY SuperSack	Wood debris removed from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU440191	Columbia Ridge Landfill
OCRRS-044	6/2/2013	2010	I CY SuperSack	RCRA Pb removed from below Floor Drain 3	OC13-WS-FD(SG)-033	RCRA - Pb	OR322813	007841685JJK	6/7/2013	AMLU333111	Chemical Waste Management NW
OCRRS-045	6/2/2013	2437	None	MH2 - concrete	OC13-WS-MH2(C)-055	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU440191	Columbia Ridge Landfill
OCRRS-046	6/2/2013	4200	None	Lift Station concrete	OC13-WS-LS(SG)-066	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU440191	Columbia Ridge Landfill
OCRRS-047	6/3/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-048	6/3/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-049	6/3/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-050	6/3/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-051	6/3/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-052	6/4/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-053	6/4/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-054	6/4/2013	550	55 gallon drum	Sludge from septic tank	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-055	6/4/2013	550	55 gallon drum	Sludge from septic tank and Septic Tank Debris	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-056	6/4/2013	250	55 gallon drum	Septic Tank Debris and Used PPE	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-057	6/4/2013	250	55 gallon drum	Septic Tank Debris and Used PPE	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS-004	6/7/2013	AMLU333111	Columbia Ridge Landfill
OCRRS-058	6/4/2013	800	1 CY Supersack	Granulated Activated Carbon	0C13-WS-SEPTIC1(S) OC13-WS-SEPTIC1(W)	Non-Haz (PCB<50)	OR322714	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-059	6/5/2013	3000	1 CY Supersack	POL Soil-Garage Crib Stockpile	OC13-CS-GB(SS)-071 OC13-WS-GB(SS)-076	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-060	6/5/2013	3000	1 CY Supersack	POL Soil-Garage Crib Stockpile	OC13-CS-GB(SS)-071 OC13-WS-GB(SS)-076	Non-Haz (PCB<50)	112807OR	OCRRS13-002	6/5/2013	WMXU420191	Columbia Ridge Landfill
OCRRS-061	5/7/2013	150	55 gallon drum	Oily Waste	OC13-WS-089	Non-Haz (Benzene = ND)	NA	20346A	6/8/2013	55-gal drum	Emerald Alaska
Total Waste		**87,974**									
Total - Non-Haz Concrete/ Cast Iron Pipe		**38,798**									
Total - Non-Haz Solids/liquid		**42,579**									
Total - TSCA/RCRA Waste		**6,597**									
NON-CONTAMINATED DEBRIS											
		NA	None	MH1 Upper Concrete Collar	NA - No contaminant exposure	Uncontaminated					Septic Tank
		NA	None	MH2 Upper Concrete Collar	NA - No contaminant exposure	Uncontaminated					Septic Tank
NA	5/6-5/21	**NA**	Flatbed (3 loads)	Useable Trees-logs/firewood	NA	Recycle			5/24/2013	Local Recycling	Yak-Tat -Kwan
NA	5/6-5/21	**NA**	30-yd Dump	Low-grade trees/slash	NA	Recycle			5/28/2013	Local Recycling	Yakutat Landfill
		NA	None	Septic Tank Lid	NA - No contaminant exposure	Uncontaminated					Septic Tank
		NA	Bags	Solid Waste	NA - Domestic/Admin. Waste	Uncontaminated					Yakutat Landfill

