NORTHEAST CAPE HTRW REMEDIAL ACTIONS

FINAL REMOVAL ACTION REPORT

Northeast Cape, Saint Lawrence Island, Alaska

Contract No. W911KB-06-D-0007
Task Order 0007

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Prepared for:

US Army Corps of Engineers
Alaska District

Bristol
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ACRONYMS AND ABBREVIATIONS

′	minutes
°	degrees
°C	degrees Celsius
°F	degrees Fahrenheit
μg/kg	micrograms per kilogram
μg/L	micrograms per liter
AAC	Alaska Administrative Code
AC&WS	Aircraft Control and Warning Station
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AHAs	Activity Hazard Analyses
AK	Alaska Test Method
ANCSA	Alaska Native Claims Settlement Act
APP	Accident Prevention Plan
AST	aboveground storage tank
Bering Air	Bering Air, Inc.
bgs	below ground surface
Bristol	Bristol Environmental Remediation Services, LLC
BTEX	benzene, toluene, ethylbenzene, and xylenes
CDQR	Chemical Data Quality Report
CFR	Code of Federal Regulations
CLIN	Contract Line Item Number
CQC	contractor quality control
CQCP	Contractor Quality Control Plan
CQCSM	Contractor Quality Control Systems Manager

ACRONYMS AND ABBREVIATIONS (continued)

DI	deionized
DO	dissolved oxygen
DRO	diesel range organics
ECO-Land	ECO-Land, LLC
EMT	emergency medical technician
EPA	U.S. Environmental Protection Agency
ft^2	square feet
Global	Global Services, Inc.
GRO	gasoline range organics
HTRW	hazardous, toxic, and radioactive waste
IDW	investigation-derived waste
LDU	lower decision unit
MDU	middle decision unit
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MNA	monitored natural attenuation
MOC	Main Operations Complex
MW	monitoring well
NALEMP	Native American Lands Environmental Mitigation Program
NE Cape	Northeast Cape
NOM	naturally occurring materials
NSI	Northland Services, Inc.
PAHs	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyl
PLO	Public Land Order
PM	Project Manager
POL	petroleum, oil, and lubricants

ACRONYMS AND ABBREVIATIONS (continued)

QA	quality assurance
QAR	Quality Assurance Representative
QC	quality control
RA	removal action
RI	remedial investigation
RRO	residual range organics
SOP	Standard Operating Procedure
SOW	Scope of Work
SS	Site Superintendent
SSHO	Site Safety and Health Officer
SSHP	Site Safety and Health Plan
SVOC	semivolatile organic compound
SWPPP	Storm Water Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
Tech Memo	Technical Memorandum
TestAmerica	TestAmerica Laboratories, Inc.
TSCA	Toxic Substances Control Act
UDU	upper decision unit
USACE	US Army Corps of Engineers
USAF	U.S. Air Force
UVOST	Ultraviolet Optical Screening Tool
VOC	volatile organic compound
WP	Work Plan

EXECUTIVE SUMMARY

This Remedial Action Report presents the results of a removal action (RA) performed at the Northeast Cape (NE Cape) Formerly Used Defense Site on Saint Lawrence Island, Alaska. Bristol Environmental Remediation Services, LLC (Bristol), and its team of subcontractors performed the work for the US Army Corps of Engineers (USACE), Alaska District, under Contract No. W911KB-06-D-0007, Task Order 0007.

The Scope of Work (SOW) for the 2011 contract period included:

- Preparing plans and reports
- Mobilizing/demobilizing to/from the NE Cape site in 2011 and 2012
- Excavating, processing, and disposing of petroleum-contaminated soils to a depth not exceeding 15 feet, or 2 feet below groundwater, whichever occurs first at the Main Operations Complex (MOC), specifically Sites 10, 11, 13, 15, 19, and 27
- Excavating and disposing of polychlorinated biphenyl- (PCB-) contaminated soils from Site 13 (Heat and Power Plant) and Site 31 (White Alice Communications Station)
- Collecting nine background soil samples in the vicinity of Site 21 (Wastewater Treatment Tank) for arsenic analyses. Excavating and disposing of arsenic-contaminated soils from Site 21
- Conducting monitored natural attenuation (MNA) sampling of petroleum-contaminated sediment and surface water at Site 8 (petroleum, oil, and lubricants [POL] Spill Site)
- Transporting and disposing of 21 bulk bags containing PCB-contaminated soil staged on the concrete pad at Building 98
- Monitoring groundwater in nine monitoring wells at the MOC
- Removing dangerous poles, wires, and other miscellaneous debris from tundra areas sitewide, where clearly identified
- Delineating extent and magnitude of sediment and soil contamination at Site 28 Drainage Basin through the use of new and existing data
- Excavating and removing spilled roofing tar south of the MOC
- Stabilizing, as detailed in the approved Storm Water Pollution Prevention Plan (SWPPP), disturbed site areas prior to demobilization or within a timely manner

- Inspecting Site 7 and Site 9 landfills to determine the status of the cover, cap stability, and whether necessary repairs are needed
- Preparing a hazardous, toxic, and radioactive waste (HTRW) RA Report, which includes survey and as-built drawings, data review, and discussion of all remedial action work to include soil excavation and removal, sediment removal, waste disposal documentation, sample results, debris removal, and other relevant project details

Bristol successfully completed contract line items, except for pole removal, which will be addressed in 2012, and was able to handle additional soil removal tasks when PCB-contaminated soil volumes were discovered in excess of the original SOW.

Bristol received the USACE's Notice to Proceed on December 27, 2010. Draft Planning Documents were submitted on May 17, 2011. Freight was loaded onto two Northland Services, Inc., barges at the Port of Anchorage in May 2011. The barges departed Anchorage in late May and arrived near Nome, Alaska, in mid-June 2011. The first landing craft arrived at Kitnagak Bay and landed at Cargo Beach on June 27, 2011. Logistical operations and on-site mobilization activities began June 27, 2011, and continued until the temporary construction camp was completed on July 13, 2011.

Bristol used a combined field scientific team, survey crew, and craft labor crew, which included local residents, at the project site from June 27, 2011, through October 13, 2011. During this period, Bristol and its subcontractors:

- Upgraded and repaired the airstrip and access roads to work sites
- Constructed and maintained temporary camp facilities capable of housing approximately 40 people
- Removed 34 tons of miscellaneous metal debris from various areas across the site
- Excavated and loaded 3,838.3 tons of PCB-contaminated soil into 371 bulk bags
- Characterized, transported, and disposed of 1,679.16 tons (166 bulk bags) of non-hazardous PCB-contaminated soil from Sites 13 and 31, including 21 bulk bags (weighing approximately 197 tons) that were left over from 2010 soil removal activities; 212 bulk bags, weighing 2,211.48 tons, remain on the island

- Excavated, characterized, transported and disposed of 146.18 tons of hazardous PCB-contaminated soil from Sites 13 and 31
- Excavated and loaded 8,091 tons of POL-contaminated soil into 785 bulk bags;
- Characterized, transported, and disposed of 5,560.17 tons of POL-contaminated soils from the MOC; 239 bulk bags, weighing 2,529.11 tons, remain on the island;
- Excavated, characterized, transported, and disposed of 14.8 tons of arsenic-contaminated soil from Site 21
- Excavated, characterized, and disposed of 207.19 tons of tar and tar-contaminated soil from an area south of the MOC
- Loaded 752 Department of Transportation- (DOT-) approved bulk bags (including 21 bags left over from 2010), weighing 7,607.50 tons, onto nineteen landing craft for ultimate transport to the disposal facility in Arlington, Oregon
- Conducted soil sampling to determine background arsenic concentrations at Site 21 and submitted the results in a technical memorandum (Tech Memo) to USACE
- Collected water and soil samples at Site 8 in an ongoing study to monitor natural attenuation at the site
- Collected groundwater samples from nine monitoring wells located in or near the MOC
- Collected 231 soil and sediment samples from the Site 28 drainage basin and presented the results in a Tech Memo submitted to USACE, detailing the extent of contamination across the site
- Added fertilizer and grass seed to the Sites 7 and 9 landfills, which were capped in 2009 and 2010, respectively, and conducted a stabilization analysis of borrow pit material to ensure that it met state regulations
- Collected fixed-laboratory analytical samples from 749 locations within the excavations at Sites 13 and 31
- Collected analytical samples from 29 locations within the J1A excavation and 32 locations within the A1 excavation
- Collected and analyzed 1,188 PCB samples and 426 diesel range organics/residual range organics (DRO/RRO) samples in the on-site field laboratory
- Staged equipment, including camp and supplies, on-island, during winter 2011/2012 at the runway and the MOC; bulk bags were staged at the MOC and Site 6

Over the course of 108 days in 2011, Bristol maintained a close working relationship with its subcontractors and the USACE to successfully fulfill all contract specifications.

1.0 SITE DESCRIPTION

1.1 LOCATION

Saint Lawrence Island is located in the northern Bering Sea off the western coast of Alaska. Northeast Cape (NE Cape) lies approximately 135 air miles southwest of Nome, Alaska (Figure 1). The project site, which originally encompassed 4,800 acres, falls between Kitnagak Bay to the northeast, Kangighsak Point to the northwest, and the Kinipaghulghat Mountains to the south (Figure 2). The site is located at 63 degrees (°) 20 minutes (') north latitude and 168° 59′ west longitude, in Township 25 South, Range 54 West, Kateel River Meridian.

1.2 CLIMATE

Saint Lawrence Island has a cool, moist, subarctic maritime climate, with some continental influences during winter when much of the Bering Sea is capped with ice pack. Winds and fog are common, and precipitation occurs approximately 300 days per year as light rain, mist, or snow. Annual snowfall is approximately 80 inches per year. Total annual precipitation is about 16 inches per year, and more than half falls as light rain between June and September. Summer temperatures average between 34 degrees Fahrenheit (°F) and 48°F, with a record high of 65°F. Winter temperatures range from -2°F to 10°F, with an extreme low of -30°F. Freeze-up normally occurs in October or November, and breakup normally occurs in June.

Winds are generally in a northerly to northeasterly direction from September to June and southwesterly in July and August. Winds exceeding 11 miles per hour occur 70 percent of the time. In the winter, winds average 23 miles per hour. The average wind speed is 18 miles per hour. Gusts in the NE Cape area have measured as high as 110 miles per hour (US Army Corps of Engineers [USACE], 2002).

1.2.1 Weather Conditions during the Project Field Season

Weather conditions during the July through September 2011 field season were typical of a summer subarctic maritime climate. Variable winds, light precipitation or fog, and temperatures ranging from the mid 30s to the mid 50s were typical of the daily weather in lowland and lower mountain areas. Periodic violent storms with high, sustained winds in excess of 50 miles per hour and high precipitation were encountered, as well as periods of clear, calm conditions. Wind was often the most significant factor affecting work conditions during the 2011 field season and was, at times, responsible for knocking out the satellite communications system. High winds also complicated bulk bagging and lining operations due to the difficulty of handling the necessary materials under such conditions.

Bristol was on site during a minor snowfall event on October 1, 2011. Approximately one-half inch of snow accumulated on the ground but was mostly melted by the day's end. Snow had fallen prior to this day, but with no measureable accumulations in the camp and worksite vicinities. Another light snowfall was covering the ground on the morning of October 8, 2011. Work progress was not affected by snowfall during the 2011 field season.

1.3 TOPOGRAPHY

The lower mountain area consists mainly of flat coastal plains that gradually turn into rolling tundra toward the base of the Kinipaghulghat Mountains. The mountains rise abruptly to a maximum elevation of approximately 1,850 feet above mean sea level. Elevations across the work areas ranged from sea level to approximately 300 feet above mean sea level.

1.4 GEOLOGY

Saint Lawrence Island consists of isolated bedrock highlands of igneous, metamorphic, and older sedimentary rocks surrounded by unconsolidated surficial deposits overlying a relatively shallow erosional bedrock surface. In the immediate vicinity of the lower mountain area south of the Main Operations Complex (MOC), shallow, unconsolidated surficial materials overlie quartz monzonitic rocks of the Kinipaghulghat Pluton. The pluton forms the mountainous work area south of the MOC, including Kangukhsam Mountain. The Suqitughneq River drainage in the Kinipaghulghat Pluton has created an erosional valley and alluvial fan of unconsolidated sediments. Granitic bedrock materials are exposed at the coast north of the site at Kitnagak Bay, suggesting that quartz monzonitic bedrock underlies the unconsolidated materials at a relatively shallow depth on a wave-cut erosional platform.

The unconsolidated materials exhibit an alluvial soil profile in areas that have not been disturbed by man. In general, silts near the surface, which overlie more sand-dominated soils, characterize the soil stratigraphy at the site. The silt may contain varying quantities of clay, sand, and gravel and may vary from zero to 10 feet in thickness. The silt is dark brown to dark green and sometimes exhibits a mottled texture. In some areas, the silt exhibits an aqua green or blue color. Dark brown silts are observed in outcrops. The sand at depth contains varying degrees of silt, gravel, and cobbles and varies from 2 feet to more than 20 feet in thickness. These deeper, coarse-grained materials are generally unsorted and are likely to be of glaciofluvial origin. The depth to bedrock at the lower elevation areas of the site is unknown.

Beach material is primarily cobble (1-inch stones), with some sand. Some areas have large boulders and rocks (USACE, 2002).

1.5 Surface Water and Groundwater

Because of the relatively remote and undeveloped nature of Saint Lawrence Island, there are little data about regional groundwater. Bedrock materials south of the site (and underlying the unconsolidated deposits) are not expected to store and transmit significant quantities of groundwater. Typically, these types of granitic rocks are impermeable and transmit groundwater only through localized fractures and weathered soil zones at the surface.

The primary potential aquifer at the NE Cape site is the unconsolidated alluvial material that underlies the area, although a deeper, confined aquifer may also exist. The mountainous area to the south provides an ideal recharge area for the unconsolidated materials, providing runoff from rain and snowmelt during the summer. Based on the topography and geology of the site, the regional groundwater flow direction is expected to be from the mountainous recharge area south of the site, flowing north, eventually discharging to the Bering Sea.

Key factors influencing the flow of groundwater at the site are the permafrost and frozen soils, which render the unconsolidated materials effectively impermeable in some areas. The U.S. Geological Survey has classified Saint Lawrence Island as an area of moderately thick to thin permafrost (USGS). Although the depth of permafrost at Saint Lawrence Island is unknown, the base of permafrost on the mainland at Nome (135 air miles to the northeast) is estimated to be at a depth of 120 feet. The deeper, unconsolidated deposits at the site are probably permanently frozen, and the shallow soils represent the active layer, where soils are thawed only during portions of the year. Frozen soils have a profound effect in retarding groundwater flow during most of the year.

In addition to the Bering Sea north of the NE Cape facility, surface water in the vicinity of the work area consists of small streams, small- to moderate-sized lakes, and marshy areas. Surface water generally flows northward from the more southerly located highland area. Small surface water bodies are common throughout the area. The primary stream drainage in the area, the Suqitughneq River, is fed by runoff from the prominent drainage of the Kinipaghulghat Mountain valley in the lower mountain area. Several smaller tributaries feed this stream drainage as it flows north to Kitnagak Point. This stream was impacted by a diesel fuel spill in the 1960s. The smaller tributaries originate from two small, unnamed lakes (USACE, 2002).

1.6 AIR QUALITY

Air quality in the area is good. There are minimal sources of air emissions at the site because of its remote nature. The occasional boat motor, vehicle engine, or fire has a negligible effect. Air emissions at the site increase during remedial action work because more equipment and vehicles are at the site. Winds typical of the area disperse emissions (USACE, 2002).

1.7 VEGETATION

The NE Cape area has several major habitat types, including moist tundra dominated by heaths, grasses, sedges, mosses, and lichens, with shrubs that include bearberry, dwarf birch, narrow-leaf Labrador tea, and willow. These plants typically grow in 1 to 3 feet of undecayed organic mat over saturated and frozen soil. Alpine tundra plants (dwarf, prostrate plants that include heaths and tundra species adapted to dry, thin soil conditions) grow on the slopes and exposed ridges of the nearby mountains. The NE Cape area has many low-lying areas with lakes, bogs, and poorly drained soils (USACE, 2002).

1.8 FISH AND WILDLIFE

Large mammals are generally not abundant on Saint Lawrence Island. Polar bears may be on the island anytime during the year, but are most often present when the ice pack is nearshore. Some years, polar bears become stranded on the island throughout the summer when the ice pack moves out earlier than usual. More than 1,000 reindeer can be found on the island. Arctic foxes, cross foxes, red foxes (less common), wolves (rarely), and several small mammals (tundra shrews, arctic ground squirrels, Greenland collared lemmings, red-backed voles, and tundra voles) also inhabit the island. Animals usually seen in or around the work sites are small mammals such as ground squirrels and foxes.

Marine mammals are present in the vicinity of the NE Cape area as seasonal migrants in the offshore and nearshore marine waters, at haul-out sites, and in association with the advancing and retreating ice pack. No haul-out sites are within the work area. During the summer, walrus, sea lions, and spotted seals may be present in offshore waters. During the ice season, ringed seals, bearded seals, walrus, and spotted seals can be found in nearshore and offshore leads and open water. Bowhead, gray, minke, killer, right, humpback, blue, and beluga whales inhabit offshore waters.

The only breeding seabird colony known to exist at the NE Cape facility consists of about 60 glaucous gulls and 60 herring gulls at Seevookhan Mountain, about 5 miles southeast of the NE Cape site. Several other species of birds have been sighted in the vicinity of the NE Cape site, including common ravens, snow buntings, whistling swans, Lapland longspurs, and gulls.

Ten primary species of fish reside in the streams and tundra ponds of Saint Lawrence Island. These include blackfish, nine-spined stickleback, grayling, whitefish, Arctic char, and Dolly Varden trout. Five of the six species of Pacific salmon occur around the island and rear in many of the larger drainages.

1.9 COMMUNITY PROFILE

The nearest community on Saint Lawrence Island to the project site is the Village of Savoonga, approximately 60 miles northwest of the site, with a population of approximately 800 people, according to elders from Savoonga. There are no permanent residents at the NE Cape site, but there is a small subsistence hunting and fishing camp in the area that is infrequently inhabited in the summer by residents of Savoonga and Gambell. The island is accessible by boat, regularly scheduled airlines (to Gambell and Savoonga), and chartered air flights out of Nome. There is no regularly scheduled commercial access to the project site (USACE, 2002).

1.10 SUBSISTENCE ACTIVITIES

Savoonga is a traditional Siberian Yup'ik village, with a subsistence lifestyle. Whale, seal, walrus, and reindeer compose 80 percent of islanders' diets. The economy is largely based upon subsistence hunting of walrus, seal, fish, and whale, with some cash income. Berries and edible plants are also harvested. Subsistence fishing for halibut takes place in the vicinity of NE Cape.

1.11 HISTORY

Saint Lawrence Island was established as a reindeer reserve by Executive Order on January 7, 1903. The present project site was acquired by the U.S. Air Force (USAF) on January 16, 1952, under Public Land Order (PLO) 970, which removed 21,013 acres from the reserve. In 1952, the USAF Aircraft Control and Warning Station (AC&WS) was formally activated by assignment of the 712th AC&WS Squadron and the 698th Security Squadron. The original site was designed to support 212 personnel. Throughout its existence, the NE Cape facility has been a surveillance station, providing radar coverage for the Alaskan Air Command and, later, for the North American Air Defense Command, as part of an Alaska-wide system constructed to reduce potential vulnerability to bomber attacks across the polar regions.

The White Alice Station area remained in operation with minimal military staff until 1972. All lands were then withdrawn from the military under PLO 5187 for classification under Section 17(d)(1) of the Alaska Native Claims Settlement Act (ANCSA) of 1971, which entitled local community village corporations to select and receive specific tracts of federal land. Interim Conveyance No. 203 (June 1979) conveyed unsurveyed lands of Saint Lawrence Island to Sivuqaq, Inc., and Savoonga Native Corporation, known today as Kukulget, Inc. Surveyed land, easements, and land-use permits effective before conveyance were excluded from the transfer.

In 1982, transfer of the White Alice Station area, south of the MOC, to the U.S. Department of the Navy was initiated. However, this transaction was not formally completed and was superseded by ANCSA. The Navy conducted a removal action (RA) under its Comprehensive Long-Term Environmental Action Navy, program. The action included removal of specified hazardous items and containerized hazardous and toxic waste.

In 2000, the White Alice Station was reclassified as a Formerly Used Defense Site- (FUDS-) eligible property. In response, the USACE included the area in the ongoing cleanup program for NE Cape (USACE, 2002).

1.11.1 Previous Studies and Actions

Environmental investigations and cleanup activities at NE Cape began in the mid 1980s, with the goal of locating and identifying areas of contamination and gathering enough information to develop a cleanup plan. Remedial investigations (RIs) were initiated at NE Cape during the summer of 1994. Additional sampling was performed during subsequent investigations: Phase II RI (Montgomery Watson, 1996 and 1999); Phase III RI (Montgomery Watson Harza, 2003); and Phase IV RI (Shannon &Wilson, Inc., 2005). The studies divided the concerns among 34 separate sites. The results of the RIs showed that contaminants were present at some but not all sites. Bristol Environmental & Engineering Services Corporation performed removal actions in both 2003 and 2005. In 2009, Bristol Environmental Remediation Services, LLC (Bristol), returned to the island to construct a landfill cap, remove petroleum, oil, and lubricants- (POL-) containing drums, and perform a chemical oxidation study. Bristol again returned to NE Cape during the summer of 2010 to excavate POL-contaminated soils from Sites 1, 3, 6, and 32; to excavate polychlorinated biphenyl- (PCB-) contaminated soils from Sites 13, 16, 21, and 31; to excavate arsenic-contaminated soils from Site 21; to cap the Site 9 landfill; and to continue monitoring Site 8 for natural attenuation.

2.0 CONTRACT SPECIFICATIONS

2.1 SCOPE OF WORK

The contract Scope of Work (SOW) for 2011 consisted of the following activities:

- Preparing plans and reports
- Mobilizing/demobilizing to/from the NE Cape site
- Excavating, processing, and disposing of petroleum-contaminated soils at the MOC to a depth of up to 15 feet below ground surface (bgs) or 2 feet below groundwater, whichever occurs first, specifically Sites 10, 11, 13, 15, 19, and 27
- Excavating and disposing of PCB-contaminated soils from Site 13 (Heat and Power Plant) and Site 31 (White Alice Communications Station)
- Collecting nine background soil samples in the vicinity of Site 21 (Wastewater Treatment Tank) for arsenic analyses. Excavating and disposing of arsenic-contaminated soils from Site 21
- Conducting monitored natural attenuation (MNA) sampling of petroleum-contaminated sediment and surface water at Site 8 (POL Spill Site)
- Transporting and disposing of 21 bulk bags containing PCB-contaminated soil that were staged on the concrete pad at Building 98 following 2010 activities
- Monitoring groundwater in nine monitoring wells at the MOC
- Removing dangerous poles, wires, and other miscellaneous debris from tundra areas, where clearly identified
- Delineating extent and magnitude of sediment and soil contamination at Site 28 Drainage Basin through the use of new and existing data
- Excavating and removing spilled roofing tar south of the MOC
- Stabilizing, as detailed in the approved Storm Water Pollution Prevention Plan (SWPPP), disturbed site areas prior to demobilization or within a timely manner
- Inspecting Site 7 and Site 9 landfills to determine the status of the covers and cap stability and assess the need for repairs.
- Preparing a hazardous, toxic, and radioactive waste (HTRW) RA report, including survey and as-built drawings, data review, and discussion of all remedial action work to include soil excavation and removal, sediment removal, waste disposal documentation, sample results, debris removal, and other relevant project details. Comment sheets for this draft report will be included in Appendix A in the final report.

Descriptions of field activities and results are included in Section 6.0.

2.2 CONTRACT LINE ITEMS

The USACE identified the work to be conducted as a series of Base and Optional Contract Line Item Numbers (CLINs). Optional CLINs identified unit-priced work performed in addition to that identified in the Base CLINs. The USACE awarded the Base and Optional CLINs to Bristol on December 27, 2010. The Base CLINs are summarized in Table 2-1, and Optional CLINs are summarized in Table 2-2.

The actual quantities of work performed are also summarized in Table 2-2. Four contract modifications have been made throughout the course of work and are described in Section 2.3.

Table 2-1 Base CLINs

Base CLINs	Description
0001	Project Management
0002	Planning Documents
0003	Chemical Data Quality
0004	Field Implementation
0005	HTRW Action Report
0006	Options

Notes:
CLINs = Contract Line Item Numbers
HTRW = Hazardous, Toxic, and Radioactive Waste

Table 2-2 Optional CLINs

Item/Option	Description	Quantity per Option	Number of Options Available	Options Exercised
0006AA/Optional Task 4.6.1	Arsenic-Contaminated Soil Removal	Lump Sum	1	1
0006AB/Optional Task 4.6.2	Additional Arsenic-Contaminated Soil	1 ton	10	0
0006AC/Optional Task 4.6.3	Sediment/Soil Sampling at Site 28	Lump Sum	1	1
0006AD/Optional Task 4.6.4	Roofing Tar Removal	40 tons	1	1
0006AE/Optional Task 4.6.5	Additional Roofing Tar	1 ton	10	0
0006AF/Optional Task 4.6.6	Miscellaneous Debris/Drums/Poles	Lump Sum	1	1
0006AG/Optional Task 4.6.7	Additional Miscellaneous Debris/Drums/Poles	1 ton	10	0
0006AH/Optional Task 4.6.8	Additional POL-Contaminated Soil	2,000 tons	6	6
0006AJ/Optional Task 4.6.9	Additional PCB-Contaminated Soil	10 tons	10	10
0006AK/Optional Task 4.6.10	POL Liquids	1 gallon	50	0
0006AL/Optional Task 4.6.11	Additional Monitoring Well Abandonment	1 well	5	0
0006AM/Optional Task 4.6.12	2012 Mobilization/Demobilization	Lump Sum	1	1
0006AN/Optional Task 4.6.13	Background Arsenic	Lump Sum	1	1
0006AO/Optional Task 4.6.14	PCB Wipe Sampling of Concrete at Sites 13 and 31	Lump Sum	1	1
0006AP/Optional Task 4.6.15	Additional PCB-Contaminated Soil	Lump Sum	1	1
0006AQ/Optional Task 4.6.16	Additional Roofing Tar-Contaminated Soil	Lump Sum	1	1
0006AR/Optional Task 4.6.17	Site 9 Surface Water Sampling and Reporting	Lump Sum	1	1

Notes:

CLINs = Contract Line Item Numbers

PCB = polychlorinated biphenyl

POL = petroleum, oil, and lubricants

2.3 PROJECT MODIFICATIONS

There were four modifications to the contract, as follows:

- Modification 01 incorporated a revised SOW dated March 17, 2011. Option 0006AM was exercised, thus extending the period of performance through April 30, 2012. This modification also added Optional Task 4.6.13 (Item Number 0006AN) regarding background sampling for arsenic.
- Modification 02 incorporated Federal Acquisition Regulations (FAR) clause 52.217-7 for increased quantity. The period of completion was changed from April 30, 2012, to April 30, 2013.
- Modification 03 exercised one unit from CLIN 0006AH, increasing the total exercised options from five to six.
- Modification 04 added the following Optional Tasks:
  - 4.6.14 (Item Number 0006AO) – PCB Wipe Sampling of Concrete at Sites 13 and 31.
  - 4.6.15 (Item Number 0006AP) – Additional PCB-Contaminated Soil.
  - 4.6.16 (Item Number 0006AQ) – Additional Roofing Tar-Contaminated Soil.
  - 4.6.17 (Item Number 0006AR) – Site 9 Surface Water Sampling and Reporting.