FIGURES

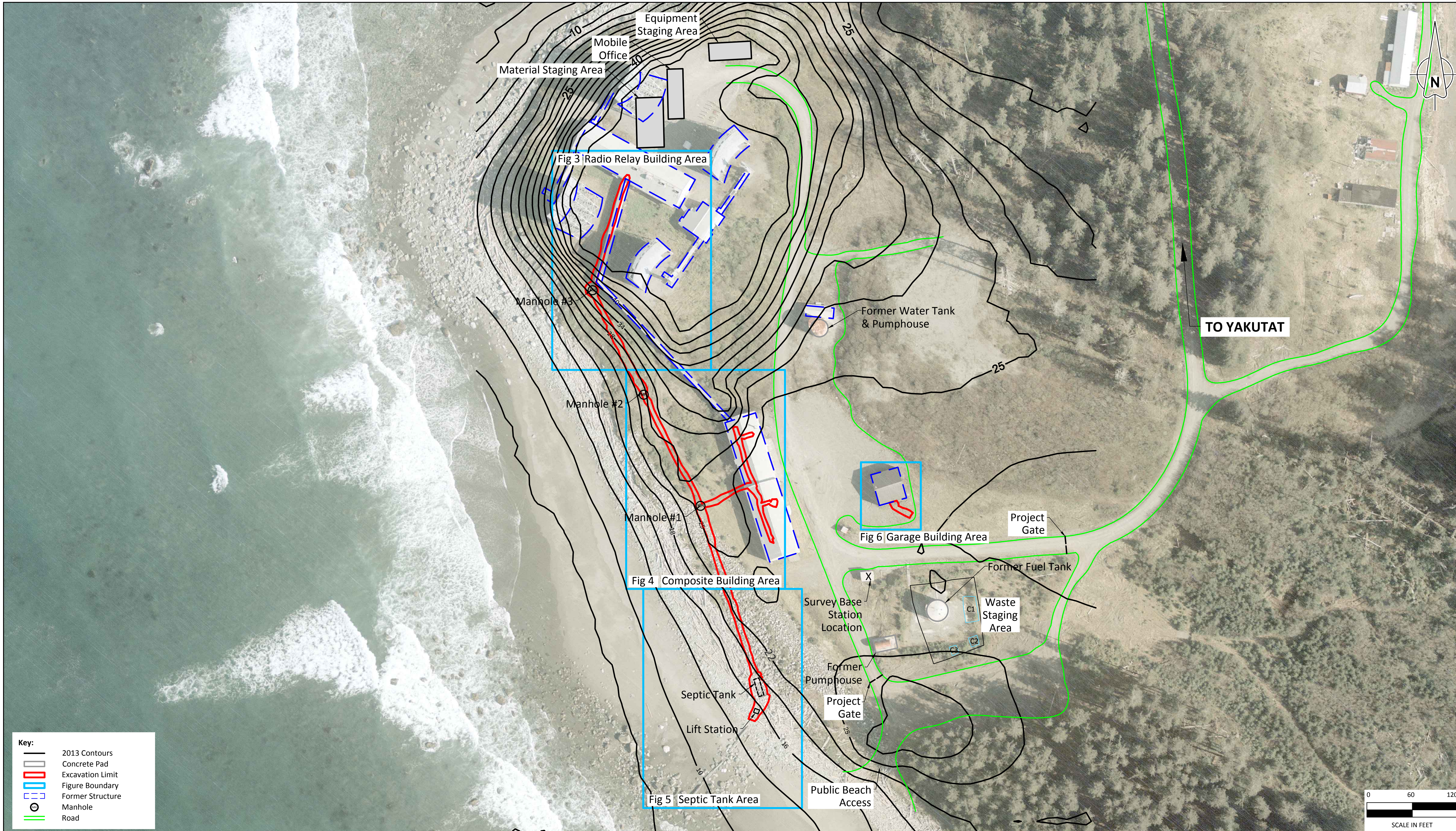
1. All locations are approximate.
2. Image is from USGS Maps, 2013 - AK_Yakutat C-5 SW_353862_25000_geo-1.

Ocean Cape CON/HTRW Removal Action Report
Yakutat, Alaska

Ahtna Engineering

State and Site Vicinity Maps

Project Number: 20214
Date: 05.17.2013
Drawn By: G.R.
Figure Number: 1



Notes:

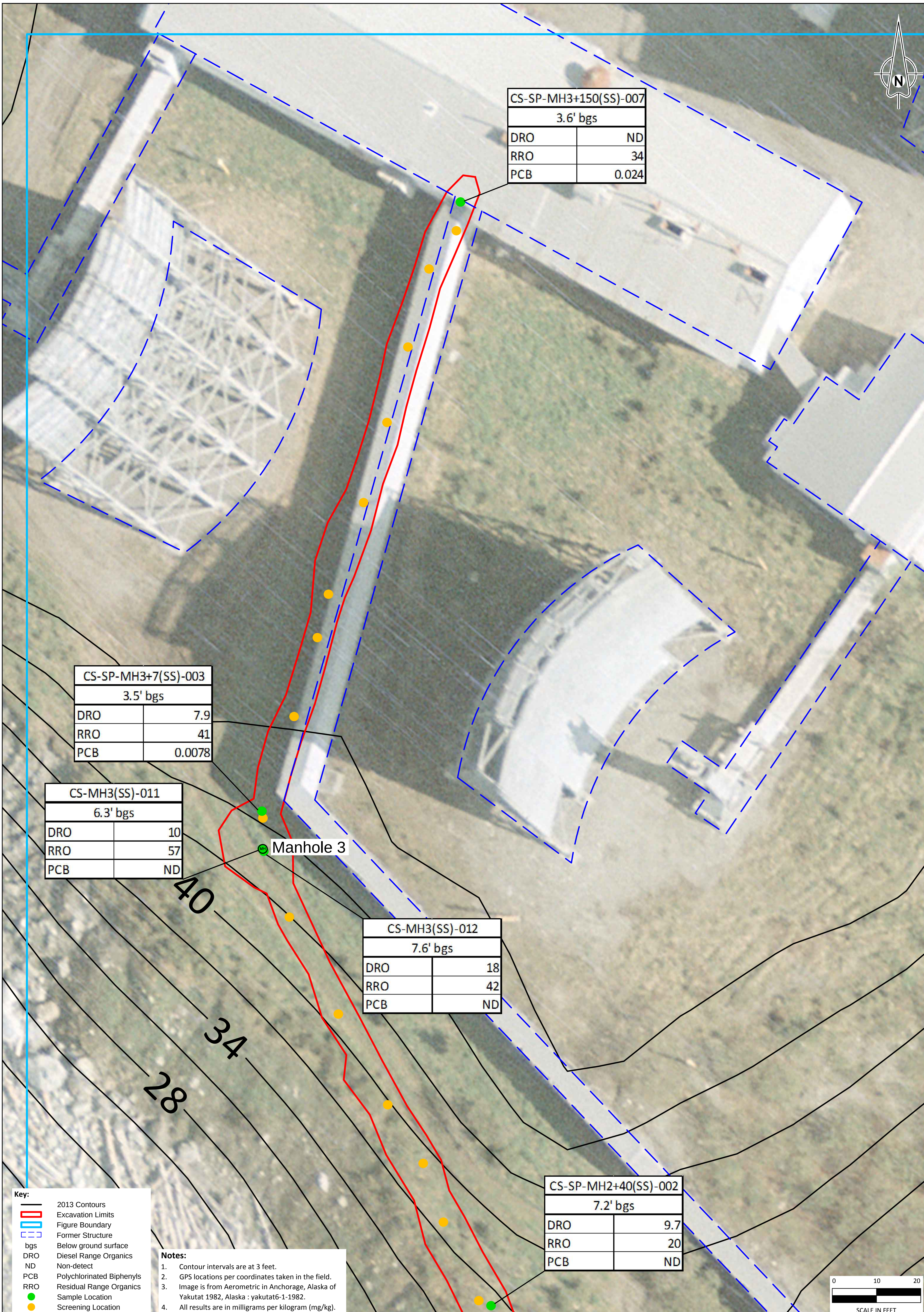
1. Contour intervals are at 3 feet.
2. GPS locations per coordinates taken in the field.
3. Image is from Aerometric in Anchorage, Alaska of Yakutat 1982, Alaska : yakutat6-1-1982.

Ocean Cape CON/HTRW Removal Action Report
Yakutat, Alaska

Ahtna Engineering

Site Layout and Excavation Overview with Topography

Project Number: 20214	Figure Number: 2
Date: 10.08.2013	
Drawn By: G.R.	