3.0 PROJECT PLANNING, KEY PERSONNEL, AND SUBCONTRACTORS

3.1 PROJECT PLANNING

Project planning began on December 27, 2010, when Bristol received USACE's Notice to Proceed for the project. The following sections describe the planning documents prepared for this project and the field activities that deviated from the planning documents.

3.1.1 Planning Documents

The following planning documents were prepared by Bristol and approved by the USACE:

- Work Plan (WP)
- Quality Assurance Project Plan (QAPP)
- Contractor Quality Control Plan (CQCP)
- SWPPP
- Site Safety and Health Plan (SSHP)
- Accident Prevention Plan (APP)
- Waste Management Plan (WMP)

Draft planning documents were submitted to the USACE on May 17, 2011, and the final planning documents were submitted on August 5, 2011. An addendum to the WP was submitted to USACE on September 21, 2011, regarding field excavation closure plans. Another WP addendum was submitted on November 21, 2011, regarding PCB wipe-sampling of concrete and surface water samples collected at Site 9.

3.1.2 Deviations from the Planning Documents

Differing site conditions and unforeseen circumstances necessitated some deviations from the work stated to be performed in the planning documents. Descriptions of the significant deviations from the planning documents follow:

- **Stockpiled Soil at Pad 98** – The WP stated that Bristol would place liner underneath soils stockpiled on the concrete foundation of former Building 98. No liner was placed on the concrete where machinery was operating, but instead berms were constructed along the edges of the concrete foundation. Liner was placed on top of these outer berms.

- **Tar Excavation Area –** The original area of the tar removal was believed to be approximately 2,500 square feet (ft^2). Ultimately, the area was approximately 5,000 ft^2; thus more tar was excavated and more confirmation samples were collected than originally planned.
- **Metal Debris Disposal –** Three containers of metal were originally planned for recycling at Bloch Steel in Seattle, Washington; however, due to radiation levels, the steel was disposed of at Columbia Ridge Landfill in Arlington, Oregon.
- **Waste Characterization Sample Collection –** The WP stated that waste characterization samples would be collected in sample jars, but all PCB and diesel range organics (DRO)/residual range organics (RRO) waste characterization samples were collected in Ziploc® bags and submitted to the field laboratory.
- **Investigation-Derived Waste (IDW) Disposal –** It was stated in the WP that wastewater contaminated with metals or PCBs would be transferred to a 55-gallon drum for disposal. Instead, wastewater (wash water) from the PCB sites was loaded into bulk bags containing PCB-contaminated soil.

3.1.3 Permits and Regulatory Notifications

Federal and state permits required for this project were included in the WP. Copies of the permits and letters are provided in Appendix B. The following permits and regulatory notifications, including the Quarry Operating Agreement, apply to the 2011 activities on Saint Lawrence Island for the NE Cape HTRW RA project:

- On July 22, 2011, the Alaska Department of Environmental Conservation (ADEC) sent an email to the USACE tentatively approving the 2010 NE Cape HTRW Remedial Actions Work Plan and Sampling and Analysis Plan. A letter approving the final WP was sent to the USACE on November 28, 2011.
- Material Supply and Quarry Operating Agreement between Bristol and Kukulget, Inc., effective July 1, 2011.
- State of Alaska, Department of Fish and Game (ADF&G), Division of Habitat, Fish Habitat Permit FH11-III-0190 on June 29, 2011, authorizes withdrawal of up to 3,000 gallons of water per day from the Suqitughneq River.
- The Alaska Department of Natural Resources (ADNR), Division of Mining, Land & Water "Letter of Entry for state tidelands within Kitnagak Bay, Saint Lawrence Island," dated May 18, 2009, granted the USACE authorization to enter upon state

tidelands for the express purpose of conducting barge landings for the continued assessment and cleanup of the NE Cape.

- State of Alaska Department of Environmental Conservation, Division of Water, Wastewater Discharge Authorization Program, permit number AKR10DL58.
- ADF&G Fish Habitat FH09-III-0102 permit was issued on April 22, 2009, for equipment stream crossing, Northeast Cape White Alice Site Removal Action (Saint Lawrence Island), Township 25 South, Range 54 West, Quangeghsaq River.
- ADF&G Fish Habitat FH09-III-0103 permit was issued on April 22, 2009, and Amendment 1, issued on June 5, 2009, for placing of riprap in, performance of maintenance activities in, and water withdrawal from the Suqitughneq River, Northeast Cape White Alice Site Removal Action (Saint Lawrence Island), T25S, R54W.
- ADNR, Division of Mining, Land & Water, Temporary Water Use Authorization Permit TWUP A2011-81 dated July 13, 2011.
- Department of the Army Right of Entry for Environmental Assessment and Response for Saint Lawrence Island, Alaska Property Identification Number DACA85-8-08-0134 between the USACE, Kukulget Incorporated, and Sivuqaq Incorporated, dated June 17, 2008.

3.2 KEY PERSONNEL

The project duties assigned to key home office and field management personnel are described in the following sections.

3.2.1 Key Home Office Personnel

Project Manager, Molly Welker

Molly Welker, the Project Manager (PM), was responsible for ensuring project tasks were completed on schedule and within budget, recommending and justifying project modifications, implementing methods of tracking materials and resources, coordinating work with subcontractors, and complying with normal safety procedures and regulatory requirements. Ms. Welker was responsible for submitting monthly status reports to USACE. Monthly status reports and correspondence with USACE are provided electronically in the Supplemental Data.

Health and Safety Manager, Clark Roberts, C.I.H.

Clark Roberts, Certified Industrial Hygienist (C.I.H.), reviewed the Safety and Health Program for this project. He worked with Bristol's Site Safety and Health Officer (SSHO) to monitor project compliance with Bristol's Corporate Safety and Health Program and the SSHP. For this project, he was responsible for the following:

- Reviewing and editing the SSHP and APP
- Being available for emergencies
- Providing consultation as needed to ensure the SSHP and APP were fully implemented

Regulatory Compliance Manager and Transportation and Disposal Coordinator, Tyler Ellingboe

Tyler Ellingboe was responsible for overseeing regulatory compliance for identifying, handling, packaging, manifesting, transporting, and disposing of wastes generated on the project. He worked with the Site Superintendent (SS) and the PM to track waste shipments.

3.2.2 Key Field Personnel

SS/SSHO, Charles (Chuck) Croley

Chuck Croley was responsible for managing, scheduling, coordinating, and executing all of Bristol's on-site activities, including providing oversight of Bristol's subcontractors. He was responsible for compliance with Bristol's and USACE's safety and health programs. Mr. Croley conducted daily safety meetings addressing site hazards and concerns and was the liaison between field and office personnel regarding safety issues and incidents. He was responsible for conducting accident investigations and preparing accident reports. He reported directly to the PM.

Contractor Quality Control Systems Manager (CQCSM), Russell James

Russell James was responsible for management of Contractor Quality Control (CQC) and had the authority to act in all CQC matters for the project. He worked with the SS and the PM to implement the CQCP. Mr. James was Bristol's liaison with the USACE's Quality Assurance Representative (QAR). Copies of all daily quality control (QC) reports are provided electronically with the Supplemental Data.

Environmental Samplers, Eric Barnhill and Lyndsey Kleppin

Barnhill and Kleppin were the ADEC-Certified Environmental Samplers for collection and processing of environmental samples. Copies of field notes are provided electronically with the Supplemental Data.

3.3 SUBCONTRACTORS

Table 3-1 lists the major subcontractors utilized during the 2011 field season.

Table 3-1 Major Subcontractors

Subcontractor	Assignment
Bering Air	Aircraft charters
Eco-land, Inc.	Surveying
Fairweather, Inc.	Infirmary and emergency medical services
Global Services, Inc.	Camp services
Northland Services, Inc.	Marine transportation
Security Aviation	Aircraft charters
TestAmerica Laboratories, Inc.	Fixed-based analytical testing laboratory
Waste Management, Inc.	Solid, RCRA and TSCA soil disposal

Notes:
RCRA = Resource Conservation and Recovery Act
TSCA = Toxic Substances Control Act

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4.0 LOGISTICS

4.1 MOBILIZATION / DEMOBILIZATION

Preparations for mobilization began in April 2011 with the staging of specialized equipment, material, and shipping containers (Conexes) in Alaska and in the continental United States. Items purchased outside of Alaska were consolidated in Seattle, Washington, and transported by Northland Services, Inc. (NSI), to Anchorage, Alaska, in May 2011. These items were consolidated with the heavy construction equipment, the construction camp, fuel, and other items assembled by Bristol in Anchorage. Over 800 tons of freight was loaded onto two NSI barges at the Port of Anchorage in early May 2011. The barges departed Anchorage in mid May for Nome, Alaska.

Bering Air, Inc. (Bering Air), made reconnaissance flights to NE Cape on June 14 and 27, 2011. The purpose of the flights was to assess whether the sea ice in Kitnagak Bay would allow the landing craft to land at Cargo Beach and to assess the condition of the airstrip. Based on the observations made during these flights, Bristol mobilized to NE Cape on June 27, 2011. Photos of the mobilization and other site activities are displayed in the photograph log presented in Appendix C.

Landing craft were used for hauling freight between Nome and Cargo Beach. The first landing craft arrived at Cargo Beach on June 28, 2011. A total of three landing craft hauled equipment to NE Cape. Off-loading of all the freight was completed on July 3, 2011. The Cargo Beach landing location is marked on Figure 3, along with all other NE Cape work sites utilized during the project.

Five crew members from Global Services, Inc. (Global), and a satellite technician arrived on June 30, 2011. The temporary construction camp was assembled and the Global setup crew departed the site on July 13, 2011.

Additional personnel and subcontractors arrived from July 13 through July 16, 2011. By July 16, 2011, Bristol had completed improvements to the roads and setup of the NE Cape infrastructure. Removal work began on July 16, 2011. At that time, there were approximately 30 personnel in camp.

Personnel demobilization began on September 16, 2011, with the departure of five field personnel. Additional personnel were demobilized on September 23, September 26, and October 3, 2011. Global arrived on site on October 3, 2011, to begin deconstruction of the camp. Field activities were completed and all personnel were off site by October 13, 2011.

Several landing craft arrived throughout the duration of the project to transport bulk bags off island; the first arrived on July 23, 2011. Nineteen landing craft arrived at NE Cape between July 23 and October 9, 2011, to transport soil and equipment off island.

4.2 TEMPORARY CONSTRUCTION CAMP

The temporary construction camp was set up on an existing gravel pad adjacent to the airstrip and was designed to house approximately 40 people. Living quarters consisted of 12 individual Weatherport® tents, each capable of housing four people. Two trailers were on site, one of which was used for the field lab, the other was maintained as the medical facility.

Camp facilities included shared sleeping quarters; a medical dispensary; a recreation room; a dining facility; showers, laundry, and toilet facilities; a food storage Conex; satellite telephone and television system; and offices for Bristol, subcontractors, and USACE personnel. A medic/Emergency Medical Technician (EMT) III was on site at all times in order to provide emergency medical services. The camp was fully operational between July 13 and October 3, 2011.

4.3 AIR SUPPORT

Security Aviation, of Anchorage, Alaska; and Bering Air, of Nome, Alaska, provided air support services during the 2011 summer season. A Cessna Conquest, owned and operated by Security Aviation, was used to transport USACE personnel in order to comply with U.S. Department of Defense (DoD) Directive 4500.53 and the DoD Commercial Review Board. Passenger flights for non-USACE personnel were typically made using King Air, Beechcraft, or Navajo aircraft, owned and operated by Bering Air out of Nome, Alaska. Over 50 round-trip flights were chartered during the 2011 summer season.

4.4 EQUIPMENT

A list of the major equipment used by Bristol and their subcontractors can be found in the Daily Quality Control Reports, which are provided electronically with the Supplemental Data. Major equipment consisted of tracked excavators, heavy loaders, crew-cab pickup trucks, rock trucks, road maintenance equipment, and utility vehicles. The equipment was serviced, maintained, and repaired on site by a heavy-equipment mechanic.

4.5 BACKFILL AND BORROW MATERIAL

Borrow material used at the project site was obtained at the borrow area located approximately 2,000 feet south-southeast of the former White Alice antenna array. A total of 5,928 cubic yards of material was removed over the duration of the project. The material was used primarily for backfill and road repair.

4.6 HEALTH AND SAFETY

Bristol personnel arrived on the island on June 27, 2011; the safety and health management and communications system for NE Cape was established immediately upon arrival. The medic/EMT III arrived on site on July 13, 2011.

Regular and continual communication regarding safety issues was provided and maintained with the USACE QAR, the Bristol SS/SSHO, CQCSM, and PM.

Field personnel, subcontractors, government personnel, and visitors were provided a briefing by the SSHO or administrative assistant immediately upon arrival, and safety meetings were held on a daily basis. Part of Bristol's safety routine involved the daily Toolbox Safety Meeting, which was held each morning before the start of work. These meetings were about project-related work to be performed each day at the NE Cape site. Minimum safety gear for all personnel included hard hat, reflective vest, steel-toe boots, safety glasses, and work gloves.

Bristol's subcontractors were completely integrated into the health and safety program. Bristol, ECO-Land, LLC (ECO-Land), and Global closely coordinated operations in all areas. Key subcontractor involvement with all parties included complying with one SSHP that covered all workers. All workers, including subcontractor workers, attended the mandatory daily Toolbox Safety Meetings. This included subcontractor employees assigned to NE Cape for short-term or overnight durations.

The Bristol SSHO performed safety and health walk-through inspections each day at the various work sites. The purpose of these inspections was to stay abreast of current site activities and conditions, look for existing or potential site safety issues/concerns, ensure appropriate use of personal protective equipment (PPE), and reinforce safe work practices. The daily safety inspections also provided topics/information for incorporation into the daily Toolbox Safety Meeting to keep the subject matter relevant to NE Cape conditions. In particular, issues such as high-wind conditions, slippery-step conditions, equipment safety, and cold-weather conditions were duly noted and presented at the morning safety meetings.

In all, Bristol developed 13 Activity Hazard Analyses (AHAs) for specific tasks and operations at NE Cape. The AHAs were presented in the SSHP and are as follows:

- Barge-loading operations
- Barge-unloading operations

- Debris removal and staging
- Drum removal
- Excavation less than 4 feet in depth
- Excavation greater than 4 feet and backfilling
- Fueling of vehicles and equipment
- POL and PCB soil removal disposal
- Pole removal
- Site restoration
- Surface soil sampling
- Subsurface soil sampling
- Wire removal

Bristol invested over 20,000 employee-hours during the field effort for this project.

4.7 WASTE HANDLING AND DISPOSAL

During the 2011 field season, Bristol excavated more than 12,000 tons of contaminated soil, which was loaded into triple-layered, U.S. Department of Transportation-approved bulk bags and staged for subsequent transport off island. In addition to contaminated soil, Bristol loaded Conex containers with miscellaneous debris encountered throughout the site, especially from excavation areas. In total, 1,203 bulk bag containers were loaded between July 16 and September 30, 2011. Table 4-1 lists the weights of all soil excavated and handled during the 2011 field season.

Table 4-1 Excavation Amounts

Site	Weight	Containers	Bags Used
MOC Tank Footprints	638.1	67	67
MOC POL - J1A and A1	7,452.9	718	718
Site 13 (including 11 hazardous bags)	2,419.8	236	236
Site 31 (including 3 hazardous bags)	1,418.5	135	135
Site 21 Arsenic	14.8	2	2
Roofing Tar	207.2	24	48
Bags left over from 2010	197.0	21	21
2011 PCB Totals	3,838.3	371	371
2011 POL Totals	8,091.0	785	785
2011 Combined PCB and POL Totals	11,929.3	1,156	1,156
2011 Totals - All Material	12,151.3	1,182	1,206
Totals Including 21 Bags from 2010	12,348.2	1,203	1,227

Notes:
PCB = polychlorinated biphenyls
MOC = Main Operations Complex
POL = petroleum, oil and lubricants

Bristol shipped 752 bulk bags loaded with PCB-, POL-, and arsenic-contaminated soil off island on 19 separate landing craft voyages between the dates of July 23 and October 9, 2011. The landing craft schedule is presented in Table 4-2 along with the weights of the bags that were loaded onto each craft. Fourteen of these bulk bags were manifested as hazardous waste due to the soils having PCB concentrations in excess of 50 parts per million (ppm), and two bulk bags were manifested and disposed of as hazardous waste due to high concentrations of arsenic. To date, Bristol has received certificates of disposal for 672 bulk bags. Certificates of disposal are provided electronically in the Supplemental Data folder. There are currently 451 bulk bags containing PCB- and POL-contaminated soil staged at the NE Cape site and 80 bulk bags remaining in Nome. These bags will be transported to the disposal facility during the 2012 field season. Spreadsheets containing waste-handling information are provided electronically in the Supplemental Data folder, in a folder named "Tables." Information contained in these files includes all bags that were filled with contaminated soil during the 2011 season; bags that were shipped off-island; bags for which certificates of disposal were received; and bulk bags that still remain at the site.

Table 4-2 Landing Craft Schedule

No.	Date	Landing Craft	No. of Bags	Net Weight (tons)
1	7/23/2011	Sam Taalak	46	435.2
2	7/31/2011	Sam Taalak	50	498.0
3	8/6/2011	Sam Taalak	50	506.1
4	8/10/2011	Sam Taalak	50	492.1
5	8/11/2011	Sam Taalak	46	474.5
6	9/1/2011	Nunanik	38	388.6
7	9/28/2011	Nunanik	32	302.3
8	9/30/2011	Sam Taalak	16	160.4
9	10/2/2011	Sam Taalak	40	434.8
10	10/3/2011	Nunanik	36	367.4
11	10/4/2011	Sam Taalak	40	425.8
12	10/5/2011	Nunanik	36	373.0
13	10/5/2011	Greta	40	421.3
14	10/6/2011	Sam Taalak	40	404.5
15	10/7/2011	Nunanik	36	345.3
16	10/7/2011	Greta	40	404.2
17	10/8/2011	Sam Taalak	40	392.6
18	10/9/2011	Nunanik	36	366.5
19	10/9/2011	Greta	40	414.6
		Totals	752	7,606.9

Note: Landing Craft 8, on 9/30/2011, contained the PCB and arsenic hazardous waste containers

In addition to contaminated soil from direct excavations, Bristol was responsible for a number of other wastes associated with the mobile laboratory, construction camp, debris removal, and unexpected wastes discovered during the course of fieldwork, including the following:

- Laboratory wastes included hexane, acetone, methylene chloride, and sulfuric acid. All lab wastes are currently on site and will be disposed of following the 2012 field season.
- Miscellaneous metal and debris that were collected during the field season were loaded into three Conex shipping containers for transportation and disposal off site.
- Two drums discovered at the MOC during POL excavations that each contained approximately 10 gallons of POL liquid. The drums were packed into two 85 gallon overpack containers that currently remain on site.

Wastes were classified in accordance with Title 40 Code of Federal Regulations, Part 261 (40 CFR 261); 40 CFR 761; and 40 CFR 61, Subpart M. Each hazardous waste was evaluated to identify all applicable treatment standards in 40 CFR 268, Land Disposal Restrictions. Wastes shipped off island were placarded in accordance with 49 CFR 172, Subpart F. Labels and placards were affixed to all sides of Toxic Substances Control Act- (TSCA-) regulated PCB bulk bags, arsenic-contaminated soils bulk bags, and the Conex container holding the waste drums. Waste manifests, waste profiles, bills of lading, certificates of weight, and certificates of disposal are submitted electronically in the Supplemental Data.

Table 4-3 lists the wastes and their associated treatment during the 2011 season. Hazardous waste details are presented in Table 4-4.

Table 4-3 Waste Disposal Summary

Waste Type	Final Treatment/Disposal	Disposal Facility	Approximate Disposal Quantity
Miscellaneous Debris	Disposal in Subtitle D Landfill	Columbia Ridge Recycling & Landfill - Arlington, OR	34.0 tons
PCB-Contaminated Soil, <50 ppm PCBs	Disposal in Subtitle D Landfill	Columbia Ridge Recycling & Landfill - Arlington, OR	1,679.2 tons
POL-Contaminated Soil, Non-RCRA	Disposal in Subtitle D Landfill	Columbia Ridge Recycling & Landfill - Arlington, OR	5,560.2 tons
PCB-Contaminated Soil, TSCA, >50 ppm	Disposal in Subtitle C Landfill	Chemical Waste Management of the Northwest - Arlington, OR	146.2 tons
Arsenic-Contaminated Soil, RCRA	Disposal in Subtitle C Landfill	Chemical Waste Management of the Northwest - Arlington, OR	14.8 tons
Bulk Tar and Tar-Contaminated Soil	Disposal in Subtitle D Landfill	Columbia Ridge Recycling & Landfill - Arlington, OR	207.2 tons

Notes:

< = less than
> = greater than
PCB = polychlorinated biphenyls
POL = petroleum, oil, and lubricants
ppm = parts per million
RCRA = Resource Conservation and Recovery Act
OR = Oregon
TSCA = Toxic Substances Control Act

Table 4-4 Hazardous Waste Handling Details

Bag ID	Manifest No.	Weight (lbs)	Contents	Landing Craft	Date Off-Island	Destination
H13-10	003952651 FLE	18,900	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-9	003952650 FLE	20,760	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-2	009352643 FLE	18,160	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-1	003952642 FLE	21,280	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-3	003952644 FLE	18,200	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-5	003952646 FLE	21,740	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR

Table 4-4 Hazardous Waste Handling Details (continued)

Bag ID	Manifest No.	Weight (lbs)	Contents	Landing Craft	Date Off-Island	Destination
H31-3	003952641 FLE	22,260	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-11	003952652 FLE	22,700	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H31-2	003952640 FLE	21,640	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-6	003952647 FLE	20,720	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-8	003952649 FLE	20,160	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-4	003952645 FLE	20,820	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H13-7	003952648 FLE	20,340	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
H31-01	003952639 FLE	24,680	PCB Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
21-01A	004376108 FLE	12,460	Arsenic Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
21-01B	004376109 FLE	16,040	Arsenic Soil	Sam Taalak	9/30/2011	CWMN, Arlington, OR
	Total	160.43 tons				

Notes:
CWMN = Chemical Waste Management of the Northwest
PCB = polychlorinated biphenyls

5.0 CHEMICAL DATA COLLECTION, ANALYSIS, AND REVIEW

5.1 PRIMARY AND QUALITY ASSURANCE LABORATORIES

TestAmerica Laboratories, Inc. (TestAmerica-) Tacoma was Bristol's primary analytical laboratory for the project and analyzed the majority of the project samples. Terri Torres, the Client Service Manager, acted as the program Laboratory Quality Assurance (QA) Officer for the project. Due to capacity issues at TestAmerica-Tacoma, some analyses were subcontracted to TestAmerica-Denver, which is also DoD Environmental Laboratory Accreditation Program (ELAP) and ADEC Contaminated Sites Laboratory Approval Program certified for sample analyses.

5.2 FIELD LABORATORY

Bristol utilized an on-site field laboratory for screening soils to aid in excavation activities. The laboratory was capable of analyzing soils for DRO/RRO using Alaska Test Method AK102/103 and for PCB soils and wipes using a modified U.S. Environmental Protection Agency (EPA) method 8082.

Bristol utilized the field laboratory to the maximum extent possible, especially as PCB soil excavations increased in size. Bristol originally planned to process approximately 900 samples, but at project's end had analyzed 426 POL samples 1,188 PCB samples.

Field-screening results from the on-site laboratory were used to direct the excavation of contaminated soil but were not used to determine whether site cleanup levels had been met. Wipe samples were also submitted to the field laboratory to demonstrate that concrete was not above regulatory limits before it was broken up and used as backfill. If mobile laboratory concentrations were greater than 80 percent of DRO, RRO, or PCB cleanup levels, then the excavation was expanded and additional field-screening samples were collected. Once the excavation was believed to be complete based on the field-screening results, confirmation samples were collected and submitted to TestAmerica in

Tacoma, Washington; and Denver, Colorado, to confirm that the remaining soil was below site cleanup levels. The field-screening laboratory was not certified for any analyses.

If field-screening samples collected from an area of excavation were less than 0.8 milligrams per kilogram (mg/kg) PCB or 7,360 mg/kg DRO/RRO, discrete grid-based confirmation samples were collected and sent to the TestAmerica-Tacoma laboratory. Some discrete PCB samples were also composited by TestAmerica prior to extraction and analysis.

Pre-stockpile samples for PCBs were composited by the field-screening laboratory to determine whether PCBs were present at the soil surface before liner and excavated backfill were placed at the stockpile locations. PCB bulk waste samples were composited by environmental field personnel and submitted to the field lab. PCB excavation samples were analyzed discretely in order to identify areas with PCB concentrations above cleanup levels. All POL samples were analyzed as discrete samples, with the exception of bulk waste samples, which were composited by environmental personnel in the field before being submitted to the field laboratory. The off-site disposal facilities accepted field-screening results for waste disposal purposes.

5.2.1 POL Screening Analysis

The POL screening samples were analyzed for DRO and RRO using a gas chromatograph equipped with dual flame-ionization detectors and procedures outlined in Appendix D of the ADEC Underground Storage Tank Procedures Manual for AK102 and AK103 (ADEC, 2002). The POL screening results are listed in Tables S1 through S6, provided electronically with the Supplemental Data. Screening results were used to indicate site locations that either required further excavation or were tentatively thought to have reached cleanup goals. Confirmation samples were collected at locations where screening indicated that cleanup goals had been met. The confirmation samples were submitted to TestAmerica for analysis.

5.2.2 PCB Screening Analysis

The PCB screening samples were analyzed as Aroclors using a gas chromatograph equipped with dual electron capture detectors and procedures outlined in EPA Method 8082. Samples were extracted using a rapid extraction method outlined in the Standard Operating Procedure (SOP) for PCBs Field Testing for Soil and Sediment Samples (EPA, 2002). The screening method used in the field was slightly modified from the EPA field testing method; a 1:1 hexane acetone solvent mixture was used instead of a 10:8:2 mixture of hexane, methanol, and water. Water was added after sonication to facilitate the separation of the hexane from the acetone. When water was added to the initial extract, the solvents physically separated, leaving the hexane as the top layer, which contained the PCBs. The method was also modified in the field because organic materials were present at the sites. The addition of both diatomaceous earth and sodium sulfate to the samples produced emulsions in the sample extracts, so samples were air dried in weigh dishes after the initial sample weight was recorded, to minimize potential for the emulsions. The PCB field laboratory-screening results are listed in Tables S7 through S15, provided electronically with the Supplemental Data. All other extraction and analysis steps followed the SOP prepared for NE Cape.