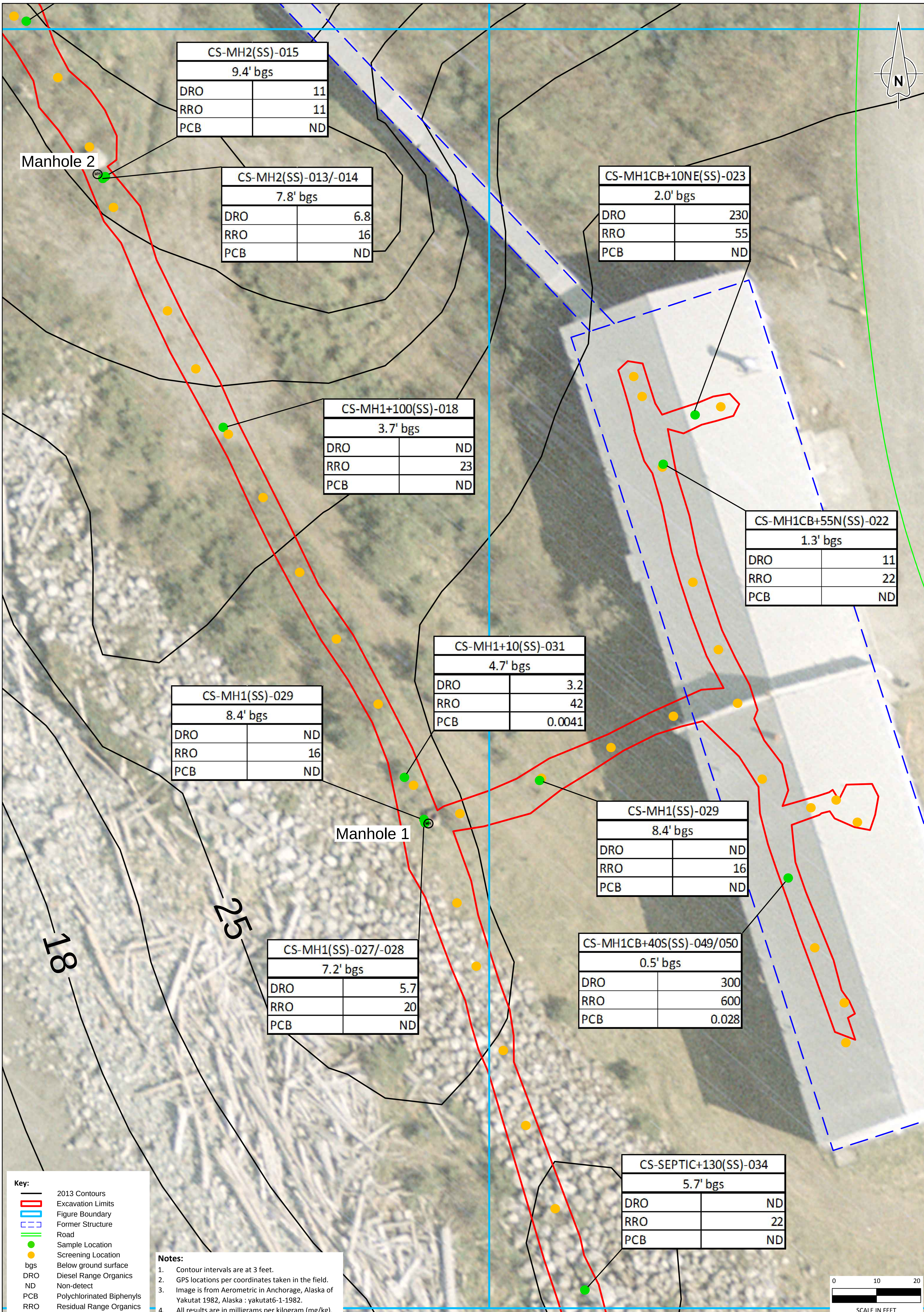


Ocean Cape CON/HTRW Removal Action Report
Yakutat, Alaska

Ahtna Engineering

Radio Relay Building Area Screening and Results

Project Number: 20214
Date: 10.08.2013
Drawn By: G.R.
Figure Number: 3

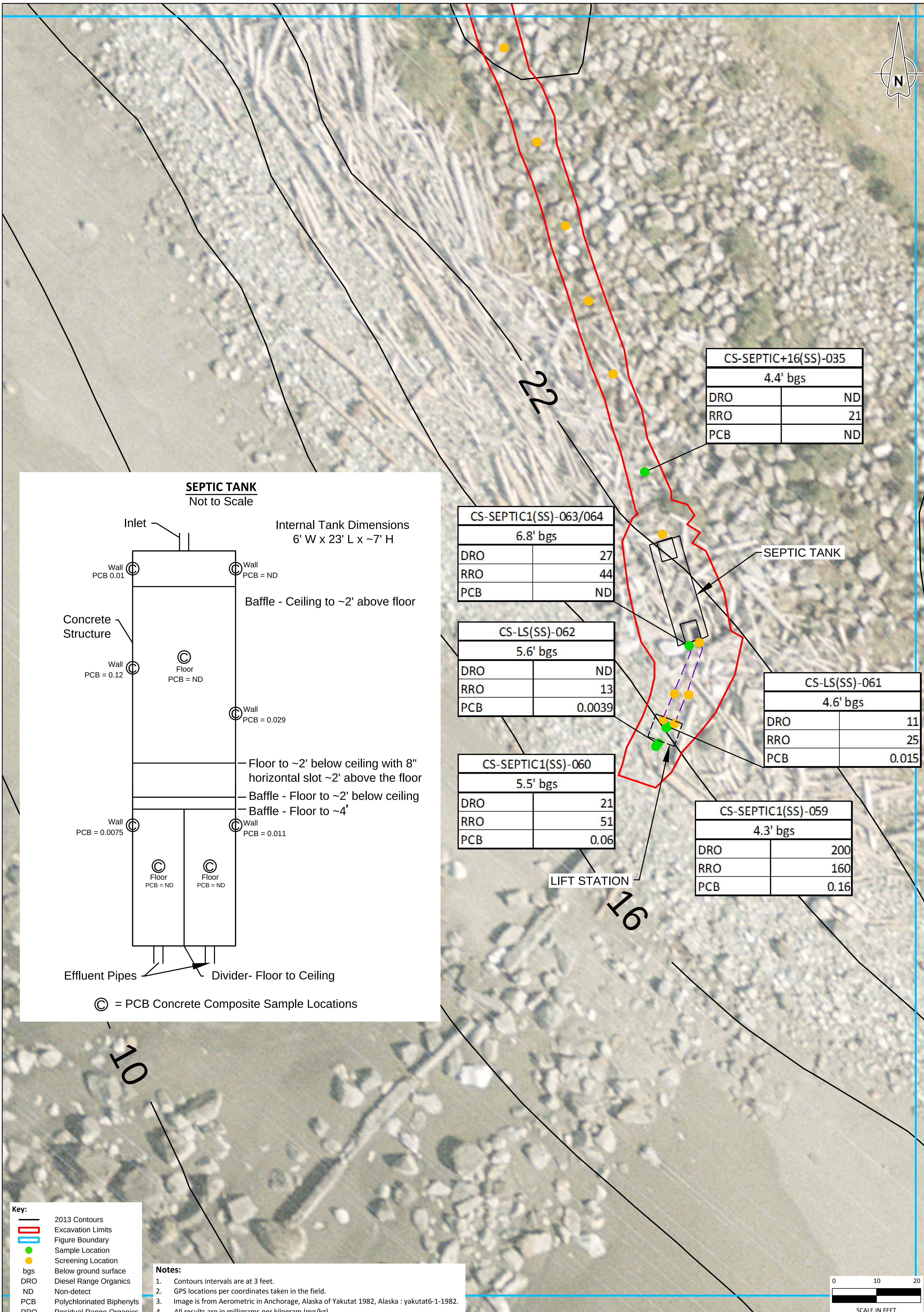


Ocean Cape CON/HTRW Removal Action Report
Yakutat, Alaska

Ahtna Engineering

Composite Building Area Screening and Results

Project Number: 20214
Date: 10.08.2013
Drawn By: G.R.
Figure Number: 4

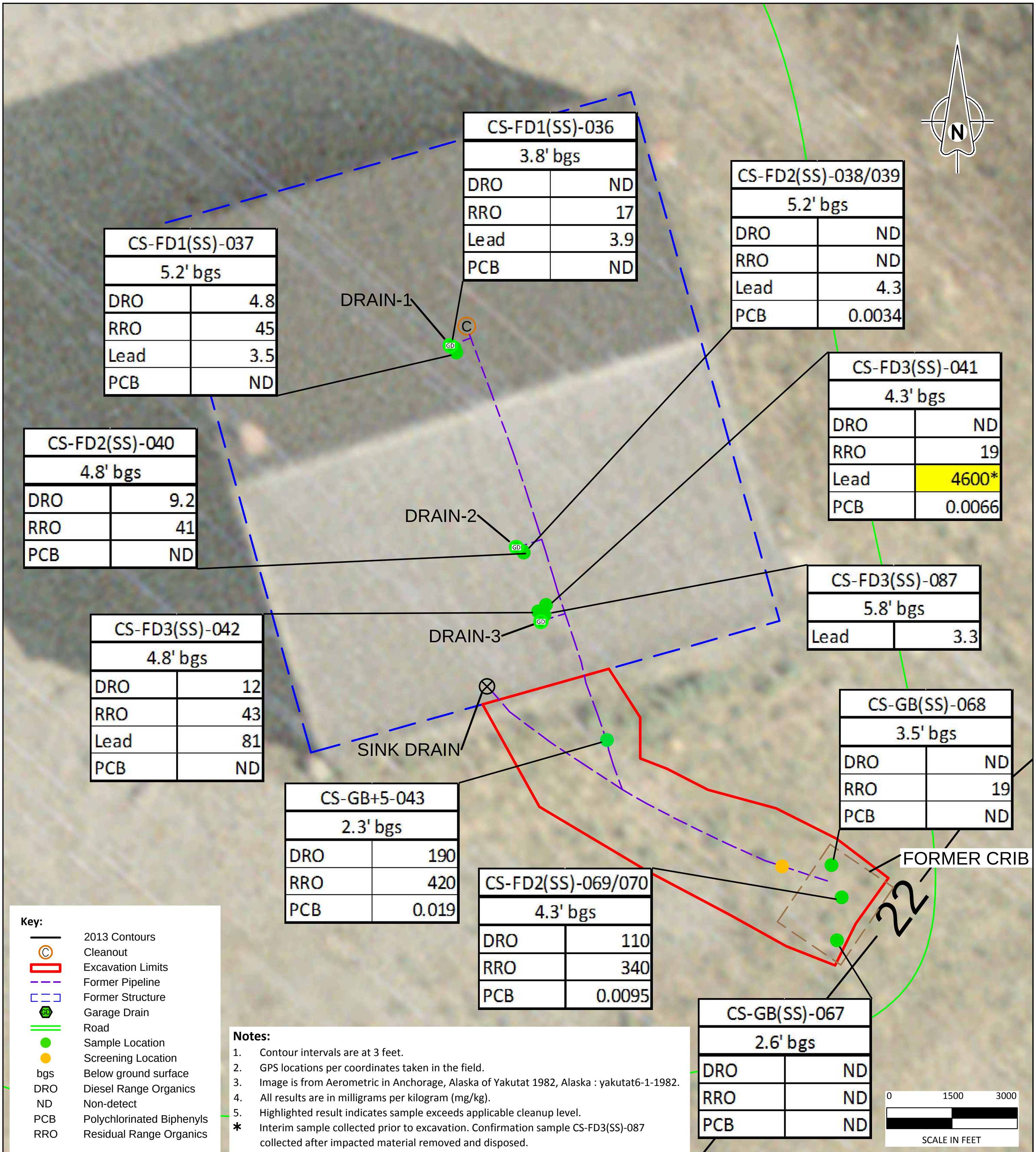


Ocean Cape CON/HTRW Removal Action Report
Yakutat, Alaska

Ahtna Engineering

Septic Tank Area Screening and Results

Project Number: 20214
Date: 10.08.2013
Drawn By: G.R.
Figure Number: 5



Ocean Cape CON/HTRW Removal Action Report
Yakutat, Alaska

Ahtna Engineering

Garage Building Area Screening and Results

Project Number: 20214	Figure Number: 6
Date: 10.08.2013	
Drawn By: G.R.	