5.3 CHEMICAL DATA QUALITY REVIEW

The Chemical Data Quality Report (CDQR) was completed on January 30, 2012. The CDQR is presented in Appendix D of this report.

The laboratory data tables presented in Appendix E are flagged in accordance with the recommendations presented in the CDQR.

AECOM reviewed and evaluated the project and QA laboratory data and prepared the CDQR, which is included in Appendix D of this report. The ADEC CS letters are included in Appendix D. ADEC checklists are provided electronically with the Supplemental Data.

5.4 ANALYTICAL METHODS FOR SOIL AND SEDIMENT

A number of soil and sediment samples were collected from different sites for various applications. Confirmation soil samples were collected from the PCB and POL excavation sites when field screening results indicated contaminant concentrations were below cleanup levels, or at the end of the 2011 field season. Confirmation soil samples were collected from Site 21 and the roofing-tar area following excavation activities. Soil samples were collected from Site 8 to evaluate contamination levels and also as part of an ongoing study to monitor natural attenuation. Sediment and soil samples were collected from Site 28 to further define contamination and characterize site conditions. Site-specific sampling events and their corresponding analytical methods are summarized below in Table 5-1. Table 1, which is presented in Appendix E, details each analyte, analytical method and its associated cleanup levels for soil and sediment.

Table 5-1 Analytical Methods for Soil and Sediment

Sampling Event	Parameter	Analytical Method
Confirmation Samples from POL Excavations (MOC A1 and J1A)	DRO/RRO	AK 102/103
Confirmation Samples from PCB Excavations (Site 13 and Site 31)	PCBs	EPA 8082
Site 21 Confirmation and Background Samples	Arsenic	EPA 6020
Site 28 Characterization	GRO, BTEX, PAHs, DRO/RRO, PCBs, RCRA 8 Metals, Nickel, Vanadium and TOC	AK101, SW8260B, AK102/103, SW8082A, SW6020A, SW7471B, 9060
Roofing Tar Confirmation Samples	PAHs	SW8270C-SIM
Site 8	DRO/RRO, PAHs, TOC	AK 102/103, EPA 8270C SIM, EPA 9060

Notes:

AK	=	Alaska Test Method	PCB	=	polychlorinated biphenyls
BTEX	=	benzene, toluene, ethylbenzene, and xylenes	POL	=	petroleum, oil, and lubricants
DRO	=	diesel range organics	RCRA	=	Resource Conservation and Recovery Act
EPA	=	U.S. Environmental Protection Agency	RRO	=	residual range organics
GRO	=	gasoline range organics	SIM	=	selective ion monitoring
MOC	=	Main Operations Complex	TOC	=	total organic carbon
PAHs	=	polynuclear aromatic hydrocarbons			

5.5 ANALYTICAL METHODS FOR GROUNDWATER AND SURFACE WATER

Surface water samples were collected from Site 8 and Site 9 during the 2011 field season at NE Cape. Samples were also collected from treated water impoundments in the MOC prior to their being discharged to the ground surface. Groundwater samples were collected from nine monitoring wells at the MOC. Site-specific parameters and analytical methods for ground and surface water are summarized in Table 5-2. Table 2 in Appendix E presents the analytes associated with each analytical method and their corresponding cleanup levels.

Table 5-2 Analytical Methods for Water

Sampling Event	Parameter	Analytical Method
MOC Groundwater	Metals/Mercury, PCBs, BTEX, PAHs, GRO, DRO/RRO, Methane	EPA 6020/7470A, EPA 8082, EPA 8260B, EPA 8270C SIM, AK 101, AK 102/103, RSK-175
Site 8	PAHs, DRO/RRO, Methane	EPA 8270C SIM, AK 102/103, RSK-175
Treated Water from Impoundment Sumps	BTEX, PAHs	SW8260B, SW8270C-SIM
Site 9	VOCs	EPA 8260B

Notes:

AK	=	Alaska Test Method	MOC	=	Main Operations Complex
BTEX	=	benzene, toluene, ethylbenzene, and xylenes	PAHs	=	polynuclear aromatic hydrocarbons
DRO	=	diesel range organics	PCBs	=	polychlorinated biphenyls
EPA	=	U.S. Environmental Protection Agency	RRO	=	residual range organics
GRO	=	gasoline range organics	SIM	=	selective ion monitoring

5.6 Analytical Methods for Wastes

Waste characterization samples were collected for all wastes that were shipped off island. Soil samples were collected from the bulk bags that were loaded with POL-, PCB-, and arsenic-contaminated soils. Waste characterization samples collected from bulk bags containing POL and PCB soils were analyzed in the field laboratory, while arsenic samples were sent to TestAmerica in Tacoma, Washington, for analysis. Waste characterization samples were also collected from the bulk tar that was excavated from the spilled roofing tar area and analyzed for semivolatiles. Waste characterization matrices and analytical methods are listed in Table 5-3.

Table 5-3 Analytical Methods for Wastes

Sample	Parameter	Analytical Method
POL Soils	DRO/RRO	AK 102/103
PCB Soils	PCBs	EPA 8082
Arsenic	Metals – Arsenic only	EPA 6020
Tar	Semivolatiles	EPA 8270C

Notes:

AK = Alaska Test Method
DRO = diesel range organics
EPA = U.S. Environmental Protection Agency
PCBs = polychlorinated biphenyls
POL = petroleum, oil, and lubricants
RRO = residual range organics

5.7 CLEANUP AND WASTE DISPOSAL CRITERIA

Waste disposal criteria were based on the following regulations:

- Title 18 of the Alaska Administrative Code, Chapters 60 – Solid Waste Management; 62 – Hazardous Waste; 75 – Oil and Other Hazardous Substances Pollution Control; and 78 – Underground Storage Tanks (18 AAC 60, 62, 75, and 78
- 29 CFR 1910 and 1926 – Health and Safety for General Industry and Construction
- 33 CFR 138 – Financial Responsibility for Water Pollution
- 40 CFR 60, 61, 260-270, 279, 300-303, and 761 – EPA – Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and TSCA
- 46 CFR 150, 151, and 153 – U.S. Coast Guard, Department of Homeland Security
- 49 CFR 171-178 – Hazardous Materials Transportation.

Cleanup levels are presented in Tables 1 and 2 of Appendix E. The referenced criteria for soil, sediments, surface water, and groundwater are derived from the following sources and regulations:

- The document titled *Scope of Work, 2011 Northeast Cape HTRW Remedial Actions, Formerly Used Defense Site F10AK0969-03, Northeast Cape, Alaska*, Revision 3, dated December 10, 2010. This document was furnished to Bristol by the USACE and contained a table in Section 1.2 that listed various cleanup levels within different media.

- Cleanup levels for soil and sediment not listed in the SOW were obtained from 18 AAC 75.341, Table B1, Method 2 – Soil Cleanup Levels. The most stringent pathway is referenced.
- Cleanup levels for groundwater were obtained from 18 AAC 75.345, Table C, groundwater cleanup levels.

6.0 FIELD ACTIVITIES

6.1 ACCESS IMPROVEMENTS

Approximately 4 miles of gravel roads connect the various work areas at the site. There are four stream crossings, consisting of three culverts and one bridge, within the work areas at NE Cape. Access improvements along the road system were initiated upon arrival and continued as needed during the project. The roads were generally in good condition and, in most cases, only required grading and minor backfilling to reestablish and maintain their usability. Bristol used a water truck on site periodically to suppress dust. The water withdrawal area is labeled on Figure 3.

6.2 21 PCB BAGS ON PAD 98

Part of the SOW for 2011 included shipping bulk bags that were filled during the 2010 field season but never transported off island. These bags were left over winter on the foundation of former Building 98, located at Site 14. The PCB-contaminated soil loaded in these 21 bags was excavated from Sites 13 and 31. In total, 18 bags contained soil from Site 13, and three contained soil from Site 31. These 21 bags were weighed and loaded onto the Sam Taalak landing craft on July 23, 2011, and have been disposed of at Columbia Ridge Landfill in Arlington, Oregon. Certificates of disposal are included electronically with the Supplemental Data.

6.3 MOC SURVEY

ECO-Land was on site throughout the duration of field activities in 2011. One of their first tasks upon arrival was surveying the MOC to produce a topographic map. This pre-construction survey was completed prior to the start of any construction activities and is shown on Figure 4 along with other site details. Elevation contours were produced for every 6-inch change in elevation. Once excavation activities are completed in the MOC, another topographic survey will be conducted that will show the post-construction conditions of the site.

Survey data are supplied electronically in the Supplemental Data.

6.4 ENVIRONMENTAL SAMPLING

Bristol collected numerous samples from different media during the project for various reasons. Soil samples were collected from bulk bags for waste characterization purposes; confirmation soil samples were collected from PCB and POL excavations; soil, sediment, groundwater, and surface water samples were collected from Sites 8 and 28 to help further characterize the sites and monitor for natural attenuation; and surface water samples were collected from treated water impoundments and Site 9. All samples were collected in accordance with ADEC draft Field Sampling Guidance (ADEC, 2010) and Bristol's SOPs, which are included electronically in a subfolder of the Supplemental Data. The following sections describe the general procedures involved with the samples that were collected throughout the project.

6.4.1 PCB Field-Screening Soil Sample Collection

PCB soil screening samples were collected from excavations at Sites 13 and 31, as well as from areas adjacent to the excavations that were used for overburden stockpiles. Field samples were collected in Ziploc bags using a stainless-steel spoon and were submitted to the field laboratory. Extensive field-screening samples were collected at Sites 13 and 31 during excavation activities.

PCB field-screening locations were based on a 25 ft^2 grid. The grid was marked every 5 feet using marking paint, and the individual sampling sites within the grid were staked with pin flags. Samples were collected from each grid, marked with a unique sample ID, and submitted to the field laboratory for analysis.

6.4.2 POL Field-Screening Sample Collection

Following excavation, field-screening samples were collected every 10 feet along excavation sidewalls and floors using a stainless-steel spoon or trowel and were placed into Ziploc bags. Bags were marked with a unique sample ID and submitted to the field lab for DRO/RRO analysis.

6.4.3 POL Confirmation Soil Sample Collection

Confirmation sampling protocols commensurate with the ADEC draft Field Sampling Guidance were followed (ADEC, 2010). Samples were collected every 25 feet laterally within the A1 and J1A excavations (20 feet along sidewalls). Samples were collocated with field samples as closely as possible. Confirmation samples were collected with the aid of an excavator bucket. The sample was collected from the bucket by the sampler, who donned a new pair of nitrile gloves for each sample. Samples were collected into appropriately sized glass jars, labeled with a unique ID and necessary analytical notes, and shipped to TestAmerica.

6.4.4 PCB Confirmation Soil Sample Collection

Samples were collected every 5 feet along the excavation floor and sidewalls. The confirmation soil samples were collected using stainless-steel spoons and trowels; excavator bucket sampling by a clean nitrile glove-covered hand was employed in areas where the excavation was unsafe for entry. Samples were collected into 4-ounce glass jars, labeled, and shipped to TestAmerica.

6.4.5 Waste Characterization Sample Collection

Waste characterization samples were collected from all wastes that were shipped off island. Soil samples were collected from bulk bags that were loaded with POL-, PCB-, tar, or arsenic-contaminated soils.

POL and PCB waste characterization samples were collected from bulk bags. Each POL and PCB waste characterization sample consisted of seven discrete samples collected with a stainless-steel scoop from each of a series of seven bulk bags. The discrete samples were collected from both sides of individual bulk bags into a stainless-steel bowl and homogenized. The homogenized soil was then placed into a Ziploc bag, given an ID that corresponded to the group of bags from which the sample came, and submitted to the field laboratory.

PCB bulk bags holding soil from locations where field-screening results indicated concentrations above 50 mg/kg were not composited with other bags; these bags had a waste characterization sample collected discretely.

The arsenic waste characterization sample was a homogenization of discrete samples taken from two bulk bags. The arsenic sample was collected using a stainless-steel scoop, placed into a 4-ounce jar, and shipped to TestAmerica for analysis.

The tar waste characterization sample consisted of one discrete piece of tar collected from the roofing tar site. The tar was collected using a gloved hand and was placed into 16-ounce jars.

6.4.6 Groundwater Sample Collection

Wells were sampled with a Monsoon® centrifugal pump using a low-flow sampling protocol. Water quality parameters were collected using a YSI 556 meter with flow-through cell. Water samples were collected directly from 1/8-inch high-density polyethylene (HDPE) tubing into the appropriate collection vessel. The IDW generated from sampling the wells was collected in 5-gallon buckets and processed through a granular activated carbon (GAC) filter prior to being discharged onto the ground. Water was processed and discharged at the sample site.

6.4.7 Surface-Water Sample Collection

Surface-water samples from the outfall to the Suqitughneq River at Site 8 were collected using a clean, non-preserved, 2-liter amber jar, which was slowly dipped into the water source and then used to fill the sample containers.

Surface-water samples from Site 8 decision units were collected using a peristaltic pump. Water was pumped directly into sample containers while water-quality parameters were collected using a YSI water-quality meter submerged directly into the water.

6.4.8 Decontamination Procedures

Tubing used in all water-sampling pumps was used for a specific well or decision unit grid and then properly disposed of. The Monsoon pump, when used, was disassembled and cleaned in an Alconox solution, followed by a rinse with tap water and deionized (DI) water. The YSI water quality meter and flow-through cell were cleaned in a similar fashion with Alconox and a double rinse.

New nitrile gloves were donned for every sample collected on site. Spoons and trowels were washed in an Alconox solution, followed by a rinse of fresh tap water and DI water.

When the excavator was utilized for soil sampling, it was given a thorough dry brushing between each sample. Excavator bucket samples were taken from soil not directly in contact with the bucket surface.

6.5 MOC Groundwater Sampling

Nine primary water samples and one duplicate were collected from the selected monitoring wells in the MOC from July 15 to July 18, 2011. Wells were sampled using a submersible pump with a low-flow sampling protocol. Water quality parameters were measured using a YSI water-quality meter with flow-through cell. Samples were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX); PCBs; gasoline range organics (GRO); DRO; metals (total and dissolved); polynuclear aromatic hydrocarbons (PAHs); and methane and were shipped under chain-of-custody to TestAmerica in Tacoma, Washington, for analysis. HACH® kits were used in the field laboratory to collect the natural attenuation parameters for manganese, ferrous iron, sulfate, nitrate, and alkalinity. The natural attenuation parameters from 2010 and 2011 are presented in Table 3 in

Appendix E. Figure 5 shows the potentiometric groundwater surface and the monitoring wells that were sampled during field activities.

Two wells contain contaminant concentrations exceeding cleanup levels: Monitoring well (MW) 88-4 and MW 88-5. The wells exceed cleanup levels for DRO at 2.3 milligrams per liter (mg/L) and 7.5 mg/L, respectively. Both wells also exceed benzene cleanup criteria, having concentrations at 9.4 micrograms per liter (μg/L) and 20 μg/L, respectively. Well 88-5 contains RRO at concentrations that exceed cleanup criteria (2 mg/L). Well 88-4 contains arsenic at concentrations that exceed cleanup criteria (0.011 μg/L). Full laboratory analytical results for MOC groundwater monitoring wells are presented in Table 4, located in Appendix E. Figure 6 shows the monitoring wells that were sampled and highlights those that contained contaminant concentrations in excess of cleanup levels.

The three wells that historically contained concentrations of DRO exceeding cleanup levels all contained the lowest observed concentrations of DRO during the 2011 sampling event. Benzene concentrations have historically fluctuated and appear to have increased over time in MW 88-5, from 9.3 μg/L in 2004 to 20 μg/L in 2011. Table 6-1 includes sample result exceedances from 2004, 2010, and 2011 sampling events.

The wells containing concentrations of DRO exceeding cleanup criteria had the lowest dissolved oxygen (DO) concentrations. Monitoring wells 88-4 and 88-5 contained the highest concentrations of ferrous iron, alkalinity, and methane. Ferrous iron, methane, and alkalinity are metabolic byproducts of microbial respiration. The wells with the lowest contaminant concentrations had comparatively high DO, suggesting that microbes are depleting oxygen to aerobically degrade DRO. The high concentrations of methane in MWs 88-4 and 88-5 indicate anaerobic degradation of DRO by methanogenic microbes. These factors are an indication that natural attenuation is occurring, and the results are consistent with results from the 2010 sampling event.

Table 6-1 MOC Wells with Exceedances from 2004, 2010, and 2011

	Matrix	**Water**	**Water**	**Water**	**Water**	**Water**	**Water**
	Method	**8260B**	**AK101**	**AK102**	**AK103**	**RSK-175**	**6020**
	Analyte	Benzene	GRO (C6-C10)	DRO (nC10-<nC25)	RRO (nC25-nC36)	Methane	Lead-Total
	Cleanup Level	5	1.3	1.5	1.1	---	---
	Unit	µg/L	mg/L	mg/L	mg/L	µg/L	---
Well ID	**Year**						
	2004	33.7	1.25	**3.89**	**1.46**		---
	2010	2.4	0.24	**3.3**	0.43 M	2100	---
88-4	**2011**	9.4	0.4	**2.3**	0.55	2100	---
	2004	0.4 U	0.0357	1.38	0.549 U	---	37.6
	2010	0.15 U	0.044 U	**1.6**	0.036 J	0.4 M	---
88-10	**2011**	0.45 U	0.044 U	0.54	0.15	1.8	---
	2004	**9.3**	**1.5**	**11.3**	**2.28**	---	---
	2010	**9.3**	0.19	**12**	**1.6**	99 M	---
88-5	**2011**	**20**	0.24	**7.5**	**2**	630	---

Notes:

---	=	not sampled	J	=	result is an estimate
<	=	less than	M	=	matrix effect was present
µg/L	=	micrograms per liter	mg/L	=	milligrams per liter
AK	=	Alaska Test Method	PCBs	=	polynuclear aromatic hydrocarbons
DRO	=	diesel range organics	POL	=	petroleum, oil, and lubricants
EPA	=	U.S. Environmental Protection Agency	RRO	=	residual range organics
GRO	=	gasoline range organics	U	=	non-detect

6.6 SITE 8 PIPELINE BREAK

Site 8 is a wetland with dense, grassy surface vegetation containing little soil or peat development, that slopes southward and narrows toward the Suqitughneq River. A spring is located at the lower end of the site near the Suqitughneq River.

Two soil samples were collected at Site 8 in 2004. The first sample was located approximately 50 feet below the historical pipeline break, and the second sample was located 100 feet below the break. Figure 7 shows the approximate location of the pipeline break. Historical results indicated DRO was present at concentrations of 6,700 mg/kg and 19,500 mg/kg in samples 04NE08SD103 and 04NE08SD102, respectively. Surface water samples were also collected near the spring and outfall in 2004, but contaminants were not detected.

In 2010, a multiyear study commenced for MNA, during which three decision units were created and sampled along with a spring-generated stream that flows into the Suqitughneq River from the wetland where the three decision units were located. Results from the 2010 sampling events are presented in Table 5 (Appendix E).

In addition to the water and soil samples collected for MNA parameters, two surface-water locations were sampled from within this drainage area and submitted to TestAmerica for analysis. Results are discussed in the following section.

6.6.1 Site 8 Surface-Water Sampling

The three decision units created for soil and MNA sampling based on field observations and the approximate location of the pipeline break in 2010 were; 1) an upper decision unit (UDU), which is upgradient of the source area; 2) a middle decision unit (MDU) encompassing the source area; and 3) a lower decision unit (LDU) located downgradient of the source area. A sample grid was developed for each decision unit. Figure 7 displays the sample grids. Each grid was divided into four sections wide by ten sections long, for 40 possible sample points and grid squares measuring approximately 10 feet by 10 feet. A random number generator was used to select the eight grids from which water and soil samples would be collected. The MNA water samples were collected using a peristaltic pump, and water quality parameters were simultaneously collected using a YSI 556 multi-parameter meter. Surface-water samples were analyzed on site with a HACH portable spectrometer for natural attenuation parameters, including manganese, iron, sulfate, alkalinity, and nitrate. Water samples were shipped under chain-of-custody to TestAmerica in Tacoma, Washington, for methane analysis. The measured natural attenuation and water quality parameters for 2010 and 2011 are presented in tables 5 and 6, respectively (Appendix E).

The LDU was sampled August 4, 2011, followed by the MDU and UDU on August 5, 2011. A rainfall event occurred the morning of August 4, which caused a minor rise in the water levels of the Suqitughneq River. Water levels in the LDU did not appear to be significantly changed by the rain event.

Surface water samples were collected from two locations within this drainage on July 23, 2011, and analyzed for DRO/RRO and PAHs. One sample location, 11NC08WA01, was situated near the drainage's confluence with the Suqitughneq River, where a small, spring-fed stream originates. The other sample was collected approximately midway between the confluence of the Suqitughneq River and the pipeline break location. PAH analytes were not detected in the surface water samples, and DRO/RRO results were below site-specific cleanup levels. Sample results are presented in Table 7, located in Appendix E.

6.6.2 Site 8 Soil Sampling

Eight discrete soil samples were collected from the same grid locations as the MNA water samples for each of the three decision units. Soil from each of the eight grids in each decision unit was composited into a single sample and submitted to the laboratory for analysis. Soil samples were collected using a T-handled auger with 4-inch core barrel. The upper vegetative mat was removed to expose the underlying soil, which was augured down to a depth of approximately 12 inches. Soil was collected from the bottom of the auger using a gloved hand and placed into a stainless-steel bowl. The eight samples were then composited, and a sample was taken from the mixture, jarred, and labeled. A field duplicate was collected from the LDU composite after homogenization. Samples were analyzed for PAHs, total organic carbon (TOC), and DRO/RRO (with and without silica gel cleanup). Contaminant concentrations for all analytes were either not detected or were below site-specific cleanup levels. Results are presented in Table 8 (Appendix E).

6.6.3 Site 8 MNA Conclusions and Discussion

The UDU is located upgradient of the source area and is intended as a background unit for MNA parameters. The average DO concentration in the UDU is historically higher than the middle or lower decision units. Average DO concentration in 2011 was 54.5 mg/L, with a range of 26.6 to 78.4 mg/L. These concentrations are above maximum saturation for water at 6 degrees Celsius (°C), suggesting that the DO sensor was not functioning properly during data collection for this decision unit. Methane was detected in all of the water samples, with concentrations ranging from 1.1 μg/L to 350 μg/L.

Soil sample 11NC08SS001, collected in the UDU, was below cleanup levels for all analyses. The DRO concentration was 58 mg/kg, and the RRO concentration was 380 mg/kg. Following silica gel cleanup (ADEC, 2006), the DRO concentration was reduced to 36 mg/kg and the RRO concentration decreased to 320 mg/kg, which implies that biogenics are contributing to the DRO and RRO results. Five PAHs were also detected in the UDU but at concentrations up to two orders of magnitude lower than the middle and lower decision units. Total organic carbon was reported at 81,000 mg/kg, which is expected based on the high amount of vegetation and seasonal organic deposition into the wetland area. The analytical results for Site 8 soils are presented in Table 8.

The MDU is situated directly below the approximate location of the pipeline break. It is believed the pipeline broke on the shoulder of the adjacent road and the contents emptied into the wetland area; however, there is little documentation regarding the release. The impacted area was confirmed in 2010 based on fuel odor being detected during soil sample collection. Surface water DO concentrations in 2011 averaged 5.56 mg/L and ranged from 3.72 mg/L to 8.03 mg/L. Methane was detected in all of the water samples collected in the MDU, the average concentration being 36.8 μg/L.

Soil sample 11NC08SS002, collected in the MDU, was below cleanup levels for all analyses. The DRO concentration was 1,800 mg/kg, and the RRO concentration was 1,100 mg/kg. Following silica gel cleanup, the DRO concentration remained at 1,800 mg/kg, and the RRO concentration increased to 1,800 mg/kg, implying that biogenics are not contributing to the DRO and RRO results. Nine PAHs were also detected in the MDU and were all below cleanup levels. Total organic carbon was reported at 110,000 mg/kg, which is expected based on the high amount of vegetation and seasonal deposition into the wetland area.

The LDU is downgradient from the MDU, adjacent to the Suqitughneq River. The DO had an average concentration of 6.31 mg/L, with a range of 3.53 to 7.57 mg/L. The DO concentrations are sufficient for aerobic degradation of petroleum hydrocarbons and natural organic materials. Soil sample 11NC08SS003 and duplicate sample 11NC08SS004, collected in the LDU, did not contain analytes in concentrations exceeding cleanup levels. The DRO concentration was 1,500 mg/kg, and the RRO concentration was 820 mg/kg. Eleven PAHs were detected in the two samples.

With the exception of DO, none of the natural attenuation parameters taken at Site 8 varied significantly between the three decision units. Field results for manganese, ferrous iron, sulfate, and nitrate were near or less than the manufacturer-stated method detection limits, so their results are not definitive for assessing MNA. The DO levels indicate that conditions are amenable for oxidative degradation of hydrocarbons, as well as naturally occurring materials (NOM) that are present at the site. TOC results in all decision units support the presence of NOM at concentrations far exceeding DRO concentrations. No petrogenic sheen or stressed vegetation was noted in any locations throughout Site 8. Plated biogenic sheen, which broke up when disturbed, was observed in all decision units. The most useful evaluation of MNA as a selected remedy is the reduction of contaminants of concern. The 2010 soil sample results, presented in Table 9 (Appendix E), indicated that the site had some impacted soil slightly above cleanup levels. 2011 sampling using the same grid design indicated that analytes were not present at concentrations exceeding cleanup levels.

6.7 SITE 28 CONTAMINATION DELINEATION

Site 28 consists of a wetland drainage that lies immediately north of the MOC. The site has been impacted by fuel releases and various other spills and releases. Soil and sediment samples were collected in 2011 to further characterize the site and assist in determining the extent and magnitude of contamination.

Bristol completed the field sampling tasks at Site 28 and has provided the results in a Technical Memo (Tech Memo) that was due to USACE 90 days following initiation of field activities. The draft Tech Memo was submitted to USACE on October 28, 2011. Comments have been received from USACE and addressed by Bristol. Please refer to the Tech Memo (Bristol, 2012), provided as a separate document, for information regarding Site 28.

6.8 CONTAMINATED SOIL REMOVAL PROCEDURES

The majority of the work performed during the 2011 HTRW Remedial Action involved the excavation, packaging, sampling, and transport of contaminated soils. To achieve these tasks, Bristol employed the use of excavators, heavy loaders, and bulk bags.

The bulk bag loading process utilized a metal support frame that held the bags in place during loading operations. In most cases, contaminated soil was loaded directly into the bulk bags using an excavator. A mechanical rock screening plant (screen plant) was on site to sort out large-diameter rocks (rocks exceeding 2 inches) in an effort to maximize removal of DRO-contaminated soil while minimizing weight. However, due to the high moisture content of the silty clay matrix surrounding the larger rocks, the screen plant was only minimally utilized. It was not possible to effectively remove the fine material from the larger material utilizing the screen plant.

Once a bag was filled, a sub-sample was collected and composited with as many as six (for a total of seven sub-samples) other grab samples to make one composite sample. The sub-sample consisted of soil that was collected from each end of a container (two per bulk bag) and placed into a stainless-steel bowl using a clean stainless-steel trowel. The soil was homogenized in the bowl, placed in a Ziploc bag, and submitted to the field laboratory for analysis. DRO/RRO and PCB samples were submitted to the field laboratory for waste characterization analysis. Waste characterization samples collected from bags loaded with arsenic-contaminated soil and tar were submitted to TestAmerica for analysis.

A small labor crew was used to set up bags in the loading frames and prepare the bags for transport after they were filled with contaminated material. A heavy loader with a lifting frame attached to the forks was used to lift the bags from the loading frames and weigh and transport the bags to their respective staging areas. All bags were marked with a distinct ID and their corresponding weight. Upon arrival at the Cargo Beach staging area, the bags were loaded onto shipping flats. Two bulk bags were loaded onto each flat, which could be transported by a single heavy loader onto a landing craft for transport off island.

6.9 POL EXCAVATIONS

Data collected during the 2010 field season using Ultraviolet Optical Screening Tool (UVOST) technology was used to plan and guide POL excavation activities at the MOC. During the planning phases of the project, Bristol delineated ten plumes where the UVOST indicated that DRO existed at concentrations exceeding cleanup levels. During the 2011 field season, excavation was initiated on two of these plumes, J1A and A1, the perimeters of which were delineated by the on-site survey team. In addition to these two plumes, Bristol also removed soil from the vicinity of the former bulk fuel tanks where the tank footprints were clearly visible on the ground surface. In total, during field operations at NE Cape in 2011, Bristol excavated 8,091 tons of POL soils loaded into 785 bulk bags.

6.9.1 Bulk Fuel Tank Footprints

Surface soil staining was clearly visible where three former aboveground storage tanks (ASTs) were located. Bristol was tasked with removing the soil in this area where staining was visible, which resulted in approximately 18 inches of material being excavated at each former tank location. The soil was removed using a tracked excavator, which loaded the material directly into a bulk bag. A total of 67 bulk bags weighing 638.1 tons were loaded with material from the former AST locations. The locations of the former ASTs are noted in Figure 4.

6.9.2 MOC POL Excavation J1A

The boundary of the J1A excavation area, as indicated by the UVOST, was delineated by ECO-Land. The northern portion of this delineated excavation boundary extended into the Site 28 wetland. The decision was made with the QAR that excavation would not extend into the wetland, thus restricting removal activities to the area on the MOC referred to as "the pad." A silt fence was erected along the northern extent of the J1A excavation to prevent the migration of sediment into the wetland during excavation activities.

The first step in the excavation process involved the removal of overburden (soil containing DRO/RRO concentrations below cleanup levels). Two feet of overburden, consisting of peaty gravel with organic silt, was removed from the J1A area and stockpiled on a liner that was placed in the northwestern section of the MOC (shown on Figure 4). Soil indicated to contain diesel fuel in concentrations above 9,200 mg/kg by 2010 UVOST data was placed directly into bulk bags and sampled for waste characterization purposes. Water was encountered at approximately 8 feet bgs.

Bristol was scoped to excavate to a depth of 15 feet, or 2 feet below groundwater, whichever occurred first, so a system was developed for dewatering saturated soils. Soils removed from below groundwater were first drained in the excavator bucket, followed by placement into a lined impoundment area. Soils were allowed to drain on the liner surrounded by a berm in the area of the former bulk fuel tanks. Finally, these wet soils were mixed with drier POL-impacted soils from the A1 excavation on the concrete foundation for former Building 98. Loading frames were set up adjacent to the foundation to allow the mixed soils to be loaded directly from the concrete pad into bulk bags.

The remainder of the J1A area was excavated to a depth of 2 feet below groundwater. In order to gauge the depth of the excavation below groundwater, the excavator bucket was used as a guide. A mark was made on the side of the bucket at a point 2 feet from the teeth. When this mark was even with the surface of the water, it indicated that the active bottom of the excavation was located 2 feet below that surface. The excavator operator systematically removed all soils below water to this level.

Field laboratory screening samples were collected immediately above groundwater at 10-foot intervals along the excavation sidewalls to define the lateral extent of DRO/RRO contamination. Where the excavation floor was exposed, field-screening samples were also collected at 10-foot intervals. Field laboratory sample locations with DRO results exceeding 7,360 mg/kg were further excavated and resampled. When field-screening values indicated concentrations below cleanup levels, confirmation sampling commenced. Confirmation sampling took place at 20-foot linear intervals along the excavation sidewalls. Field-screening locations, confirmation sample locations, and the excavation limits were surveyed by ECO-Land. A total of 93 field-screening samples and 27 primary confirmation samples were collected. Samples 11NCMOCSS012 through 017, which were collected along the northern extent of the excavation near the silt fence, contained DRO in concentrations exceeding cleanup levels. 11NCMOCSS017, the northernmost sample location, contained a DRO concentration of 29,000 mg/kg. Sample results are shown in Table 10 of Appendix E.

Due to the impending winter weather, backfill of the excavation was initiated before confirmation sample results could be received from some locations. In these areas, a liner was placed along the excavation sidewall to denote the backfill boundary, had additional excavation been required. Following receipt of sample results, it is only the northern edge of the excavation, where the boundary between the pad and the wetland lies, that currently contains locations above cleanup levels.

6.9.3 MOC POL Excavation A1

At excavation unit A1, 8 feet of overburden was removed and stockpiled on liner (same location as J1A overburden). The A1 area was excavated to a depth of 15 feet, the approximate depth to groundwater. Two floor samples were taken on the area of the excavation floor that was above water. Field laboratory screening samples were taken at 10-foot intervals along the excavation perimeter to define the lateral extent of DRO contamination. The 2010 UVOST data indicate that the highest contaminant concentrations lie below the standing water level of 15 feet. Field-screening and confirmation samples were taken at a depth of approximately 13 feet bgs to avoid collecting wet samples, which may have been impacted by water in the excavation where sheen was present. Field-screening sample locations exceeding 7,360 mg/kg DRO were further excavated and resampled. Confirmation sampling took place at 20-foot linear intervals along the perimeter of the excavation where field-screening results indicated contaminant concentrations in soil were below cleanup levels. Field-screening and confirmation sample locations were surveyed by ECO-Land. A total of 83 field screening samples and 32 confirmation samples were collected.

Table 11, located in Appendix E, indicates that four confirmation samples contained DRO concentrations in excess of site-specific cleanup levels. Samples 11NCMOCSS029, 11NCMOCSS031, and 11NCMOC045 contained DRO concentrations greater than the cleanup level of 9,200 mg/kg and were over-excavated following the receipt of the sample results. As the field season was winding down, Bristol was still attempting to locate DRO contamination in the A1 excavation, but time constraints forced the collection of confirmation samples so that backfill operations could begin. Confirmation samples were collected, and the sidewalls of the excavation were lined in all areas where sample results were still pending. Only one sample location, 11NCMOCSS068, which contains a DRO concentration of 12,000 mg/kg remains in the northwest portion of the excavation. Further excavation will be required to remove the DRO contamination from this site. Figure 9 shows the extents of the A1 excavation and all sample locations.

The A1 excavation was backfilled with clean borrow material. The sidewall where sample 11NCMOCSS068 is located was draped with a liner to distinguish the boundary between clean fill and DRO-contaminated soil. Future identification of this sample location will be facilitated by the installation of this demarcation liner. Sample results are presented in Table 11 (Appendix E).

6.9.4 G and H Excavations

In the deepest parts of excavations A1 and J1A, Bristol encountered groundwater, which was producing saturated soil. Part of the dewatering strategy involved placing these soils on a liner for a period of time and then mixing them with dry POL-contaminated soils. There came a point in the process where all of the soil being removed from J1A and A1 was saturated, so the decision was made to initiate excavation on plumes G and H in hopes that the contaminated soil removed from the G and H areas would be dry enough to mix with the saturated soils from J1A and A1. Excavation began on the G and H plumes and groundwater infiltrated the excavation at approximately 5 to 6 feet bgs. Since the top of the planned excavation in these plumes ranged from 6 to 10 feet bgs, the search for dry soil in this area was abandoned. These excavations were eventually backfilled without any contaminated soil removal. Due to the shallow water table, future excavations are not necessary at the G plume. Two UVOST points were collected from within the H plume area, 10NC27 UV-110 and 10NC27 UV-111. UV-110 indicates that DRO contamination exceeding cleanup levels begins at 7.5 feet bgs (based on a 9.2 percent Laser-Induced Fluorescence [LIF] response), and UV-111 does not show indications of contaminants that exceed cleanup levels until a depth of approximately 10 to 12 feet is reached. Figure 10 shows the excavation extents and notes the depth to water in the G and H plumes.

6.9.5 Dewatering Procedures

Saturated soils removed from below groundwater were dewatered by allowing the soils to drain on a liner, which was surrounded by a berm, in the area of the former bulk fuel tanks. After a few days on the liner, the soils were moved to the concrete foundation at former Building 98 and mixed with dry soils. This mixture was then loaded into bulk bags.

The dewatering area was sloped such that the water that drained from the soils collected in a corner. This water was then treated by pumping it through a water scrubber into a water impoundment area. The water-scrubbing material is made from a natural fiber cellulose material that selectively absorbs hydrocarbons while repelling water. Water remained in the impoundment area until samples were collected and shipped to TestAmerica. Following sample results, the treated water was discharged to the ground. Two impoundment areas were constructed: one close to the J1A excavation and another directly south of the concrete foundation of former Building 98 (shown on Figure 4). Sample results are presented in Table 12 (Appendix E).

6.10 PCB EXCAVATIONS

Bristol was originally scoped to remove 1,100 tons of PCB-contaminated soil from Sites 13 and 31. As field work progressed, it became apparent that PCB-contaminated soil remained beyond those contracted limits. Modifications were made to the contract to allow for the removal of additional soil from these two sites. Upon completion of the field season, Bristol had excavated 3,838.3 tons of PCB-contaminated soil from Sites 13 and 31 and loaded it into 371 bulk bags. It was not possible to remove all PCB contamination during Bristol's time at NE Cape this season.

6.10.1 Site 13 Heat and Power Plant

The 2010 NE Cape field season ended with three excavations at Site 13 being lined and backfilled with clean fill from the on-site borrow area. Removal of the clean overburden was the first task to be performed prior to sampling and additional excavation in 2011. The second task for the Site 13 area consisted of collecting concrete PCB wipe samples to determine whether unearthed concrete was contaminated with PCBs.

Operations at Site 13 began with removal of the clean overburden/backfill to a lined area southwest of the existing excavations. Prior to stockpiling material, the area, approximately 5,000 ft^2, was sampled in 5-foot grids following TSCA sample requirements. Two hundred discrete samples collected from this area were composited into forty-eight samples and submitted to the field laboratory for PCB analysis. Results will be discussed later in this section.

Removal of the clean overburden was performed using a tracked excavator equipped with a flat-edged cleanout bucket. The overburden was placed into a rock truck, moved to the stockpile area, and placed on the liner. The removal was directed so as much overburden was removed above the liner as was practicable without destroying the liner and comingling the overburden with contaminated soils underneath. Overburden directly atop the liner, which could not be removed without cross-contamination from the soils beneath, was loaded into a bulk bag along with the liner, thus exposing the approximate final extents of the 2010 excavation.

Analytical sample results and field lab results received at the end of the 2010 NE Cape project from the Site 13 excavation were used as guides to begin soil removal activities in 2011. The two southernmost excavations and many locations in the northern excavation were slated for immediate removal. Sample results from two composite groups (16 locations) in the northern excavation had relatively low concentrations of PCBs, but the possibility existed for at least one of the discrete samples composing each composite to contain PCB concentrations above cleanup levels. The first field-sampling activity consisted of sampling these sites to define the discrete locations of PCB contamination, thus eliminating the removal of uncontaminated material. A 5-foot sample grid was established in these areas, and discrete samples were collected and submitted to the field laboratory. Of the 16 possibilities, three discrete locations contained PCB concentrations that warranted additional excavation, containing PCB concentrations of 0.83 mg/kg, 0.89 mg/kg, and 7.39 mg/kg.

The three initial field-screening locations and all other areas slated for removal were excavated 18 to 24 inches, and discrete field-screening samples were collected and submitted to the field laboratory. The results from the field laboratory required additional excavation of locations that had results above the onsite laboratory action level of 0.8 mg/kg. This process of alternately excavating and sampling continued until either the area was deemed below contamination levels, followed by the collection of confirmation samples, or until time constraints forced an end to field-screening and bulk-bagging operations. By the end of the 2011 field season, Bristol was working in four distinct excavation areas, two of which were fresh excavations opened due to PCB concentrations from soils sampled underneath the lined overburden stockpile area southwest of the concrete pad for the former Heat and Power Plant. Eleven of the samples collected from the stockpile area contained PCB concentrations exceeding field laboratory action levels. Eighteen inches of material was removed from these locations and samples were collected from the freshly exposed area.

There came a point near the end of the field season when confirmation samples were collected regardless of field-screening results. The field-screening process resulted in the collection and subsequent field laboratory analysis of 784 PCB samples from Site 13. A total of 273 confirmation samples were collected and submitted to TestAmerica. Confirmation samples were analyzed both discretely and as part of composite groups. Composite groups comprised samples from adjoining locations where field laboratory results had not detected PCB concentrations or had detected them at levels well below the cleanup standard. In 39 composite samples, the discrete samples within the composite were subsequently analyzed discretely following receipt of the composite sample's result. Individual samples composing a composite were reanalyzed discretely if, given the PCB concentration of the composite sample, the statistical possibility existed for one or more of the individual samples to contain a PCB concentration exceeding the cleanup level.

Sixty-eight locations remain at Site 13 with PCB concentrations greater than the cleanup level. PCB concentrations in samples exceeding cleanup levels ranged from 1,000 micrograms per kilogram (µg/kg) to 270,000 µg/kg. Three samples, 11NC13SS287, 11NC13SS326, and 11NC13SS388, contained PCB concentrations in excess of 50,000 µg/kg, with concentrations of 230,000 µg/kg, 81,000 µg/kg, and 270,000 µg/kg, respectively. Sample locations, composite groups, and locations with PCB concentrations in excess of cleanup levels are shown in Figure 11. Sample results are presented in Table 13 (Appendix E).

The northwest corner of the northernmost excavation at Site 13 is encroaching into a fuel-impacted area referred to as Plume A2, as shown in Figure 9 of the NE Cape

Remedial Actions Work Plan (Bristol, 2011) (outlined here in Figure 11). Samples collected from locations within this area contain PCB concentrations that exceed cleanup levels. Generally, PCBs are relatively immobile and hydrophobic, preferentially binding with soil particles over groundwater; but fuels may act as a solvent and facilitate mobilization of PCBs in soil (Bench, 2003). This increases the likelihood that the excavation will be expanded even further in the direction of the fuel contamination.

Time constraints and the unexpected high volume and magnitude of PCB-contaminated soil were factors that contributed to the inability to remove all contamination in 2011. Additional remedial actions will be required at Site 13 in order to remove the remaining PCB-contaminated soils. Before leaving the site, all excavations were lined with a Typar liner and loaded with just enough fill material to hold down the liner. Reduction in fill material over the liner will reduce the potential for cross-contamination when the excavations are reopened in 2012. Finally, prior to Bristol's demobilization from the site, the excavations were surrounded by bulk bags, creating a barrier to both people and animals.

6.10.1.1 Site 13 Overburden Stockpile

The lined stockpile area that was sampled prior to placement of overburden material from Site 13 was eventually excavated due to PCB concentrations in excess of cleanup levels. However, before the 235 cubic yards of stockpiled soil that was overlying this area could be moved and used as backfill, samples were collected according to Table 2A in the ADEC, Draft Field Sampling Guidance (ADEC, 2010). This amount of stockpiled soil, according to ADEC, required four laboratory samples, none of which exceeded cleanup levels. The Site 13 stockpile was moved via rock truck and subsequently used as backfill.

6.10.1.2 Site 13 Concrete Wipe Samples

Through the course of operations in 2010 and 2011, small chunks of concrete and large portions of what appeared to be concrete headers, footers, and foundation pieces were unearthed and removed from the Site 13 excavations. In order to use these concrete pieces as backfill, they had to be sampled for PCBs. To accomplish this task, loose pieces of concrete and segments of wall that remained in the ground were wipe-sampled and submitted to the field laboratory.

The PCB wipe-sampling followed EPA-recommended methods for determining the presence of PCBs on smooth surfaces. The procedures for concrete wipe-samples were described in a Work Plan Addendum to the 2011 NE Cape Remedial Actions Work Plan. Thirty-five samples were collected from exposed concrete that had contacted PCB-contaminated soil with PCB concentrations exceeding cleanup levels. All of the concrete wipe-samples yielded results less than the cleanup level of 10 μg/100 square centimeters (cm^2). The loose pieces of concrete were utilized as backfill, and portions of vertical concrete and foundation remained in the ground. Results from the concrete wipe-samples are submitted electronically with the Supplemental Data in the Field Lab subfolder.

6.10.2 Site 31 White Alice

The 2010 season ended with the excavation at Site 31 being lined and backfilled with clean fill from the onsite borrow area. Removal of the clean overburden was the first major task to be performed prior to sampling and additional excavation in 2011.

Operations at Site 31 began with removal of the clean overburden to a lined stockpile area that was created near the existing excavations on the southwest side of a former concrete footing for a White Alice antenna. Before the overburden was moved, an area of approximately 1,500 ft^2 was sampled in a five-foot by five-foot grid following TSCA sample requirements. The area was then covered with a 10-mil liner, and removal of the clean overburden began.

Removal of the clean overburden was performed using an excavator equipped with a flat-edged cleanout bucket. The borrow material was moved via rock truck to the stockpile area and placed on the liner. The removal was directed such that as much overburden was removed above the liner as was practical without destroying the liner and comingling the overburden with contaminated soils underneath. As with Site 13, overburden directly atop the liner, that could not be removed without cross-contamination from the soils beneath, was loaded into a bulk bag along with the liner, thus exposing the approximate final extents of the 2010 excavation.

Once the liner and clean overburden were removed, field-screening samples were collected from the excavation and submitted to the field laboratory. The northeast portion of the excavation was slated for removal based on sample results for 2010. The process of alternately excavating and sampling continued until PCB concentrations in an area were below cleanup levels or until field time was no longer sufficient enough to continue operations. Several iterations of field-screening sampling, followed by additional excavating, were conducted before season's end, and the Site 31 excavation expanded in all directions. In total, 541 field-screening samples were collected and submitted to the field laboratory. Sixty of these 541 samples were "pre-stockpile" samples collected from the area where the lined containment was set up and the excavation overburden was stockpiled.

Field-screening results indicated that PCB concentrations remained above 1 mg/kg at various locations within the excavation, but time constraints forced confirmation sample-collection efforts so that the site could be readied for demobilization and overwintering. PCB contamination remains throughout the Site 31 excavation in concentrations ranging from 1,000 μg/kg to 250,000 μg/kg. Sample 11NC31SS109 contained the highest PCB concentrations at 250,000 μg/kg. Sample locations and excavation extents are shown in Figure 12. Sample results are presented in Table 14 (Appendix E).

Before Bristol personnel left the site, the excavation was lined with a Typar liner that was covered with the minimum amount of backfill necessary to hold the liner in place. Reduction in fill material over the liner will minimize overburden removal and reduce the potential for cross-contamination when the excavations are reopened in 2012. Finally, the excavation was surrounded by bulk bags to prevent entry into the excavation by people or animals.

6.10.2.1 Site 31 Overburden Stockpile

The area at Site 31 where the overburden was stockpiled contained PCB concentrations exceeding cleanup levels, according to field-screening results and required excavation. Fifteen composite samples were collected from sixty sample locations from this area and were submitted to the field laboratory prior to the overburden being stockpiled. PCB concentrations in every composite sample exceeded 1 mg/kg. The area required excavation, but was now overlaid by the overburden stockpile, which had to be relocated.

The 235-cubic-yard stockpile of overburden was sampled as was done at Site 13. Four samples were collected and submitted to the field laboratory, one of which contained PCB concentrations in excess of 1 mg/kg. The soil from this area was loaded into a bulk bag, and the stockpile was resampled. Three iterations of removal and sampling occurred until the field laboratory results indicated PCB concentrations below cleanup levels. The stockpile was then moved via rock truck and ultimately used as backfill in a POL excavation. Excavation of the underlying area commenced following the removal of the stockpile.

This area was initially excavated approximately 18 inches, but additional excavation was necessary due to the prevalence of PCBs. Eventually, by the end of the field season, the two excavations at Site 31 expanded to become one excavation.

6.10.2.2 Site 31 Concrete Wipe-Samples

During excavation activities at Site 31, PCB-contaminated soil was excavated that was directly adjacent to the concrete foundation. To ensure that the concrete was not also contaminated with PCBs, concrete wipe-samples were collected and submitted to the field laboratory. Seventeen wipe-samples were collected from concrete at Site 31, none of which contained PCB concentrations in excess of cleanup levels.

6.11 SITE 21 ARSENIC EXCAVATIONS

In 2010, Bristol centered its excavation on historical sample location 94NE21167SS and excavated an area roughly 17 feet wide, 17 feet long, and 2 feet deep. After excavating 16.7 tons in 2010, soil samples were taken that demonstrated that arsenic-contaminated soil still remained above the cleanup level of 11 mg/kg. On July 22, 2011, Bristol collected nine primary soil samples as described in the August 8, 2011, *Background Arsenic Sampling for Site 21 Technical Memorandum* (provided electronically in Supplemental Data) in order to determine the arsenic background concentrations prior to continuing to excavate the Site 21 area. The nine samples were collected upgradient from the 2010 Site 21 soil excavation, in a drainage south of the site (Shown in Figure 2, provided with the Site 21 Background Tech Memo). The background locations were outside of known or suspected anthropogenic sources. Analytical results and data evaluation determined a mean background concentration of 11.49 mg/kg using a 95 percent upper confidence limit. This value is consistent with the current cleanup level of 11 mg/kg, and as a result, Bristol recommended that soil in locations containing arsenic concentrations in excess of this value be excavated and removed. The background arsenic results for Site 21 are presented in Table 15 in Appendix E. The Site 21 Technical Memorandum is provided electronically with the Supplemental Data.

On August 21, 2011, the 2010 sample locations were located, and an excavator was used to remove soil and woody debris from sample locations 10NC21SB01, 02, 05, 06, 07, and 42. Excavated material was loaded into two bulk bags and removed, for a total weight of 14.8 tons. Following soil removal, discrete soil samples were collected from the excavation, the locations of which are shown in Figure 13. Confirmation samples were collected from the excavator bucket due to the excavation being inundated with water. All eight samples exceeded the 11 mg/kg cleanup level, having arsenic concentrations ranging from 22 mg/kg to 180 mg/kg (Table 16 in Appendix E). The site was not backfilled due to the fact that the excavation area was a wetland that was inundated with water.

6.12 SPILLED ROOFING TAR EXCAVATION

At an area south of the MOC, there was an area of approximately 5,000 ft^2 with partial cover of varying thicknesses of spilled roofing tar. The tar was discovered during remedial actions in 2010. Part of Bristol's SOW for 2011 included the removal of this tar, expected to be approximately 40 tons.

Cleanup of the area began by gathering all of the visible tar into one area using an excavator. The tar was then double-bagged. The double bagging was performed in an attempt to ensure containment of the tar in the event that the bags encountered high enough temperatures in transit to make the tar partially fluid.

After the tar was cleaned from the area, one bulk tar sample and 22 confirmation soil samples from the removal area were collected and sent to TestAmerica, Tacoma, for analysis. The bulk tar sample collected for waste characterization purposes was submitted for Toxicity Characteristic Leaching Potential (TCLP) semivolatile organic compounds

(SVOCs). Due to matrix effects, the sample was not able to be filtered as part of the TCLP extraction, and the waste samples were re-extracted by EPA preparation method 3550B. The tar waste results were non-detect for SVOCs. Confirmation soil samples were also analyzed for PAHs. None of the confirmation soil sample results exceeded cleanup levels. Waste characterization results are presented in Table 17, and the confirmation soil sample results can be found in Table 18, located in Appendix E.

The soil sample results were all below state and/or site-specific cleanup levels. The area of excavation and the confirmation soil sample locations are shown in Figure 14.

6.13 DEBRIS REMOVAL

Bristol was scoped to remove miscellaneous debris scattered throughout the NE Cape site. Debris was gathered concurrently with all other field operations and loaded into Conex containers. Much of the debris was encountered during concrete removal activities in the MOC. Intermingled in the concrete foundations were sections of pipe and rebar that had to be separated from the concrete before the concrete was utilized as backfill. The metal pieces were cut away from the concrete using a gas-powered chop saw and transferred to a debris staging area prior to being placed into a container. Approximately 33 tons of debris were loaded into three containers and shipped to Columbia Ridge Landfill for disposal.

6.14 SITE 9 SURFACE WATER SAMPLING

In 2010, surface water samples were collected from the drainage that flowed through the Site 9 Housing and Operations Landfill. Three surface-water sampling events occurred during 2010 field operations, and the samples were analyzed for GRO, DRO/RRO, volatile organic compounds (VOCs), PAHs, PCBs, and metals. During the final sampling event conducted following completion of the landfill cap, samples were submitted to the laboratory for full VOC analyses, but due to laboratory error, the samples were only analyzed for BTEX within holding times (the remaining VOC analyses were analyzed outside of holding times). To fill the data gaps, Bristol collected surface water samples in 2011 from the same locations as those collected in 2010.

The 2010 sample locations were easily found due to the fact that the survey laths were still standing in the four sample locations. Samples were collected from three locations along the stream and one location in the Suqitughneq River. Bristol packaged the samples and transported them under chain-of-custody to TestAmerica for VOCs analysis. None of the analytes were detected. Results are presented in Table 19, located in Appendix E, and sample locations are shown in Figure 15.

6.15 SITES 7 AND 9 STABILIZATION AND REVEGETATION

Sites 7 and 9 (shown in Figure 3) were reseeded and fertilized to assist the vegetation that is currently growing on the surface to take root and facilitate site stabilization. A seed mixture was utilized consisting of 70 percent Tufted Hairgrass and 30 percent Red Fescue and planted at a rate of 1 pound per 1,000 ft^2. Fertilizer was applied at a rate of 500 pounds per acre.

A stabilization analysis was conducted by Bristol Engineering Services Corporation and is detailed in the monthly status report dated September 13, 2011, which is provided electronically in the Supplemental Data folder.

6.16 COMMUNITY SUPPORT

There were many positive side effects associated with the field work for NE Cape that directly aided the local community's financial and public health. Members of the Savoonga and Gambell communities would frequent the camp offering hand-made crafts or artifacts for sale, which many of the field crew were eager to buy. A local artist was regularly fielding requests for ivory carvings from the on-site work crew. Additionally, Bristol employed four members of the Savoonga community throughout the majority of the field efforts.

The presence of the NE Cape camp facilitated logistical support for a Native American Lands Environmental Mitigation Program (NALEMP) project at the Native Village of Northeast Cape. The crew working on this NALEMP project was able to receive support from the Bristol NE Cape field team, especially regarding mobilization, demobilization, food, and lodging. The presence of the Bristol crew helped to ensure the success of the NALEMP project's field efforts.

The construction camp contained a banquet hall and a medic facility that were often visited by the local community. Visitors could take advantage of the medical personnel and medications that were maintained on site. In years past, the NE Cape construction camp played an integral role in the emergency care of a sick individual, providing shelter and communications with Nome for a speedy evacuation. The satellite communication system enabled visitors, including those hunting or fishing for subsistence, to contact family members and friends back home to provide updates on their status. Finally, the NE Cape camp facilities provide one additional safe haven for anyone who might get caught in poor conditions while away from home.

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FIGURES

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-1.DWG - Layout: 34110008-FIG1-DEC11
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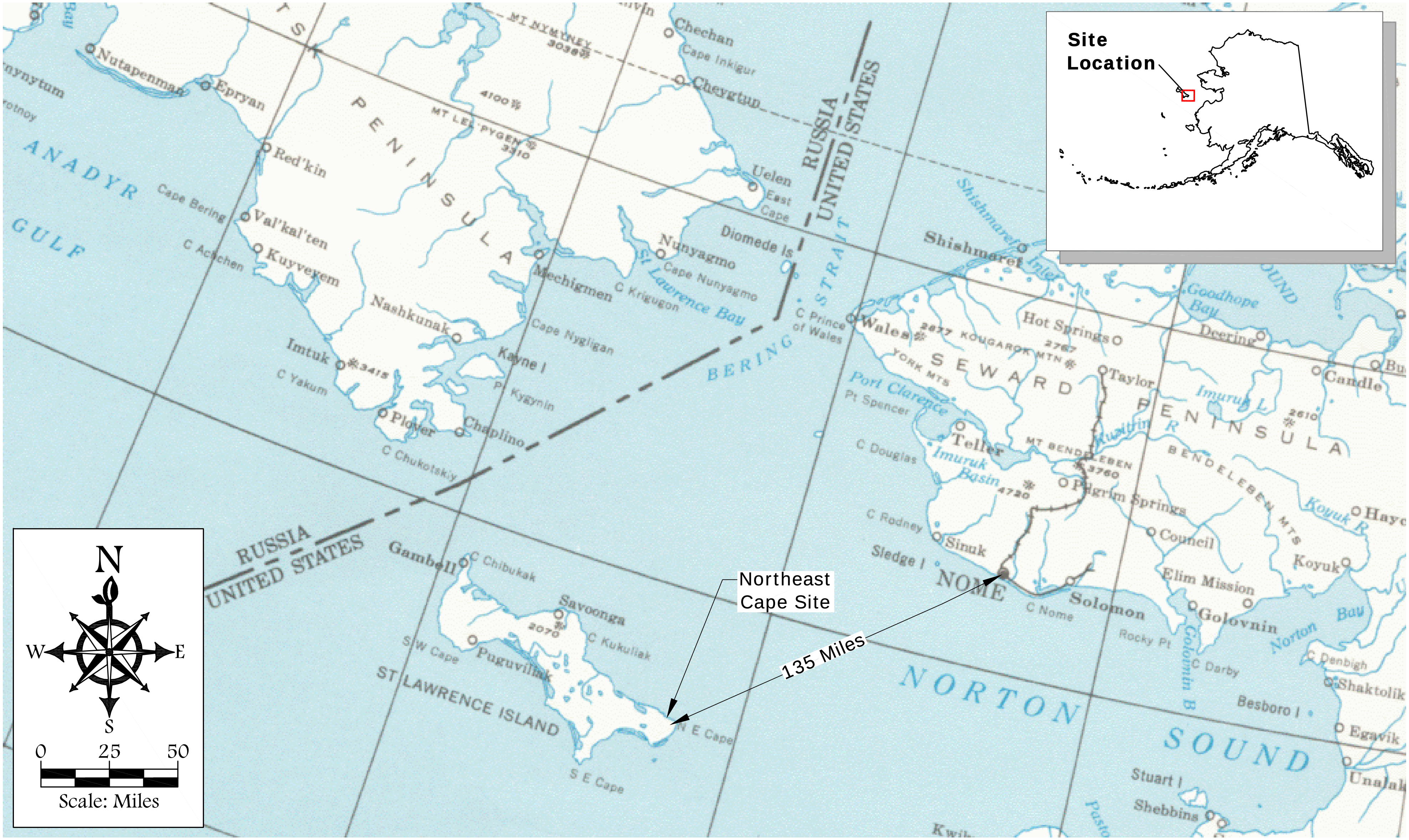


Source: USGS National Atlas Sheet Number 42-43

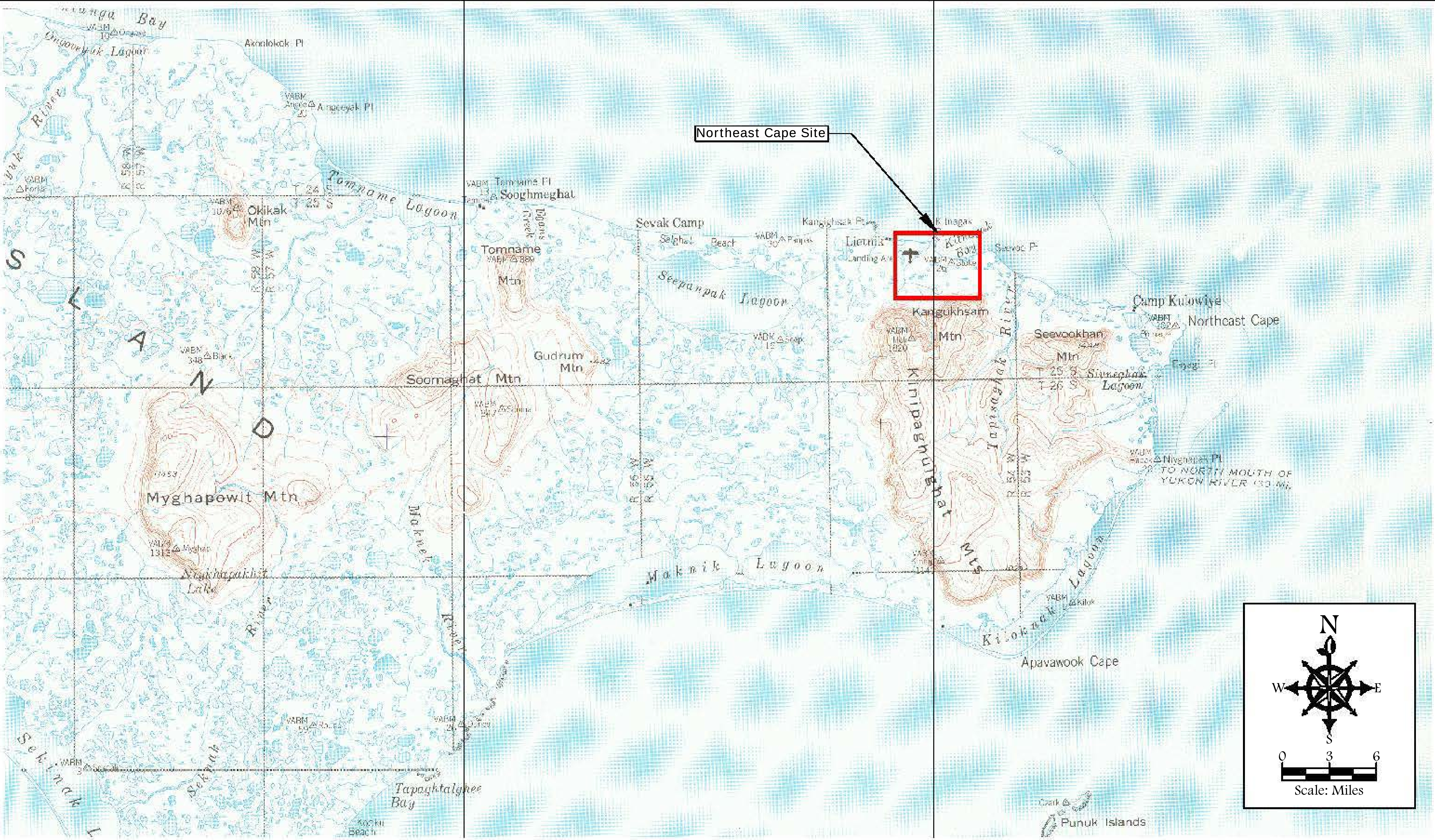
Legend:

HTRW Hazardous, Toxic, and Radioactive Waste

FIGURE 1
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA
NORTHEAST CAPE HTRW REMEDIAL ACTIONS
VICINITY MAP

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83		DATE	12/30/11
PROJECTION: STATE PLANE AK 9		DWN.	NAP
Project No. 34110008		SCALE	SHOWN
		APPRVD.	MW



Legend:

HTRW Hazardous, Toxic, and Radioactive Waste

FIGURE 2
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA
NORTHEAST CAPE HTRW REMEDIAL ACTIONS
LOCATION MAP

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DATUM: NAD 83	DATE	12/30/11
PROJECTION: STATE PLANE AK 9	DWN.	NAP
Project No. 34110008	SCALE	SHOWN
	APPRVD.	MW

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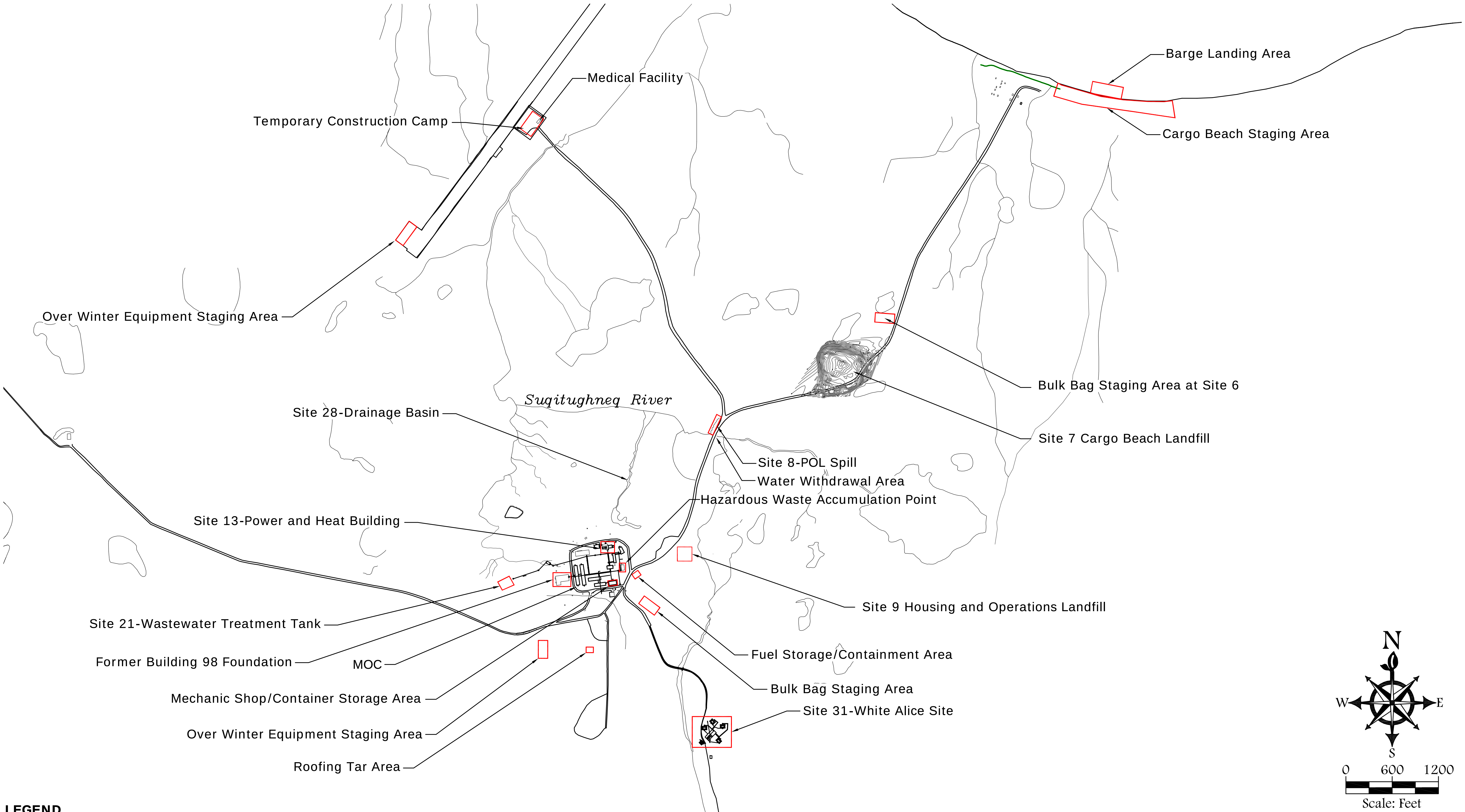

LEGEND

HTRW	Hazardous, Toxic, and Radioactive Waste
MOC	Main Operations Complex
POL	Petroleum, Oil, and Lubricants

NOTE

1. Drawing Adapted From Montgomery Watson File Titled NECAPE.DWG, Date 05 June 2001. Based on Resurvey Performed by ECO-LAND, LLC, July 2009

FIGURE 3
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA
NORTHEAST CAPE HTRW REMEDIAL ACTIONS
PROJECT WORK SITES

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Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83
PROJECTION: STATE PLANE AK 9
Project No. 34110008

DATE 07/18/11
DWN. MTG
SCALE SHOWN
APPRVD. MW

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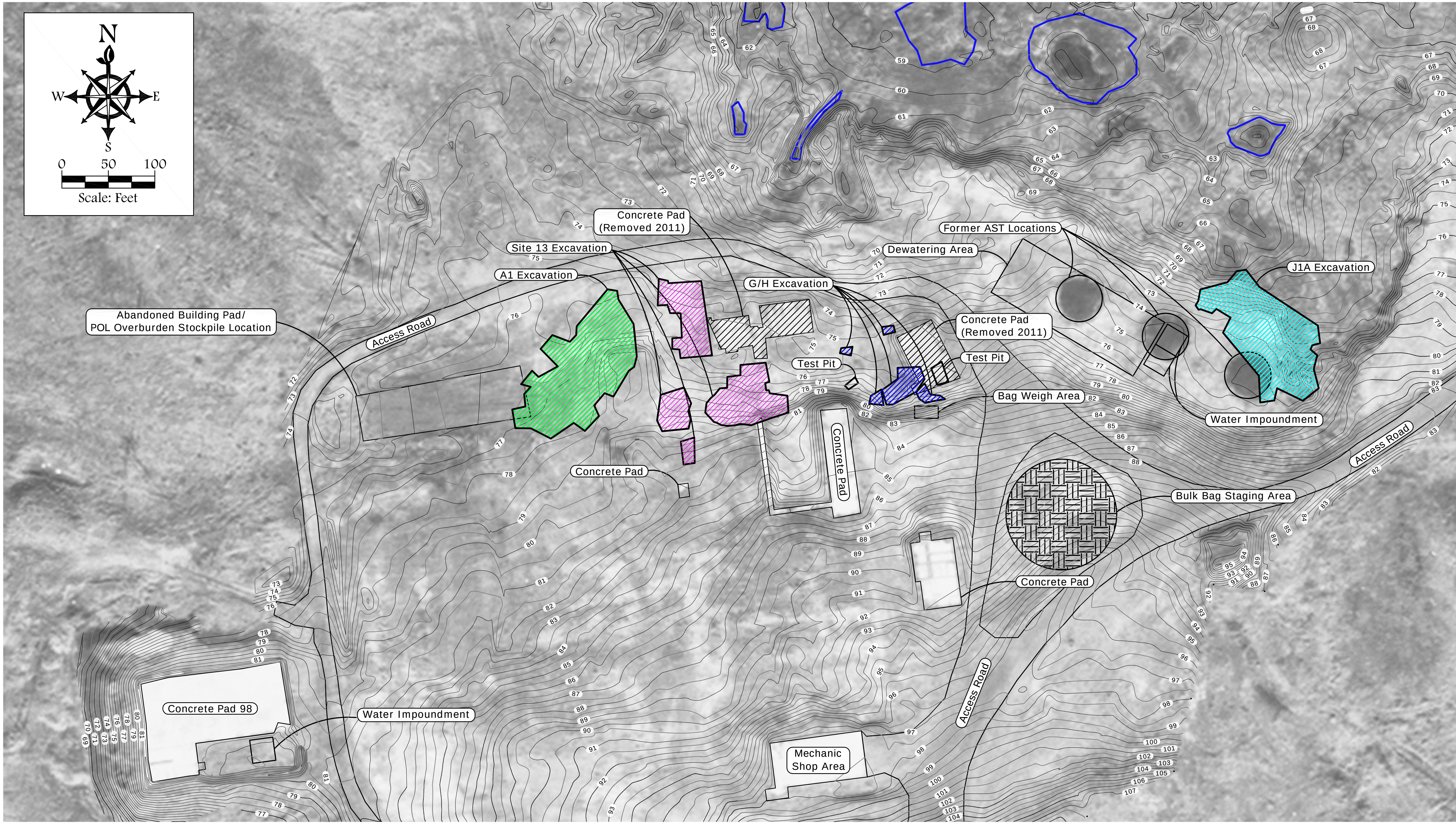

Legend

AST	Aboveground Storage Tank
HTRW	Hazardous, Toxic, and Radioactive Waste
POL	Petroleum, Oil, and Lubricants
(blue outline)	Ponding
(hatched)	Concrete Pad (Removed 2011)
(green hatched)	A1 Excavation
(blue hatched)	G/H Excavation
(cyan hatched)	J1A Excavation
(magenta hatched)	Site 13 Excavation

FIGURE 4
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
MOC DETAIL MAP AND PRE-CONSTRUCTION SURVEY TOPOGRAPHY

Bristol
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DATUM: NAD 83
PROJECTION: STATE PLANE AK 9
Project No. 34110008

DATE 12/20/11
DWN. NAP
SCALE SHOWN
APPRVD. MW

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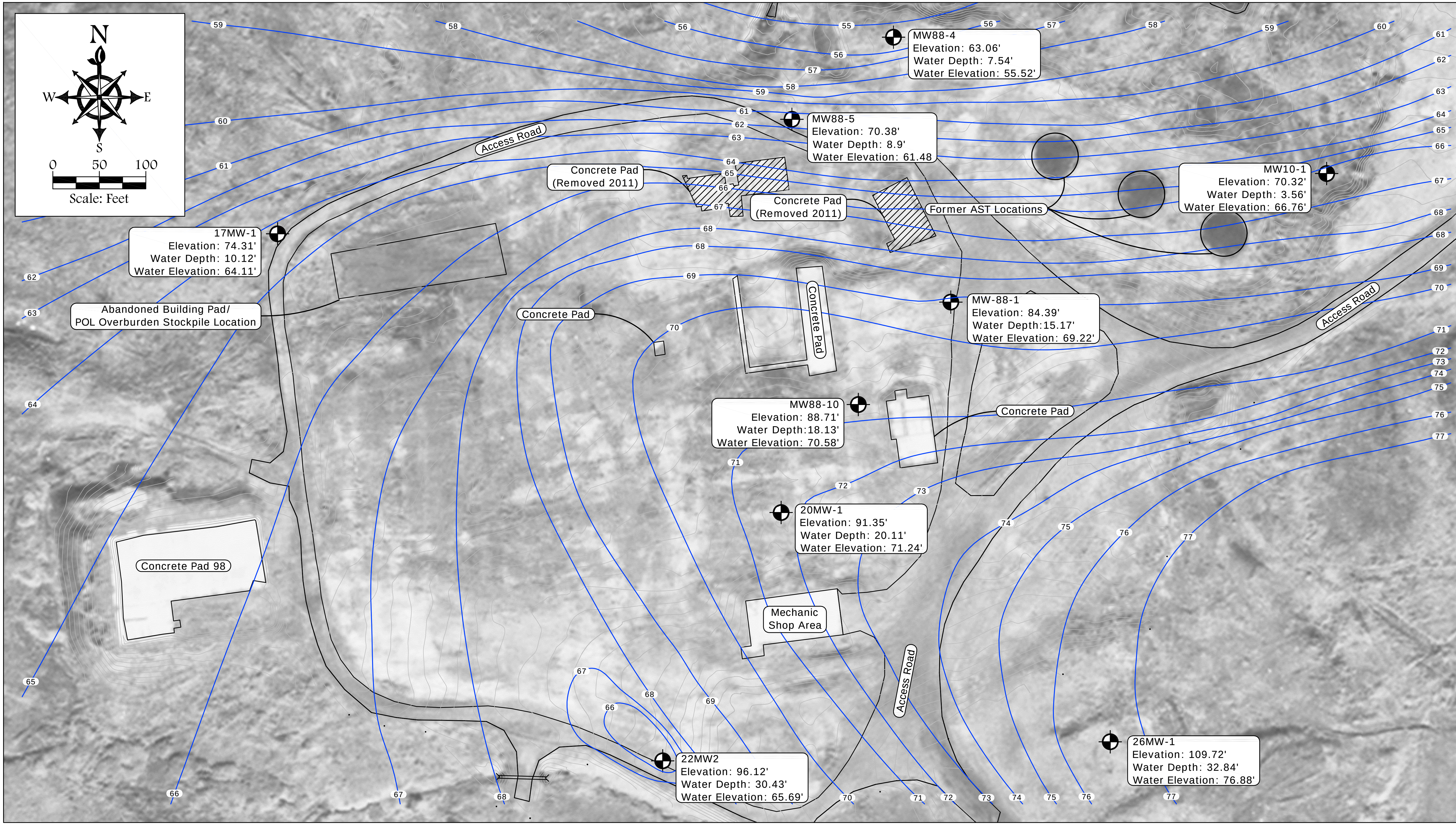


Legend

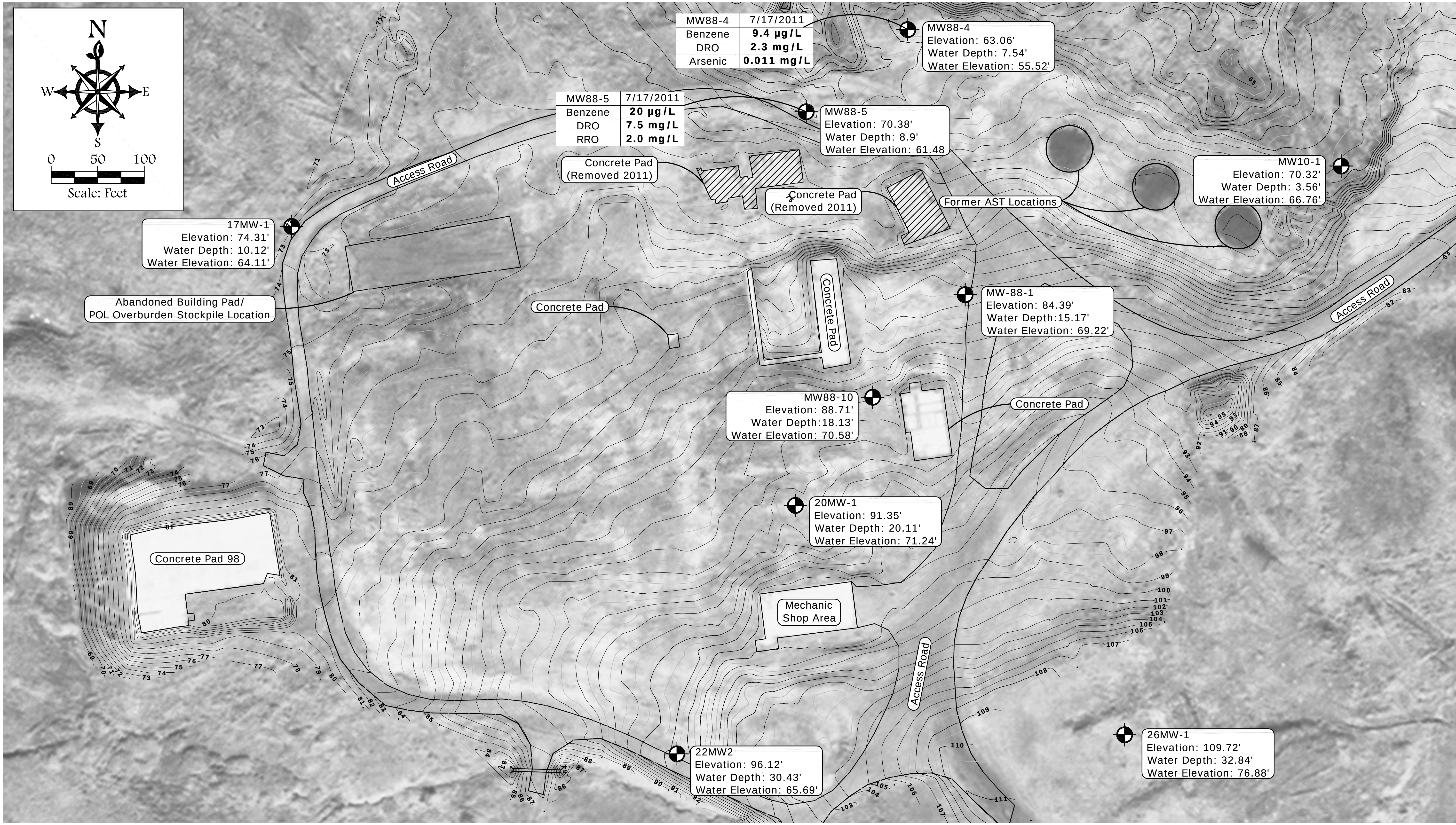
'	Foot/Feet
AST	Aboveground Storage Tank
HTRW	Hazardous, Toxic, and Radioactive Waste
POL	Petroleum, Oil, and Lubricants
MOC	Main Operations Complex
⊕	Monitoring Well Location
65 ——	Ground Water Contour

FIGURE 5
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
MOC POTENTIOMETRIC SURFACE MAP

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83
PROJECTION: STATE PLANE AK 9
Project No. 34110008

DATE 12/20/11
DWN. NAP
SCALE SHOWN
APPRVD. MW



Note:

µg/L	micrograms per liter
mg/L	milligrams per liter
DRO	diesel range organics
RRO	residual range organics

Legend

'	Foot/Feet
AST	Aboveground Storage Tank
HTRW	Hazardous, Toxic, and Radioactive Waste
POL	Petroleum, Oil, and Lubricants
⊕	Monitoring Well Location

FIGURE 6
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
MOC MONITORING WELL LOCATIONS AND SAMPLE RESULTS

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83
PROJECTION: STATE PLANE AK 9
Project No. 34110008

DATE 12/20/11
DWN. NAP
SCALE SHOWN
APPRVD. MW

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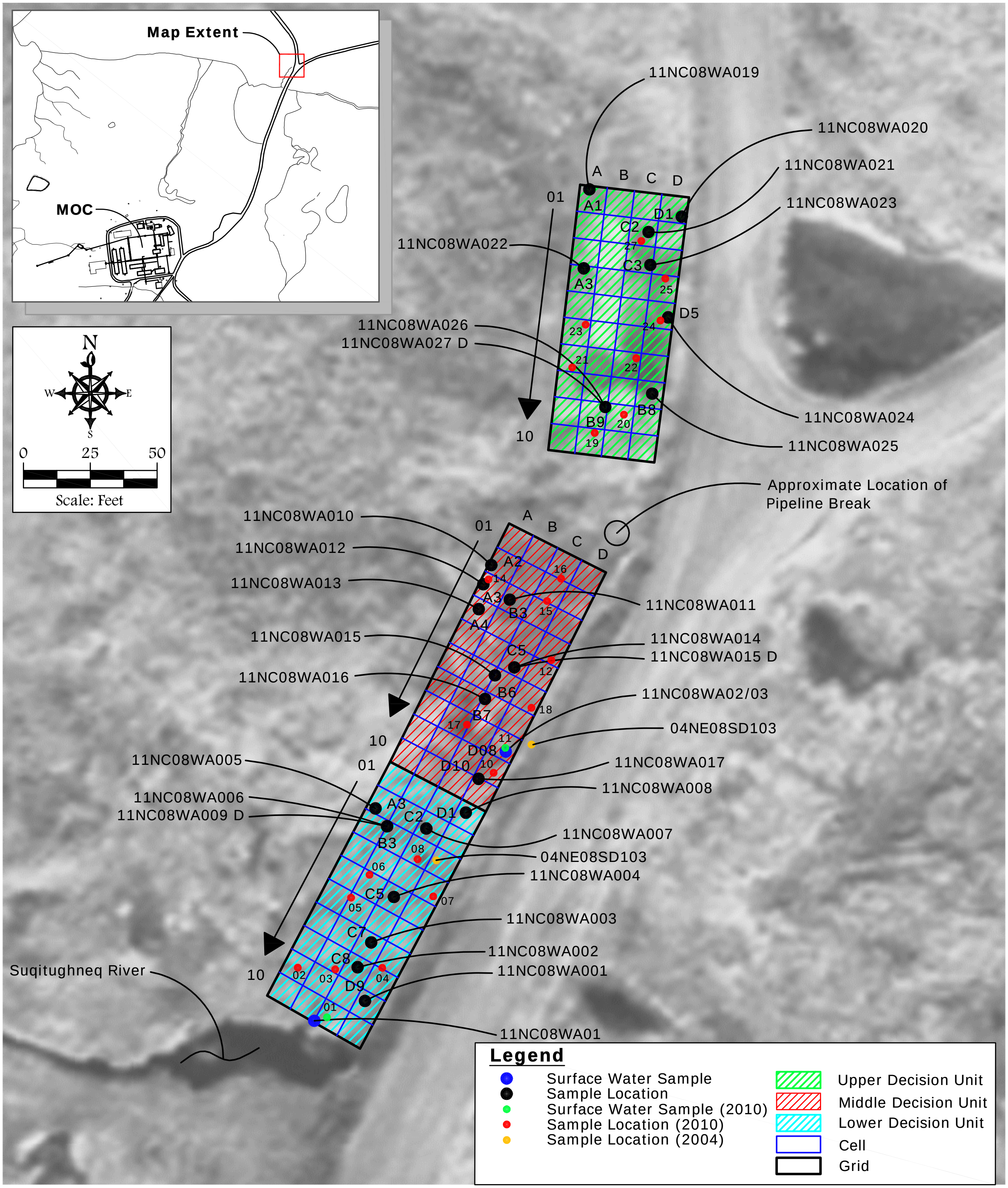

Note:

Grid size	=	40' x 100'
Cell size	=	10' x 10'
D	=	duplicate
'	=	Foot/Feet
MOC	=	Main Operations Complex
HTRW	=	Hazardous, Toxic, and Radioactive Waste

FIGURE 7
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
SITE 8 NATURAL ATTENUATION MONITORING AREA

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83	DATE	12/09/11
PROJECTION: STATE PLANE AK 9	DWN.	NAP
Project No. 34110008	SCALE	SHOWN
	APPRVD.	MW

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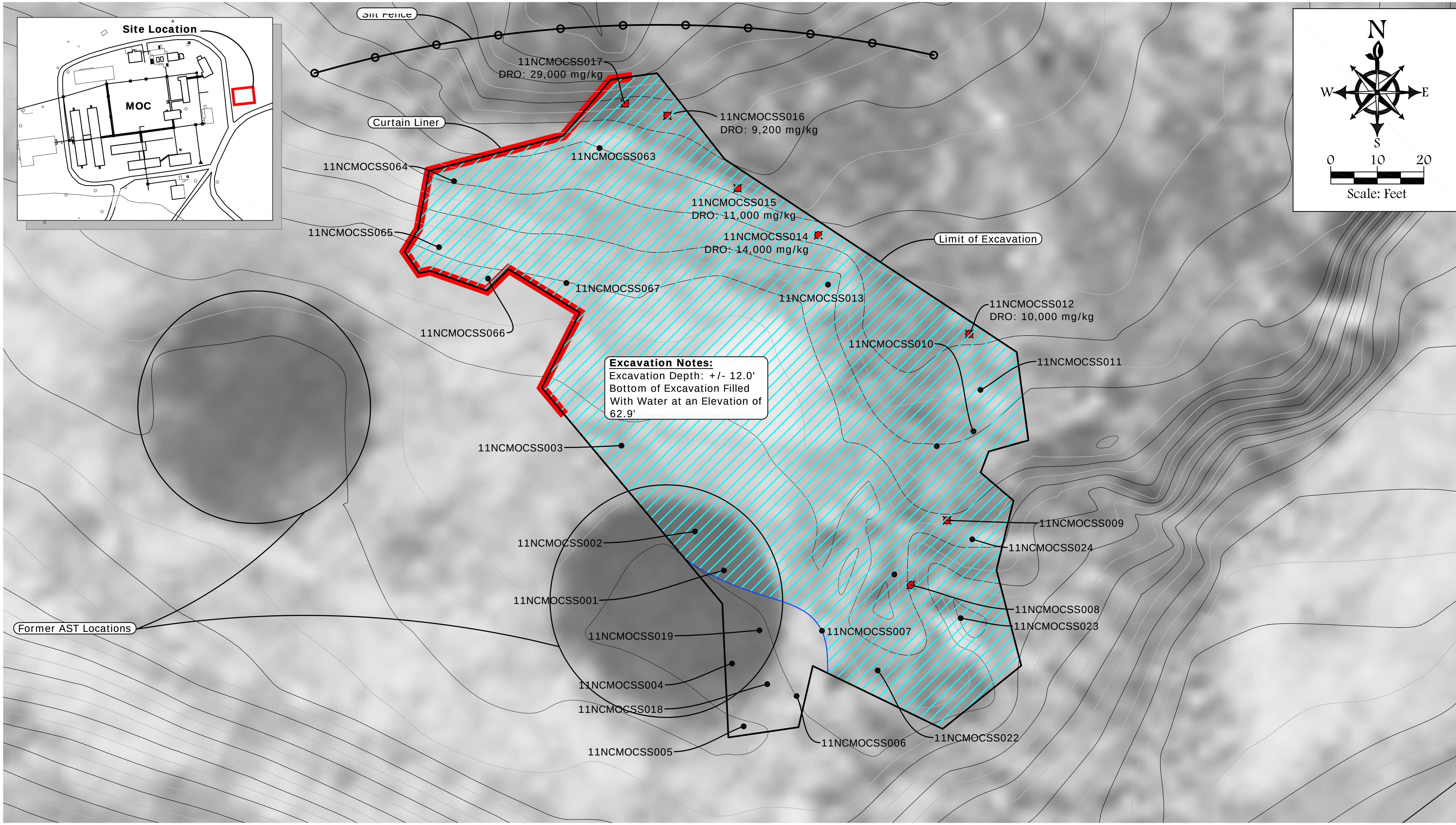
User: NPEACOCK Feb 02, 2012 - 10:36am Xrefs: - Images: EASTCAPE-STLAWRENCE_ORTHO_MOSAIC_AK83-9F.TIF



Note:
Samples 11NCMOCSS009 and 11NCMOCSS008 were excavated following receipt of sample results.
mg/kg = milligrams per kilogram
DRO = diesel range organics

Legend

'	Foot/Feet		Water in Excavation
AST	Aboveground Storage Tank		Curtain Liner
HTRW	Hazardous, Toxic, and Radioactive Waste		Sample Location Below Cleanup level
MOC	Main Operations Complex		Sample Location Exceeding Cleanup Level
POL	Petroleum, Oil, and Lubricants		

FIGURE 8
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
MOC POL EXCAVATION J1A

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83
PROJECTION: STATE PLANE AK 9
Project No. 34110008

DATE 12/20/11
DWN. NAP
SCALE SHOWN
APPRVD. MW

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-8.DWG - Layout: 34110008-FIG8-DEC11
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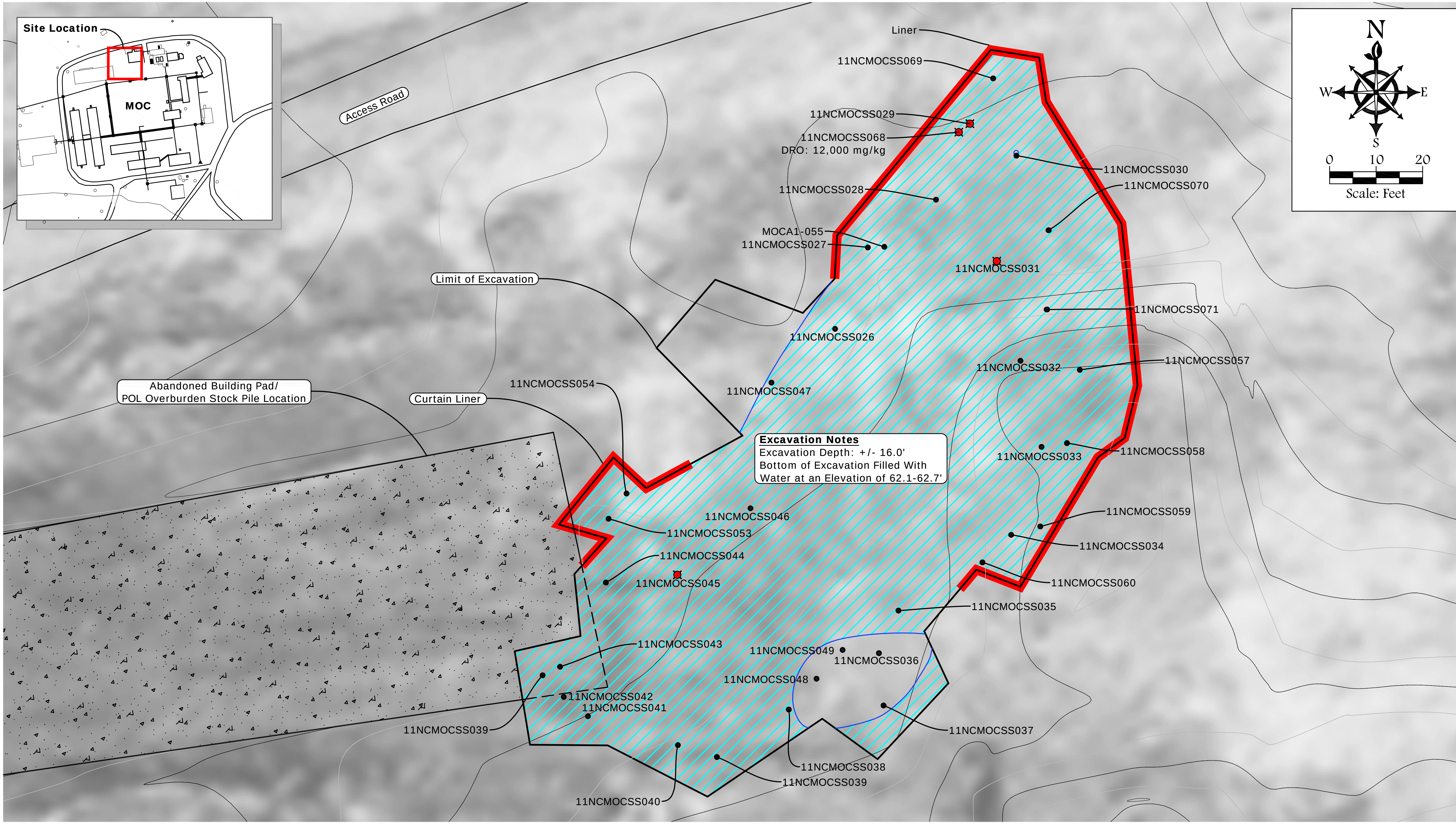


Note:
Samples 11NCMOCSS029, 11NCMOCSS031, and 11NCMOCSS045 were excavated following receipt of sample results.
mg/kg = milligrams per kilogram
DRO = diesel range organics

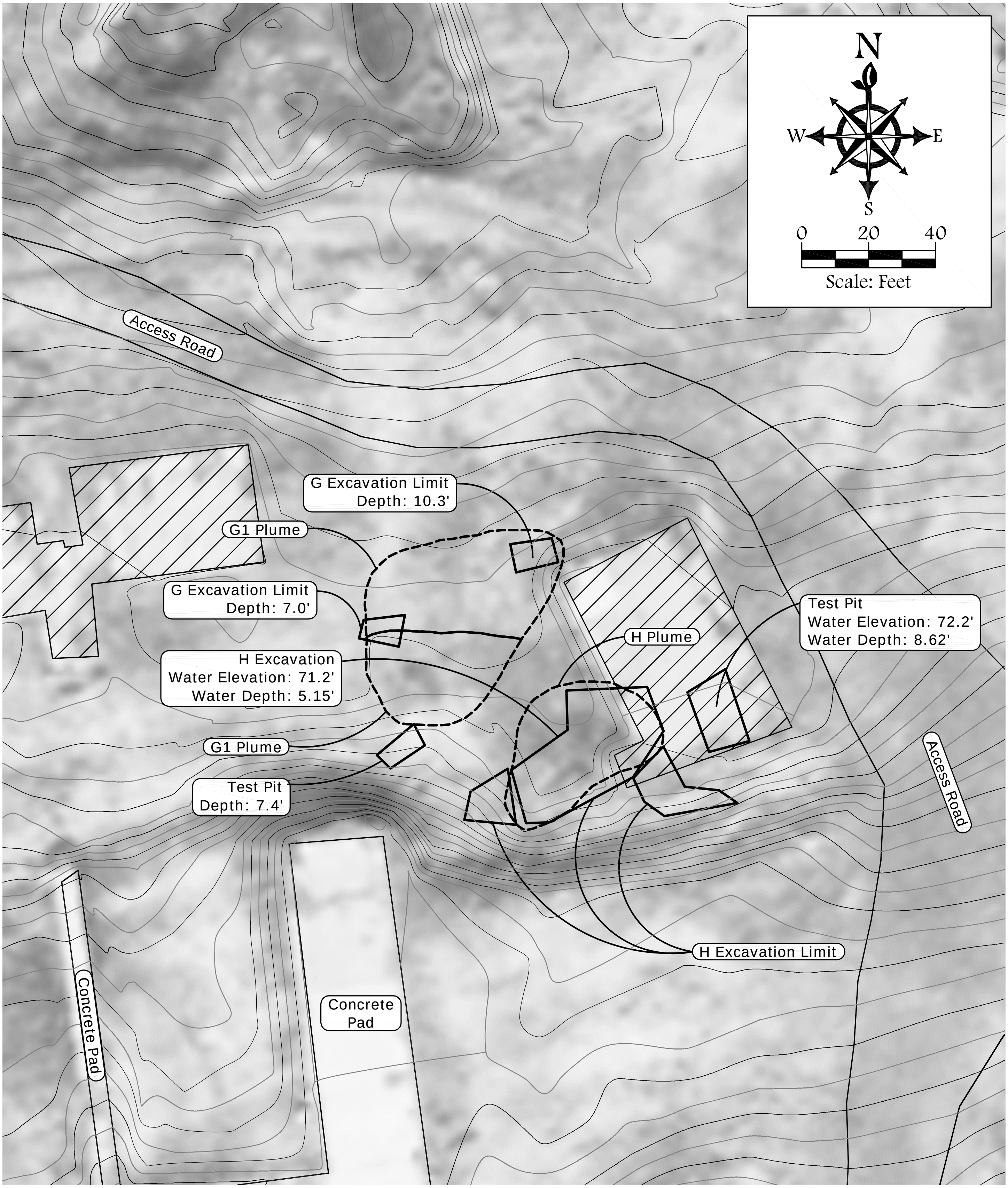
Legend

'	Foot/Feet
HTRW	Hazardous, Toxic, and Radioactive Waste
MOC	Main Operations Complex
POL	Petroleum, Oil, and Lubricants
●	Sample Location Below Cleanup Level
● (red)	Sample Location Exceeding Cleanup Level
(cyan hatch)	Water in Excavation
(red)	Curtain Liner

FIGURE 9
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
MOC POL EXCAVATION A1

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83	DATE	12/20/11
PROJECTION: STATE PLANE AK 9	DWN.	NAP
Project No. 34110008	SCALE	SHOWN
	APPRVD.	MW



Note:

G and H excavation areas were opened, but no soil was removed due to groundwater.

Legend

'	Foot/Feet
HTRW	Hazardous, Toxic, and Radioactive Waste
POL	Petroleum, Oil, and Lubricants
	Concrete Pad (Removed 2011)

FIGURE 10

Northeast Cape, St. Lawrence Island, Alaska

Northeast Cape HTRW Remedial Actions

MOC POL EXCAVATIONS G AND H

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83

PROJECTION: STATE PLANE AK 9

Project No. 34110008

DATE 12/20/11

DWN. NAP

SCALE SHOWN

APPRVD. MW

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-11.DWG - Layout: 34110008-FIG11-DEC11
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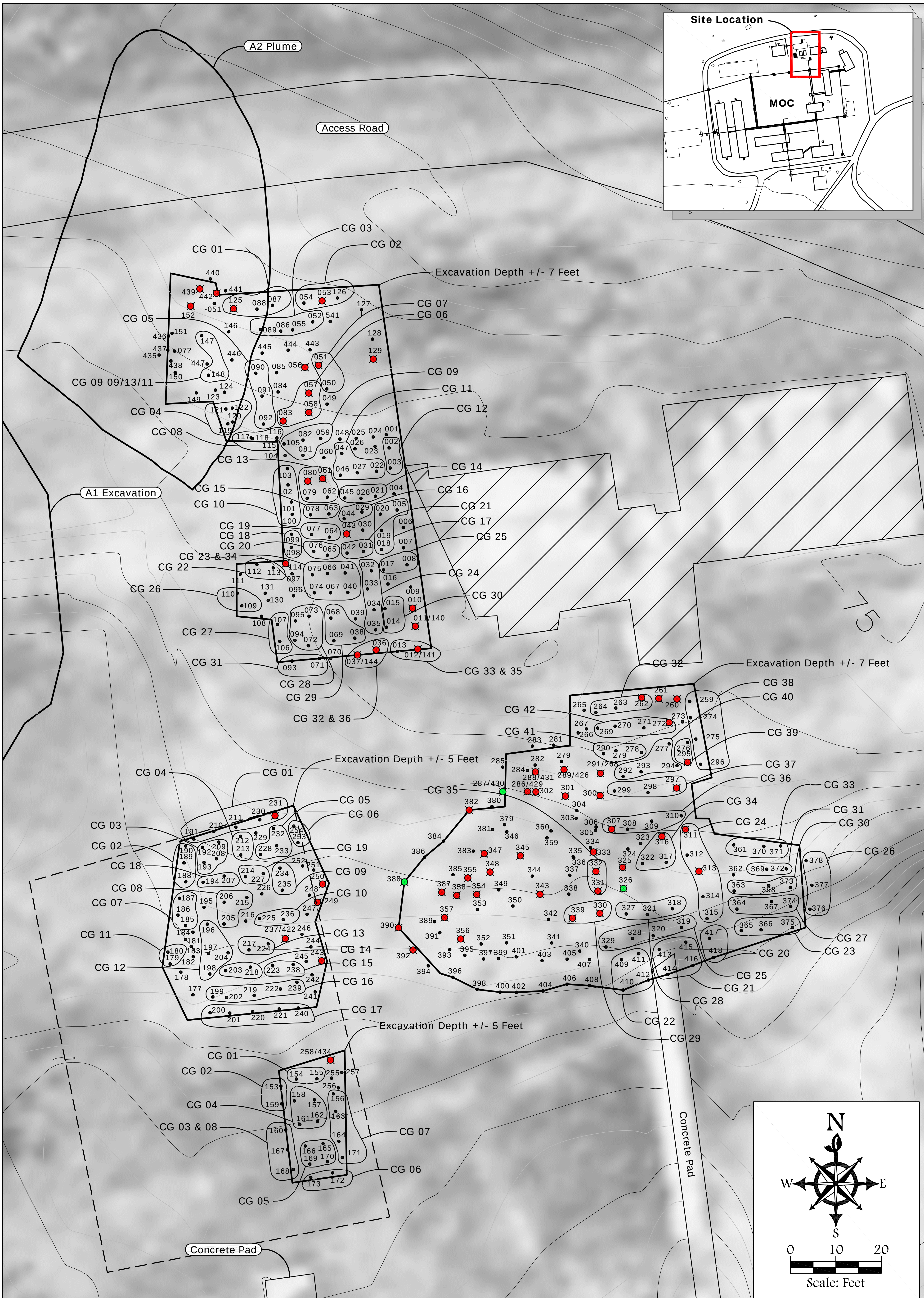


Note:
Soil sample IDs are preceded by 11NC13SS.
All excavations were lined in 2011.
mg/kg = milligrams per kilogram

Legend

CG	Composite Group
HTRW	Hazardous, Toxic, and Radioactive Waste
MOC	Main Operations Complex
●	Soil Sample Location below Cleanup Level
● (red)	Soil Sample PCB Concentrations Exceed 1 mg/kg
● (green)	Soil Sample PCB Concentrations Exceed 50 mg/kg
(hatched)	Concrete Pad (Removed 2011)
(dashed)	Stock Pile Area

FIGURE 11
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
SITE 13 PCB EXCAVATION AREA

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM:	NAD 83
PROJECTION:	STATE PLANE AK 9
Project No.	34110008

DATE	12/20/11
DWN.	NAP
SCALE	SHOWN
APPRVD.	MW

Legend

- Soil Sample Location below Cleanup Level
- Soil Sample PCB Concentrations Exceed 1 mg/kg
- Soil Sample PCB Concentrations Exceed 50 mg/kg

CG Composite Group
HTRW Hazardous, Toxic, and Radioactive Waste
MOC Main Operations Complex
PCB polychlorinated biphenyls
Stockpile Area

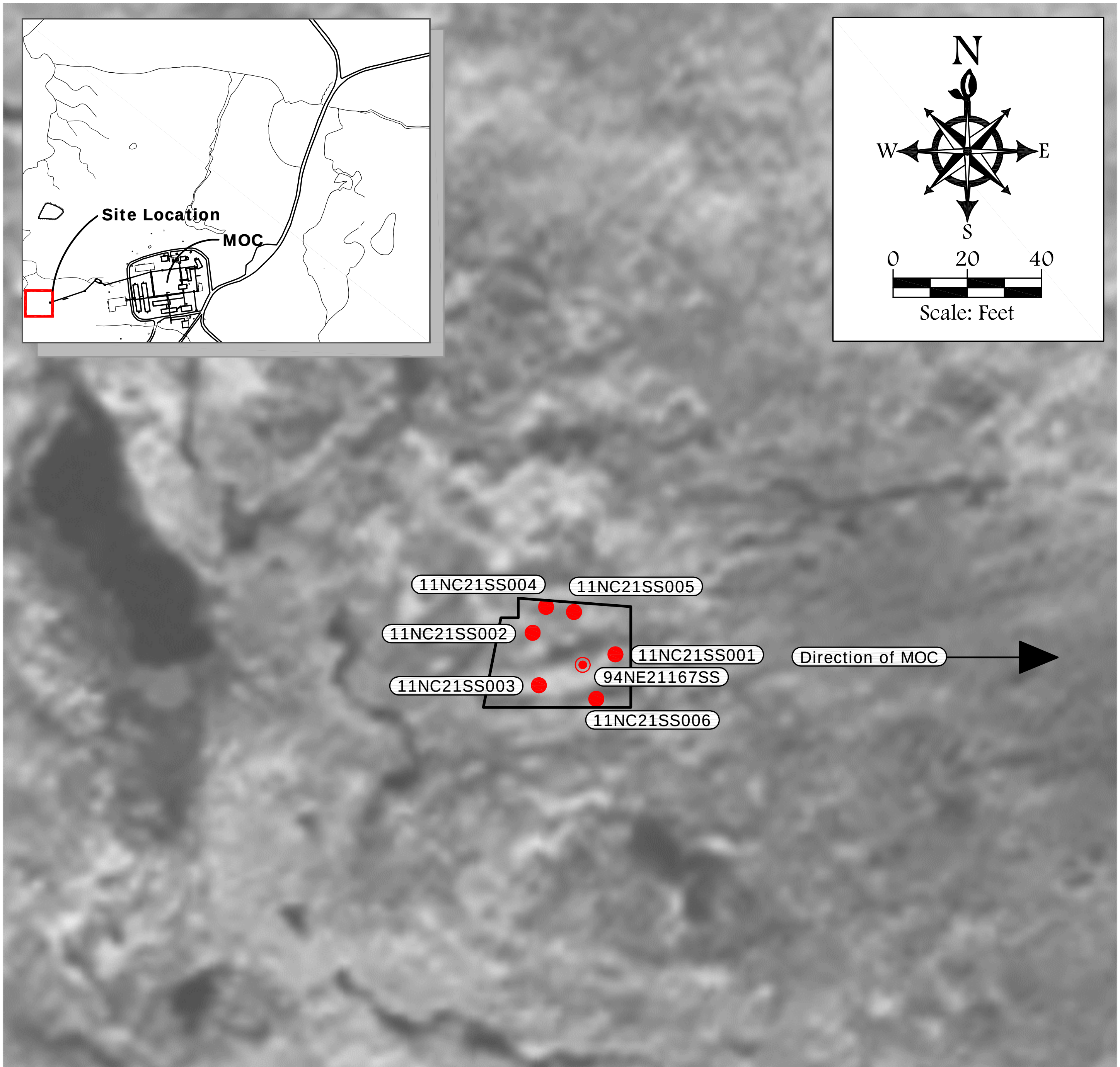
Note:
Soil sample IDs are preceded by 11NC13SS.
mg/kg = milligrams per kilogram

FIGURE 12
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
SITE 31 PCB EXCAVATION AREA

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM:	NAD 83
PROJECTION:	STATE PLANE AK 9
Project No.	34110008
DATE	12/20/11
DWN.	NAP
SCALE	SHOWN
APPRVD.	MW

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-12.DWG - Layout: 34110008-FIG12-DEC11
User: NPEACOCK Feb 02, 2012 - 10:53am Xrefs: - Images: EASTCAPE-STLAWRENCE_ORTHO_MOSAIC_AK83-9F.TIF



Sample ID	Lab ID	Loc ID	Date Collected	Result (mg/kg)
11NC21SS001	580-28199-5	21-001	8/21/2011	56 D
11NC21SS002	580-28199-6	21-002	8/21/2011	32 D
11NC21SS003	580-28199-7	21-003	8/21/2011	22 D
11NC21SS004	580-28199-8	21-004	8/21/2011	100 D
11NC21SS005	580-28199-9	21-005	8/21/2011	180 D
11NC21SS006	580-28199-10	21-006	8/21/2011	74 D
11NC21SS007	580-28199-11	21-005	8/21/2011	140 D
11NC21SS008	580-28199-12	21-008 BW	8/21/2011	80 D

Note:

All samples exceed the site-specific cleanup level of 11 mg/kg.

mg/kg = milligrams per kilogram

Legend

BW — Bulk Waste Sample
D — Sample was Analyzed at a Dilution
HTRW — Hazardous, Toxic, and Radioactive Waste
MOC — Main Operations Complex
● — Sample Location
◉ — Previous Sample Location
▭ — Removal Area

FIGURE 13
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
SITE 21 ARSENIC EXCAVATION

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83		DATE	12/20/11
PROJECTION: STATE PLANE AK 9		DWN.	NAP
Project No. 34110008		SCALE	SHOWN
		APPRVD.	MW

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-13.DWG - Layout: 34110008-FIG3-DEC10
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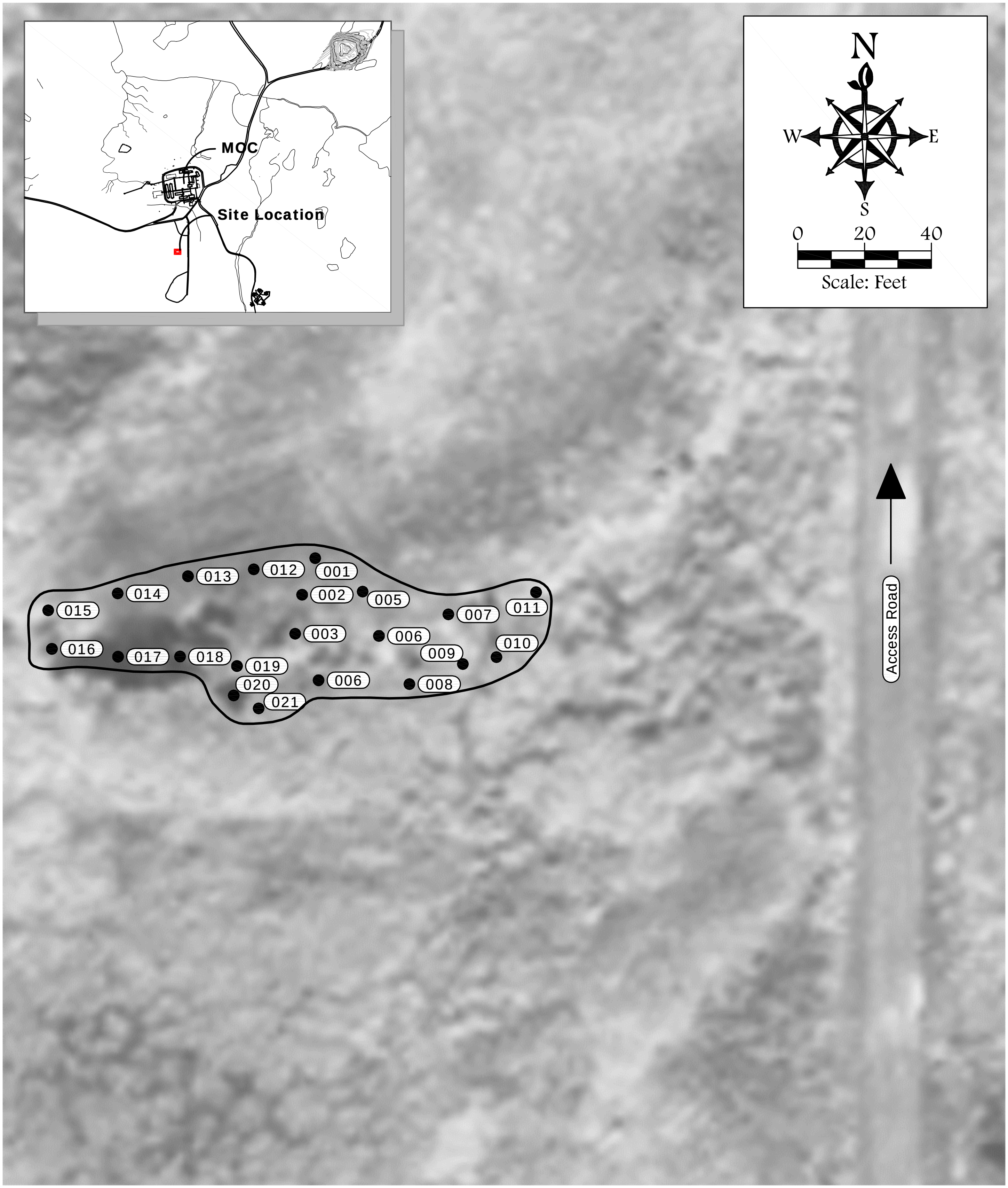

Note:
Tar sample IDs are preceded by 11NCTARSS.

Legend

HTRW	Hazardous, Toxic, and Radioactive Waste
MOC	Main Operations Complex
●	Sample Location
▭	Removal Area

FIGURE 14
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
SPILLED ROOFING TAR AREA

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83		DATE	12/20/11
PROJECTION: STATE PLANE AK 9		DWN.	NAP
Project No. 34110008		SCALE	SHOWN
		APPRVD.	MW

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-14.DWG - Layout: 34110008-FIG14-DEC11
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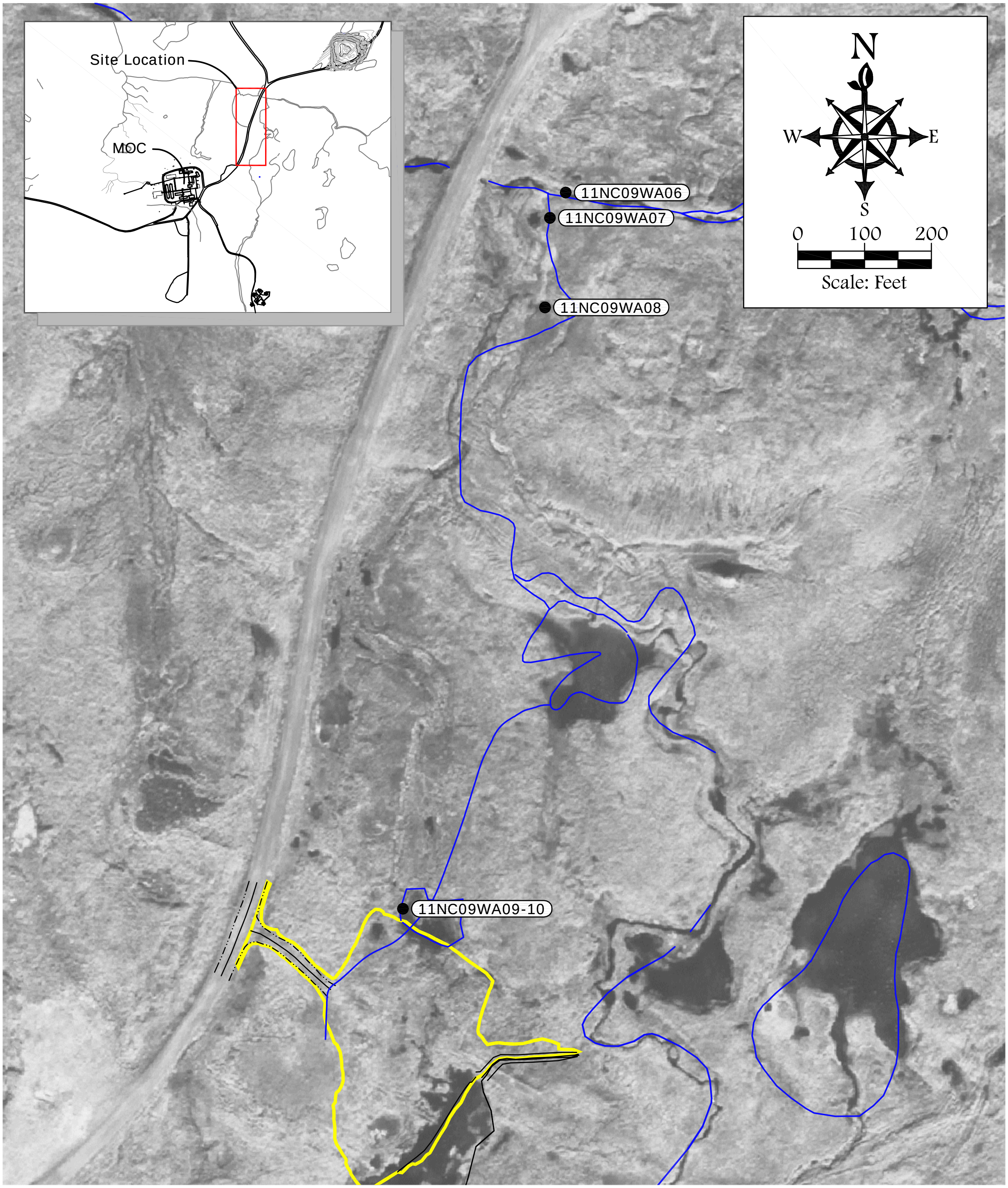

Legend

MOC	Main Operations Complex
HTRW	Hazardous, Toxic, and Radioactive Waste
●	Water Sample Location
(blue line)	Hydrology
(yellow line)	Cap Boundary
(solid line)	Road Centerline
(dash-dot line)	Road Edge

FIGURE 15
Northeast Cape, St. Lawrence Island, Alaska
Northeast Cape HTRW Remedial Actions
SITE 9 SURFACE WATER SAMPLE LOCATIONS

Bristol
ENGINEERING SERVICES CORPORATION
Phone (907) 563-0013 Fax (907) 563-6713

DATUM: NAD 83	DATE	12/20/11
PROJECTION: STATE PLANE AK 9	DWN.	NAP
Project No. 34110008	SCALE	SHOWN
	APPRVD.	MW

Drawing: O:\JOBS\34110008 2011 NE CAPE\ACAD-ENVIRO\FIGURES-DEC11\FIGURE-15.DWG - Layout: 34110008-FIG15-DEC10
User: NPEACOCK Feb 02, 2012 - 10:59am Xrefs: - Images: EASTCAPE-STLAWRENCE_ORTHO_MOSAIC_AK83-9F.TIF

APPENDIX A

Comment Sheets
(to be provided with final submission)

APPENDIX B

Permits

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPT. OF ENVIRONMENTAL CONSERVATION

DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

555 Cordova Street
Anchorage, AK 99501
PHONE: (907) 269-3053
FAX: (907) 269-7649
www.dec.state.ak.us

File: 475.38.013

November 28, 2011

Carey Cossaboom
USACE Alaska District (PM-C)
P.O. Box 6898
JBER, AK 99506-6898

Re: ADEC Approval of Final July 2011 Northeast Cape HTRW Remedial Actions Work Plan

Dear Mr. Cossaboom:

Thank you for providing the Alaska Department of Environmental Conservation's Contaminated Sites program (ADEC) with a copy of the final Northeast Cape Remedial Actions Work Plan dated July, 2011 which was received by ADEC on August 25, 2011. ADEC has completed its review of the final work plan and has determined that all of ADEC's comments and revision requests have been adequately addressed. ADEC tentatively approved the work plan for implementation in the field via email on July 22, 2011; pending all ADEC revision requests were adequately addressed. This letter serves as formal record of ADEC's approval of the subject work plan.

In the process of finalizing the subject 2011 work plan, the contract for the 2011 remedial work at Northeast Cape has changed such that resources will be overwintered on site in future years, and the current contractor will execute a remedial contract for two more field seasons through 2013. The Corps of Engineers recently confirmed (via miscellaneous correspondence) that documents (draft and final versions) such as work plans, reports, tech memos, addendums, etc. will continue to be provided to ADEC for review, comment, and approval throughout the duration of the current contract.

Please contact me at 907.269.3053 or curtis.dunkin@alaska.gov if you have any questions regarding this letter.

Sincerely,

Curtis Dunkin
Environmental Program Specialist

cc: Molly Welker – BERS, Inc. (via email)

G:\SPAR\SPAR-CS\38 Case Files (Contaminated Sites)\475 West Coast (Other)\475.38.013 Northeast Cape St Lawrence Island FUDS DERP\475 38 013 final 2011 NEC RA WP adec approval letter 11-25-11.docx

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF MINING, LAND & WATER
Water Resources Section

550 WEST 7TH AVENUE, SUITE 1020
ANCHORAGE, ALASKA 99501-3562
PHONE: (907) 269-8600
FAX: (907) 269-8904

July 13, 2011

Bristol Environmental Remediation Services
Attn: Molly Welker
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501

Subject: Temporary Water Use Authorization, TWUP A2011-81

Dear Ms. Welker:

The Water Resources Section completed the review of the Application for Temporary Use of Water from Bristol Environmental Remediation Services. Enclosed is the Temporary Water Use Authorization TWUP A2011-81, **with an expiration date of December 31, 2011,** for uses associated with the ongoing environmental remedial cleanup activities at the former Northeast Cape site.

Please note all of the conditions on the permit, especially conditions one (1), five (5) and thirteen (13) through nineteen (19).

If changes to this project are proposed during its operation, please contact this office immediately to determine if further review is necessary. If you have any questions or concerns, I may be contacted at (907) 269-8588. Thank you for your cooperation with the Water Resources Section.

Sincerely,

Merry Johnson

Merry Johnson
Natural Resource Specialist III

Enclosures: Temporary Water Use Authorization – TWUP A2011-81

Cc. Susan Luetters, Bristol Environmental & Engineering Services Corporation
(via email: sluetters@bristol-companies.com)

ALASKA DEPARTMENT OF NATURAL RESOURCES

Division of Mining, Land, and Water

Water Resources Section

550 West 7th Avenue, Suite 1020, Anchorage, AK 99501-3562

TEMPORARY WATER USE AUTHORIZATION
TWUP A2011-81

Pursuant to AS 46.15, as amended and the rules and regulations promulgated thereunder, permission is hereby granted to Bristol Environmental Remediation Services, 111 W. 16th Avenue, Third Floor, Anchorage, Alaska 99501, and its contractors, **to withdraw up to 3,000 gallons of water per day (subject to a maximum of 180,000 gallons of water)** from July15 through December 31, 2011 from the below-described source of water. The water will be used for camp water supply and dust suppression associated with the ongoing environmental remedial cleanup activities at the former Northeast Cape site, on Saint Lawrence Island, Alaska.

SOURCES OF WATER:

Suqitughneg River within NW¼ Section 15, Township 25 South, Range 54 West, Kateel River Meridian.

STRUCTURES TO BE CONSTRUCTED AND USED:

Screened water intake structure, four-inch pump with 35-gpm output, hose and/or pipe, tanker truck and other water removal and distribution equipment.

Changes in the natural state of water are to be made as stated herein and for the purposes indicated.

During the effective period of this authorization, the permittee shall comply with the following conditions:

CONDITIONS:

1. **This authorization does not authorize the permittee to enter upon any lands until proper rights-of-way, easements, or permission documents from the appropriate landowner have been obtained.**

2. Comply with all applicable laws, and any rules and/or regulations issued thereunder.

3. Except for claims or losses arising from negligence of the State, defend and indemnify the State against and hold it harmless from any and all claims, demands, suits, loss, liability and expense for injury to or death of persons and damages to or loss of property arising out of or connected with the exercise of the privileges covered by this authorization.

4. Notify the Water Resources Section upon change of address.

5. **The permittee shall obtain and comply with other permits/approvals (state, federal, or local) that may be required prior to beginning water withdrawal pursuant to this authorization.**

6. Follow acceptable engineering standards in exercising the privilege granted herein.

7. Failure to respond to a request for additional information during the term of the authorization may result in the termination of this authorization.

8. The permittee shall allow an authorized representative of the Water Resources Section to inspect, at reasonable times, any facilities, equipment, practices, or operators regulated or required under this authorization.

9. The permittee is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project, and shall ensure that workers are familiar with the requirements of this authorization. For any activity that significantly deviates from the approved project during its siting, construction, or operation, the permittee is required to contact the Water Resources Section and obtain approval before beginning the activity.

10. The Water Resources Section may modify this authorization to include different limitations, expand monitoring requirements, evaluate impacts, or require restoration at the site.

11. Pursuant to 11 AAC 93.220 (f), this authorization may be suspended by the Department of Natural Resources to protect the water rights of other persons or the public interest.

12. Any false statements or representations, in any application, record, report, plan, or other document filed or required to be maintained under this authorization, may result in the termination of this authorization.

13. **Any water intake structure in fish bearing waters, including a screened enclosure, well-point, sump, or infiltration gallery, must be designed, operated, and maintained to prevent fish entrapment, entrainment, or injury, unless specifically exempted by the Alaska Department of Fish and Game, Habitat Division.**

14. **To avoid entrainment, impingement, or injury to fish, a properly sized and screened structure must surround the water intake. The screen mesh shall not exceed 1/4 inches and the water velocity at the screen surface shall not exceed 0.5 feet per second.**

15. **The intake screen will be inspected for damage (torn screen, crushed screen, screen separated from intake ends, etc.) before and after each use. Any damage observed must be repaired prior to use of the structure. The structure must always conform to the original design specifications while in use.**

16. **Permittee must employ pumping operations in such a way as to prevent any petroleum products or other hazardous substances from contaminating surface or ground water. Pumps will not be fueled or serviced within 100 feet of a pond, lake, stream, or river unless the pumps are situated within a catch basin designed to contain any spills.**

17. Water trucks will not be fueled or serviced within 100 feet of a pond, lake, stream or river. In case of accidental spills, absorbent pads shall be readily available at the water collection point. All spills must be reported to the Alaska Department of Environmental Conservation and the Alaska Department of Natural Resources.

18. Permittee shall control any runoff so that it does not introduce any pollutants, including sediment, into any surface water body, including the Suqitughneg River and adjacent wetlands.

19. The streambed and stream banks of the Suqitughneg River shall not be excavated, altered, or disturbed in any manner to facilitate the water withdrawal.

This Temporary Water Use Authorization is issued pursuant to 11 AAC 93.220. No water right or priority is established by a temporary water use authorization issued pursuant to 11 AAC 93.220. Water so used is subject to appropriation by others (11 AAC 93.210(b)).

Pursuant to 11 AAC 93.210 (b), authorized temporary water use is subject to amendment, modification, or revocation by the Department of Natural Resources if the Department of Natural Resources determines that amendment, modification, or revocation is necessary to supply water to lawful appropriators of record or to protect the public interest.

This authorization shall expire on December 31, 2011.

Date issued: July 13, 2011

Approved: Kristina Plett

Title: Natural Resource Manager

STATE OF ALASKA

SARAH PALIN, GOVERNOR

1300 COLLEGE RD.
FAIRBANKS, AK 99701
PHONE: (907) 459-7289
FAX: (907) 459-7303

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

FISH HABITAT PERMIT
FH09-III-OI03

ISSUED: April 22, 2009
EXPIRES: December 31, 2014

Ms. Molly Welker
Bristol Environmental and Engineering Services Corporation
111 W. 16th Ave., Third Floor
Anchorage, AK 99501-5109

Dear Ms. Welker:

RE: Bridge Repair, Northeast Cape White Alice Site Removal Action (St. Lawrence Island); T25S, R54W, Suqitughneq River; SID AK0203-17AA

Pursuant to AS 16.05.841, the Alaska Department ofFish and Game (ADF&G), Division of Habitat, has reviewed your proposal to place riprap or conduct maintenance activities in the Suqitughneq River (on St. Lawrence Island) to protect the bridge abutments. ADF&G received your request via email on April 17, 2009. Your original request was received on March 19, 2002 with a more detailed description received via email on April 3, 2002. The original activity was permitted under Fish Habitat Permit FG02-III-0072 which expired December 31,2005.

Your original proposed project entailed placing approximately 15 cubic yards of riprap at the base of the abutments of the bridge crossing the Suqitughneq River each work season (two work seasons are anticipated). An excavator, operating from the deck of the bridge, will place the riprap. The current proposed work will included any necessary repairs but will not exceed the original footprint and scope of work.

The Suqitughneq River supports anadromous Dolly Varden (and possibly whitefish) and resident fish (e.g., Alaska blackfish) in the area of your proposed activity. Based upon our review of your plans, your proposed project should not obstruct the efficient passage and movement of fish.

In accordance with AS 16.05.841, project approval IS hereby given subject to the following stipulations:

(1) Banks shall not be altered or disturbed in any way. If stream banks are inadvertently disturbed, they shall be immediately stabilized to prevent erosion.

(2) "End-dumping" riprap is prohibited. Riprap shall be strategically placed to prevent excess rock in the streambed.

The permittee is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved plan. For any activity that significantly deviates from the approved plan, the permittee shall notify the ADF&G and obtain written approval in the form of a permit amendment before beginning the activity. Any action taken by the permittee, or an agent of the permittee, that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the ADF&G. Therefore, it is recommended that the ADF&G be consulted immediately when a deviation from the approved plan is being considered.

This letter constitutes a permit issued under the authority of AS 16.05.841. This permit must be retained on site during construction. Please be advised that this approval does not relieve you of the responsibility of securing other permits, state, federal or local.

This permit provides reasonable notice from the commissioner that failure to meet its terms and conditions constitutes violation of AS 16.05.861; no separate notice under AS 16.05.861 is required before citation for violation of AS 16.05.841 can occur.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which were a direct result of the failure to comply with this permit or any applicable law.

The recipient of this permit (permittee) shall indemnify, save harmless, and defend the department, its agents and its employees from any and all claims, actions or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or the permittee's performance under this permit. However, this provision has no effect, if, and only if, the, sole proximate cause of the injury is the department's negligence.

Sincerely,

Denby S. Lloyd, Commissioner

BY: Robert F. "Mac" McLean, Regional Supervisor
Habitat Division
Alaska Department of Fish and Game

cc: Chris Milles, ADNR, Fairbanks
Ann Rappoport, USFWS, Anchorage
Jeanne Hanson, NMFS, Anchorage

RFM:mac

STATE OF ALASKA

SARAH PALIN, GOVERNOR

1300 COLLEGE RD.
FAIRBANKS, AK 99701
PHONE: (907) 459-7289
FAX: (907) 459-7303

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

FISH HABITAT PERMIT
FH09-III-OI02

ISSUED: April 22, 2009
EXPIRES: December 31, 2014

Ms. Molly Welker
Bristol Environmental and Engineering Services Corporation
111 W. 16th Ave., Third Floor
Anchorage, AK 99501-5109

Dear Ms. Welker:

RE: Equipment Stream Crossing, Northeast Cape White Alice Site Removal Action (St. Lawrence Island), T25S, R54W, Quangeghsaq River; SID AK 0203-17AA

Pursuant to AS 16.05.841, the Alaska Department of Fish and Game (ADF&G), Division of Habitat, has reviewed your proposal to make multiple crossings at multiple sites (four) across the Quangeghsaq River with amphibious all-terrain vehicles. Timbers or poles may need to be placed in and adjacent to the stream to create better crossing sites that prevent ATVs from getting stuck and reduce damage to vegetation. Access is needed to cut down and remove hundreds of poles from abandoned utility lines. ADF&G originally received a description of the proposed project on March 19, 2002 and a more detailed description via email on April 3, 2002. That activity was permitted under Fish Habitat Permit FG02-III-0073 which expired December 31, 2005. Additional access may be needed to conduct maintenance activities.

The Quangeghsaq River supports anadromous Dolly Varden (and possibly whitefish) and resident fish (e.g., Alaska blackfish) in the area of your proposed activity. Based upon our review of your plans, your proposed project may obstruct the efficient passage and movement of fish.

In accordance with AS 16.05.841, project approval IS hereby gIven subject to the following stipulations:

(1) Equipment crossings shall be made from bank to bank in a direction substantially perpendicular to the direction of stream flow.

Equipment crossings shall be made only at locations with gradually sloping banks. There shall be no crossings at locations with sheer or cut banks.

Banks shall not be altered or disturbed in any way to facilitate crossings. If stream banks are inadvertently disturbed, they shall be immediately stabilized to prevent erosion.

(2) If timber/poles are placed in and adjacent to the stream to create a crossing site, they must be placed in such a way that free passage of fish is assured. In addition, all material shall be completely removed from the streambed and banks at the end of each work season. If needed, the streambed shall be recontoured to assure that "trenches" are not left that will trap fish at low-water levels.

(3) Vehicle crossings shall be limited to only what is necessary to accomplish work.

(4) No damming or diversions are permitted.

The permittee is responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved plan. For any activity that significantly deviates from the approved plan, the permittee shall notify the ADF&G and obtain written approval in the form of a permit amendment before beginning the activity. Any action taken by the permittee, or an agent of the permittee, that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the ADF&G. Therefore, it is recommended that the ADF&G be consulted immediately when a deviation from the approved plan is being considered.

This letter constitutes a permit issued under the authority of AS 16.05.841. This permit must be retained on site during construction. Please be advised that this approval does not relieve you of the responsibility of securing other permits, state, federal or local.

This permit provides reasonable notice from the commissioner that failure to meet its terms and conditions constitutes violation of AS 16.05.861; no separate notice under AS 16.05.861 is required before citation for violation of AS 16.05.841 can occur.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which were a direct result of the failure to comply with this permit or any applicable law.

The recipient of this permit (permittee) shall indemnify, save harmless, and defend the department, its agents and its employees from any and all claims, actions or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or the permittee's performance under this permit. However, this provision has no effect, if, and only if, the sole proximate cause of the injury is the department's negligence.

Sincerely,

Denby S. Lloyd, Commissioner

Robert F McLean

BY: Robert F. "Mac" McLean, Regional Supervisor
Habitat Division

cc: Chris Milles, ADNR, Fairbanks
Ann Rappoport, USFWS, Anchorage
Jeanne Hanson, NMFS, Anchorage

RFM:mac

Welker, Molly

Subject: FW: NE Cape

From: Leinberger, Dianna L (DNR) [mailto:dianna.leinberger@alaska.gov]
Sent: Thursday, April 21, 2011 1:31 PM
To: Luetters, Susan
Subject: RE: NE Cape

Susan,

The letter is still valid. I'll note in the file that clean up is still ongoing.

-Dianna

Dianna Leinberger
Department of Natural Resources
Division of Mining, Land & Water
Northern Region Lands Section - Permits & Easements
907-451-3014

From: Luetters, Susan [mailto:sluetters@bristol-companies.com]
Sent: Thursday, April 21, 2011 12:41 PM
To: Leinberger, Dianna L (DNR)
Subject: FW: NE Cape

Trying this one more time.

Susan Luetters
Senior Environmental Scientist
Phone : (907) 563-0013

From: Luetters, Susan
Sent: Thursday, April 21, 2011 12:33 PM
To: 'dainna.leinberger@alaska.gov'
Cc: Welker, Molly; Floyd, Christopher B POA
Subject: FW: NE Cape

Hi Dianna,

It is that time of year again . . . As per below we are ramping up for the 2011 season out at NE Cape conditions surrounding the request are the same as 2009 and 2010. Are we good to go?

Susan Luetters
Senior Environmental Scientist
Phone : (907) 563-0013

From: Luetters, Susan
Sent: Tuesday, February 23, 2010 1:19 PM
To: 'dianna.leinberger@alaska.gov'
Subject: FW: NE Cape

From: Luetters, Susan
Sent: Tuesday, February 23, 2010 10:11 AM

To:
Cc: Welker, Molly; Floyd, Christopher B POA
Subject: NE Cape

Hi Dianna,

As per the attached, Bristol Environmental Remediation Services will be going back to Northeast Cape at the request of the USACE to continue the environmental remediation of the Formerly Used Defense Site. Included in this transmission is your 2009 "Letter of Entry for State tidelands within Kitnagak Bay, Saint Lawrence Island" For the purpose of accessing NE Cape for a Formerly Used Defense Site Cleanup and a Native American Lands Environmental Mitigation Program Project.

The conditions that surrounded the issuance of this Letter of Entry will not be changing for the 2010 season; therefore, do we need to re-request this authorization for the 2010 season or will the 2009 letter extend to cover this season since there is no expiration date on the authorization?

Thank you for your attention to this matter and we look forward to your response.

Sincerely,

Susan Luetters
Senior Environmental Scientist
Bristol Environmental & Engineering Services Corporation
111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5109
Phone : (907) 563-0013
Direct : (907) 743-9316
FAX : (907) 563-6713
sluetters@bristol-companies.com
http://www.bristol-companies.com/

STATE OF ALASKA

SARAH PALIN, GOVERNOR

1300 COLLEGE RD.
FAIRBANKS, AK 99701
PHONE: (907) 459-7289
FAX: (907) 459-7303

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

FISH HABITAT PERMIT
FH09-III-0103
Amendment #1

ISSUED: April 22, 2009
AMENDMENT #1 ISSUED: June 5, 2009
EXPIRES: December 31, 2014

Ms. Molly Welker
Bristol Environmental and Engineering Services Corporation
111 W. 16th Ave., Third Floor
Anchorage, AK 99501-5109

Dear Ms. Welker:

RE: Bridge Repair, Northeast Cape White Alice Site Removal Action (St. Lawrence Island); T25S, R54W, Suqitughneq River; SID AK0203-17AA

Pursuant to AS 16.05.841, the Alaska Department of Fish and Game (ADF&G), Division of Habitat, has reviewed Ms. Susan Luetters' email request, dated June 4, 2009, to amend Fish Habitat Permit FH09-III-0103 to authorize withdrawal of up to 3,000 gallons per day of water from the Suqitughneg River (180,000 gallons per season). Water will be withdrawn with a 4-inch diameter pump at a rate of 35 gpm. Proposed season of use is July 15, 2009 to September 15, 2009.

In accordance with AS 16.05.841, Fish Habitat Permit FH09-III-0103 is hereby amended subject to the following stipulation:

(1) In fish bearing waters, pump intakes or stream diversions shall be designed to prevent intake, impingement, or entrapment of fish. Each water intake structure shall be centered in a screened enclosure. The effective screen opening may not exceed ¼ inch. To reduce fish impingement on the screened surfaces, water velocity at the screen/water interface may not exceed 0.5 feet per second when the pump is operating.

NOTE: Due the small water withdrawal rate, the simplest manner to achieve compliance with this stipulation is to perforate the lower third of a 5-gallon plastic bucket with a large number of ¼-inch holes, place some large rock in the bucket to keep it submerged, and then place the intake hose (presumably with a small rock chuck) in the bucket.

All other terms and conditions of FH09-III-0103 remain in effect.

Sincerely,

Denby S. Lloyd, Commissioner

BY: Robert F. "Mac" McLean, Regional Supervisor
Habitat Division
Alaska Department of Fish and Game

cc: Chris Milles, ADNR, Fairbanks
Ann Rappoport, USFWS, Anchorage
Jeanne Hanson, NMFS, Anchorage

RFM:mac

DEPARTMENT OF THE ARMY
RIGHT-OF-ENTRY FOR
ENVIRONMENTAL ASSESSMENT AND RESPONSE

SAINT LAWRENCE ISLAND, ALASKA (Project, Installation or Activity)

NO. DACA85- 8-08-0134 (Property Identification Number)

The undersigned, hereinafter called the "**Owner**", in consideration of the mutual benefits of the work described below, hereby grants to the **UNITED STATES OF AMERICA**, hereinafter called the "Government", a right-of-entry upon the following terms and conditions:

1. The Owner hereby grants to the Government an irrevocable right to enter in, on, over and across the land described herein, for a period not to exceed five (5) years, **beginning June 1, 2008**, and terminating upon the earlier completion of remediation or the filling of a notice of termination in the local land records by the representative of the United States in charge of the Saint Lawrence Island remediation project, for use by the United States, its representatives, agents, contractors, and assigns, as a work area for environmental investigation and response; including the right to store, move, and remove equipment and supplies; erect and remove temporary structures on the land; investigate and collect samples; excavate and remove ordnance and explosive waste, pollutants, hazardous substances, contaminated soils, containerized waste, and replace with uncontaminated soil; excavate and remove all storage tanks (above, at and below ground level), contents and appurtenant piping; demolish and dispose of former military structures and debris; construct, operate, maintain, alter, repair and remove groundwater monitoring wells, groundwater purification and injection systems, appurtenances thereto and other devices for the monitoring and treatment of contamination in soil, air and water; and perform any other such work which may be necessary and incident to the Government's use for the environmental investigation and response on said lands; subject to existing easements for public roads and highways, public utilities, railroads and pipelines; reserving, however, to the landowner(s), their heirs, executors, administrators, successors and assigns, all such right, title, interest and privilege as may be used and enjoyed without interfering with or abridging the rights and right-of-entry hereby acquired.

2. The Owner also grants the right to enter and exit over and across any other lands of the Owner as necessary to use the described lands for the purposes listed above.

3. All tools, equipment, and other property taken upon or placed upon the land by the Government shall remain the property of the Government and may be removed by the Government at any time within a reasonable period after the expiration of this permit or right-of-entry.

4. Upon expiration or termination of this right-of-entry, the Government shall assure restoration of the ground contour and replace any pavement or other cover which was removed or damaged for this work, establish a groundcover of grass on areas not otherwise covered and reconnect any operating utility lines which were required to be disconnected or otherwise disrupted.

5. If any action of the Government's employees or agents in the exercise of this right-of-entry results in damage to the real property, the Government will, in its sole discretion, either repair such damage or make an appropriate settlement with the Owner. In no event shall such repair or settlement exceed the fair market value of the fee title to the real property at the time immediately preceding such damage. The Government's liability under this clause is subject to the availability of appropriations for such payment, and nothing contained in this agreement may be considered as implying that Congress will at a later date appropriate funds sufficient to meet any deficiencies. The provisions of this clause are without prejudice to any rights the Owner may have to make a claim under applicable laws for any damages other than those provided for herein.

6. The land affected by this right-of-entry is located in the State of Alaska, and is described as follows:

All surface and subsurface rights on Saint Lawrence Island, Alaska, within Township 20 South, Range 67 West, Kateel River Meridian and; Township 25 South, Range 54 West, Kateel River Meridian

WITNESS MY HAND AND SEAL this 17 day of June 2008.

Aaron Ashogrgen

SAVOONGA AK 99769 JUN 17 2008 USPS

KUKULGET, INCORPORATED
Perry Pungowiyi, President

Perry Pungowiyi
Authorized Signature

P.O. Box 160
Address

(907) 984-6184
Telephone Number

UNITED STATES OF AMERICA

Veronica A. Hiriams
Veronica A. Hiriams
Chief, Real Estate Division
US Army Engineer District, AK
P.O. Box 898
Anchorage, Alaska 99506-0898

SAINT LAWRENCE ISLAND, ALASKA
(Project, Installation or Activity)

NO. DACA85-8-08-0134
(Property Identification Number)

SIVUQAQ, INCORPORATED
~~Bruce Boolowon, President~~ Merle Apassingok, Acting Chairman

[signature]
Authorized Signature

P.O. Box 101 Gambell, AK. 99742
Address

(907) 985-5826
Telephone Number

MATERIAL SUPPLY AND
QUARRY OPERATING AGREEMENT

Kukulget Inc., whose address is P.O. Box 160 Savoonga, Alaska 99769, and Sivuqaq Inc., whose address is P.O. Box 101 Gambell, Alaska 99742, Alaska Native Corporations created pursuant to the Alaska Native Claims Settlement Act, herein referred to as "Owners," and Bristol Environmental Remediation Services LLC, whose address is 111 W. 16th Avenue, Third Floor, Anchorage, Alaska 99501, herein referred to as "Contractor" agree to the extraction of material and the operation of the quarry and such other rights as are designated in this contract, subject to the following provisions:

1. DESCRIPTION - LOCATION, MATERIAL, AND PRICE:

1.1. Quarry Description. The material source area covered by this agreement is the borrow site south of the Main Operations Complex at Northeast Cape, St. Lawrence Island, Alaska shown on the attached figure.

1.2. Royalty. The royalty price for all types of material removed from the Quarry during the Term of this Agreement is:

Material Type	Unit Price
All Material	$10.00 (per cubic yard)

Quantities to be determined by truck count.

2. EXCLUSIVE RIGHTS AND DUTIES:

Owner hereby grants to Contractor and Contractor accepts from Owner, the exclusive right to manage and operate the Quarry for the Term of this Agreement (defined in ¶3). Management and operation of the Quarry shall include, without limitation, the following:

A. The exclusive right to manage the extraction and removal of Materials from the Quarry;

B. The exclusive right, to secure access to the Quarry to avoid an attractive nuisance and deter unauthorized extraction of Materials therefrom, up to and including, fencing the perimeter and/or access to the Quarry;

C. The duty to perform all reclamation identified in the Letter of Intent (section 5).

3. TERM:

The term of this Agreement ("term") shall commence on July 1, 2011 and expire on December 31, 2011.

4. PAYMENTS AND DEPOSITS:

Within 30 days after the cessation of work for winter, or completion or termination, Contractor in any year in which the Contractor extracts or transports material from the Quarry, Contractor shall pay payments as described in Paragraph 1.2.

5. LETTER OF INTENT/ANNUAL RECLAMATION STATEMENT:

By July 1, 2011 and prior to commencing any operations in any Quarry subject to this Agreement, the Contractor shall file a "Letter of Intent" (Letter) with the State of Alaska Department of Natural Resources, Division of Land (Division of Land) as required by State law. The contractor shall also file an "Annual Reclamation Statement" (Statement) with the Division of Land as required by State law. The Statement shall be filed before December 31 of any calendar year during which Quarry operations were carried out under this Agreement. The Contractor shall provide copies of the Letter and the Statement(s) to the Owners.

6. RECLAMATION PLAN:

Contractor shall comply with the requirements of the Letter (section 5) regarding reclamation. The Contractor shall document reclamation activities per the Statement (section 5).

7. CONFLICT WITH CONTRACT.

In the event that any provision of this Material Supply Contract and Quarry Operating Agreement shall conflict with Contractor's Contract W911KB-06-D-0007 with the Corp of Engineers for the Northeast Cape HTRW Remedial Actions, St. Lawrence Island, Alaska, contract W911KB-06-D-0007 shall control and this Agreement shall be considered amended to bring it into conformity with W911KB-06-D-0007.

8. INSPECTION OF QUARRY:

Prior to commencing any operations at the Quarry, authorized representatives of Contractor and Owners may inspect the Quarry to determine whether and to what extent prior mining operations have resulted in visual environmental contamination that requires remediation. Contractor shall have no obligation to perform remediation of contamination discovered at this inspection; provided, however, that from the date of such inspection Contractor shall be liable for all hazardous materials deposited at the Quarry as a result of Contractor's operations during the term hereof, or any extension . Failure by the parties to do so shall not affect the enforceability of this Agreement, provided Contractor prepares and transmits its environmental findings to Owners, at its address set forth in ¶17, below in writing, before beginning Operations.

9. BOOKS AND RECORDS OF ACCOUNT:

Contractor shall maintain accurate and complete records, log books and books of account documenting: (a) the volume of gravel extracted from the Quarry seasonally and submitted to Owners; (b) the amounts due and payable by Contractor and; the amounts actually paid by Contractor to Owners pursuant to this Agreement.

Materials from the Quarry shall be measured by truckloads. Each truck load will contain between 18.75 and 25 cubic yards depending on the truck type (e.g., 30 or 40 ton rock truck). Truck count and truck type shall be performed and recorded by the operator loading haul units at the quarry site. The operator will provide the truck count to the Contractor's Site Superintendent or his designee on a daily basis. The Site Superintendent will provide a summary of the truck count to Owner within five business days of receiving a request from the Owner.

10. OPERATING REQUIREMENTS:

10.1. Standards of Operations. Contractor shall excavate and remove Material from the Quarry in compliance with all laws, regulations, ordinances, orders and its contract with the Corps W911KB-06-D-0007. Contractor shall conduct and maintain its Operations in a commercially reasonable, workman like and clean manner, and shall take all necessary precautions to prevent or suppress fires and to prevent erosion, contamination or destruction of the land and adjacent wetlands and waters. The Contractor agrees to carry out its quarry operations only in areas previously disturbed by others at the Quarry site.

10.2. Supervision. Contractor shall maintain adequate supervision at all times when Operations are in progress to ensure compliance with the provisions of this contract and all applicable federal, state, and local laws and regulations.

10.3. Agents. The provisions of this Contract apply with equal force upon any agent, employee, or contractor designated by Contractor to perform any of the Operations under this contract. Contractor is liable for the noncompliance caused by any such agent, employee, or contractor.

10.4. Grave Sites or Archaeological Sites. No grave or archaeological site shall be in any way disturbed, removed, or damaged. Upon encountering any grave or archaeological site, Contractor shall immediately cease work in the area of the site and shall immediately notify Owners.

11. COMPLIANCE WITH APPLICABLE LAWS:

Contractor shall comply with all local, State and federal laws, statutes, ordinances, rules, regulations, decrees, injunctions, orders and codes applicable to the operation or management of the Quarry, including without limitation, mining reclamation, mining safety and health (i.e., "MSHA") and occupational safety and health (i.e., "OSHA"). These laws and regulations are, by this reference, made a part of this Contract.

12. REQUIRED PERMITS:

Contractor shall obtain and maintain, at its expense and throughout the Term, all licenses, permits, approvals, consents and certificates from local, state and federal authorities which may be necessary or appropriate for its management and operation of the Quarry.

13. ASSIGNMENT:

This contract may be assigned or transferred pursuant to 30 days advance notice to Owners.

14. PERMITS:

Any permits necessary for Operations under this Contract must be obtained by Contractor before commencing those Operations.

15. WARRANTIES:

This sale is made without any warranties, express or implied, as to quantity, quality, merchantability, profitability, or fitness for a particular use of the Material to be extracted from the Quarry under contract. Contractor specifically waives any claims that may arise resulting from the use of the Material.

16. NOTICES:

All notices and other documents required or authorized under this Contract must be in writing and are deemed delivered upon receipt provided that the same are sent certified mail, postage paid, to the party to which the same is mailed the following address or such other address as such party may by written notice provide:

To the Owner:

Kukulget Inc.
P. O. Box 160
Savoonga, AK 99769

Sivuqaq Inc.
P.O. Box 101
Gambell, AK 99742

with a copy to Fortier & Mikko, P.C. 101 W. Benson Blvd., Suite 304, Anchorage, AK 99503.

To the Contractor:

Bristol Environmental Remediation Services, LLC
Attn: Molly Welker
111 W. 16th. Avenue, Third Floor
Anchorage, Alaska 99501

17. INTEGRATION AND MODIFICATION:

This Contract, including all laws and documents that by reference are incorporated in it or made a part of it, contains the entire agreement between the parties. This Contract may not be modified or amended except by a document signed by both parties to this contract. Any amendment or modification which is not in writing, signed by both parties, is null and void and of no legal effect.

18. SEVERABILITY OF CLAUSES OF CONTRACT:

If any provision of this Contract is adjudged to be invalid, that judgment does not affect the validity of any other provision of this Contract, nor does it constitute any cause or action in favor of either party as against the other.

19. CONSTRUCTION:

Words in the singular number include the plural, and words in the plural number include the singular.

20. HEADINGS:

The headings of the numbered paragraphs in this Contract shall not be considered in construing any provisions of this Contract.

21. "EXTRACTED," "EXTRACTION":

In this Contract, use of the terms "Extracted" and "Extraction" encompasses the severance or removal, as well as extraction, by Contractor of any Material covered by this Contract.

22. WAIVERS:

No agent, representative, or employee of Owners has authority to waive any provision of this Contract unless expressly authorized to do so in writing by the Presidents of Kukulget Inc. and Sivuqaq Inc.

23. GOVERNING LAW:

This Contract shall be governed by and construed in accordance with Alaska law. Venue and jurisdiction shall lie exclusively in the Superior Court for the State of Alaska, Third Judicial District, at Anchorage, Alaska.

24. EFFECTIVE DATE:

This Contract shall be effective the 1st day of July 2011.

25. BY SIGNING THIS CONTRACT, Owner, and Contractor, agrees to be bound by its provisions as set out above.

CONTRACTOR:

Bristol Environmental
Remediation Services, LLC

By: [signature]
Its: Project Manager

OWNER:

Kukulget Inc.
Morris Toolie Jr.

By: [signature]
Its: President

Sivuqaq Inc.

By: [signature]
Its: President

STATE OF ALASKA

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF AGRICULTURE

Sean Parnell, GOVERNOR

❑ **CENTRAL OFFICE**
1800 GLENN HIGHWAY, SUITE 12
PALMER, ALASKA 99645-6736
PHONE: (907) 745-7200
FAX: (907) 745-7112

❑ **NORTHERN REGION OFFICE**
1648 S. CUSHMAN ST., # 201
FAIRBANKS, ALASKA 99701-6206
PHONE: (907) 328-1950
FAX: (907) 328-1951

❑ **PLANT MATERIALS CENTER**
5310 S. BODENBURG SPUR
PALMER, ALASKA 99645-9706
PHONE: (907) 745-4469
FAX: (907) 746-1568

August 16, 2010

Carey Cossaboom
Project Manager
U.S. Army Corps of Engineers

Carey,

After visiting the NE Cape cleanup site I believe a maintenance fertilization program may be real valuable in order to meet the 70% cover requirement for the sites. The process is starting but the plants could use some help. An application of fertilizer (20-20-10) at 500 pounds per acre would help the process along. I believe this will give the plants the boost they need.

Species composition of the seeded areas does correspond with the applied seed mix of 70% Tufted hairgrass and 30% Red fescue, although not at that density. The seeded perennial grasses are performing relatively well and there is no indication of extreme stress. The brown color and yellowing of the grasses at some sites is probably due to fertilizer deficiency and would benefit from an additional application. Some sites are heavily compacted and may require breakup in order for grasses to become established. This is especially true where the three tanks were removed.

Sporadic vegetation cover at one site is likely the result of using hand-held broadcast seeders to apply the seed mix. It looks like a lot of the area was simply missed. If available, a broadcast seeder mounted on the back of an ATV vehicle will provide more uniform coverage of the seed mixture. One good way to prevent misses while seeding and fertilizing areas with employees not familiar with broadcast applications is to set the spreader at half the rate. Apply the product in one direction, and then repeat the application perpendicular to the first application. Skips and void are often prevented using the two step application method. I recommend reseeding this site with 70% Tufted hairgrass and 30% Red fescue at a rate of 1 pound per 1,000 square feet. Follow with 20-20-10 fertilizer at a rate of 500 pounds per acre. The fertilizer should be applied concurrent with or prior to seeding to avoid unnecessary disturbance. Seeding will need to be completed prior to August 1.

The appearance of native species other than those planted, resulted from natural reinvasion from the surrounding community. These species will continue to colonize the site over time providing additional ground cover. Non-seeded grass species that have been identified include: Deschampsia caespitosa (Hairgrass), Festuca rubra (Red fescue), Arctagrostis latifolia (Polargrass), Trisetum Spicatum (Spike trisetum), Hierochloe odorata (Sweetgrass), Poa Alpina (Alpine bluegrass), and Calamagrostis nutkaensis (Nootka reedgrass). These species appear to be performing well and will add a natural appearance to the project.

If I can be of further assistance please do not hesitate to give me a call.

Sincerely,

Phil Czapla
Alaska Plant Materials Center
907-745-8747
phil.czapla@alaska.gov

Carey Cossaboom
Project Manager
U.S. Army Corps of Engineers
August 16, 2010
Page 3

This site will require a mechanical implement, such as ripper to fracture the soil.

I recommend reseeding this site with 70% Tufted hairgrass and 30% Red fescue. Fertilize with 20-20-10 at 500 pounds per acre. Yellowing of the grasses is probably due to fertilizer deficiency.

STATE OF ALASKA

DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WASTEWATER DISCHARGE AUTHORIZATION PROGRAM

SEAN PARNELL, GOVERNOR
555 Cordova
Anchorage, Alaska 99501-2617
PHONE: (907) 269-6285
FAX: (907) 334-2415
http://www.dec.state.ak.us

Thank you for using the DEC Water Online Application System. In order to sign your electronic Notice of Intent (eNOI) application, you the NOI Certifier must sign and submit this Signature NOI. The ADEC needs to verify your signature in order to update the status of your eNOI to a signed status.

Please sign on the appropriate line in the Certification Information Section (Section VII) of this Signature NOI and mail, fax, or email to:

Attn: Storm Water Program
Division of Water
Alaska Department of Environmental Conservation
555 Cordova Street
Anchorage, AK 99501
Fax Number: (907) 269-3487
Phone Number: (907) 269-8117
Email Address: DEC.Water.OPAHelp@alaska.gov

If you have any questions regarding this signature page or other questions concerning the eNOI System, please call ADEC at: (907) 269-8117.

Thank you for using the ADEC eNOI system.

For Agency Use
Permit # AKR10DL58

Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under an APDES Construction General Permit

Submission of this Notice of Intent (NOI) constitutes notice that the party identified in Section I of this form requests authorization to discharge pursuant to the APDES Construction General Permit (CGP). Submission of this NOI also constitutes notice that the party identified in Section I of this form meets the eligibility requirements of the CGP for the project identified in Section II of this form. Permit coverage is required prior to commencement of construction activity until you are eligible to terminate coverage as detailed in the CGP. To obtain authorization, you must submit a complete and accurate NOI form. Refer to the instructions at the end of this form.

I. Operator Information

Organization: Bristol Environmental Remediation Services, LLC

Contact Person: Charles Croley

Mailing Address:
Street (PO Box): 111 W. 16th Avenue, Third Floor
City: Anchorage State: AK Zip: 99501
Phone: 907-563-0013 Fax(optional):
Email:

II. Billing Contact Information

Organization: Bristol Environmental Remediation Services, LLC

Contact Person: Molly Welker

Mailing Address:
[ ] Check if same as Operator Information.
Street (PO Box): 111 W. 16th Avenue, Third Floor
City: Anchorage State: AK Zip: 99501
Phone: 907-563-0013 Fax(optional):
Email:

III. Project/Site Information

Project/Site Name: Northeast Cape HTRW Remedial Actions

Project Street/Location: Main Operations Complex, Site 13, Site 31 NE Cape

City: Savoonga, Northeast Cape, St. Lawrence Is. State: AK Zip: 99769

Borough or similar government subdivision: Nome

Latitude: 63.312 Longitude: -168.957

Determined By: ☐ GPS ☐ USGS topographic map ☑ Other: Google Maps

If you used a USGS topographic map, what was the scale?

Estimated Project Start Date: 6/26/2011 Estimated Project Completion Date: 9/15/2011

Estimated Area to be Disturbed (to the nearest quarter acre): 0.85

For Agency Use
Permit # AKR10DL58

IV. SWPPP (Storm Water Pollution Prevention Plan)	
Has the SWPPP been prepared in advance of filing this NOI? ☑ Yes ☐ No	
Location of SWPPP for Viewing: ☐ Address in Section I ☑ Address in Section III ☐ Other	
If other:	SWPPP Street:
	City: State: AK Zip:
	SWPPP Contact Information (if different than that in Section I):
	Name: Charles Croley
	Phone: 907-563-0013 Fax(optional):
	Email:

V. Discharge Information
Identify the name(s) of waterbodies to which you discharge: NA
Is this discharge consistent with the assumptions and requirements of applicable EPA approved or established TMDL(s)? ☑ Yes ☐ No

VI. Endangered Species Protection	
Under which criterion of Part 1.3.3.6 of the permit have you satisfied your ESA eligibility obligations?	
☑ A ☐ B ☐ C ☐ D ☐ E ☐ F	
If you select criterion F, provide permit tracking number of operator under which you are certifying eligibility:	

VII. Certification Information
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.
Printed Name: Steve Johnson Title: CEO
Signature: [signature] Date: 5/6/11 Email: sjohnson@bristol-companies.com
NOI Preparer (Complete if NOI was prepared by someone other than the certifier)
Prepared By: Derek Tannahill
Organization: Bristol Engineering Services Corp.
Phone: 907-563-0013 Email:

STATE OF ALASKA

SEAN PARNELL, GOVERNOR

1300 COLLEGE RD.
FAIRBANKS, AK 99701
PHONE: (907) 459-7289
FAX: (907) 459-7303

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

FISH HABITAT PERMIT
FH11-III-0190

ISSUED: June 29, 2011
EXPIRES: December 31, 2011

Bristol Environmental Remediation Services
Attn.: Molly Welker
111 West 16th Avenue, 3rd Floor
Anchorage, AK 99501

Dear Ms. Welker:

RE: Water Withdrawal; Northeast Cape Remedial Actions; Section 15, T25S, R54W, KRM; St. Lawrence B-0 Quad; Suqitughneg River (AWC #333-99-10250).

Pursuant to AS 16.05.871, the Alaska Department of Fish and Game (ADF&G), Division of Habitat, has reviewed your proposal to withdraw up to 35 gpm (3,000 gpd) over a two month period using a 4 inch diameter pump from the Suqitughneg River. Water will be used in support of ongoing environmental remedial cleanup activities at the former Northeast Cape site.

Anadromous Fish Act

The Suqitughneg River has been specified as being important for the migration, spawning, or rearing of anadromous fishes in accordance with AS 16.05.871(a). Anadromous Dolly Varden are documented in the river at the subject location.

In accordance with AS 16.05.871(d), project approval is hereby given subject to your proposed scope of work and the following stipulation:

1. Pump intakes shall be designed to prevent intake, impingement, or entrapment of fish. Each intake structure shall be enclosed in a screened enclosure. The effective screen opening may not exceed ¼ inch. To reduce fish impingement on the screened surface,

water velocity at the screen/water interface may not exceed 0.5 feet per second when the pump is operating.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved plan. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division of Habitat. Therefore, it is recommended that the Division of Habitat be consulted immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unrestricted access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.871 and must be retained on site during the permitted activity. Please be advised that this approval does not relieve you of the responsibility of securing other permits, state, federal or local.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The ADF&G reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which were a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the ADF&G, its agents and its employees from any and all claims, actions or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the ADF&G's negligence.

Please be advised that this determination applies only to activities regulated by the Division of Habitat; other departments and agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of the responsibility for securing other permits, state, federal, or local. You are still required to comply with all other applicable laws.

This permit decision may be appealed in accordance with the provisions of AS 44.62.330--44.62.630.

Any questions or concerns about this permit may be directed to me at (907) 459-7281 or emailed to mac.mclean@alaska.gov.

Sincerely,

Cora Campbell, Commissioner

BY: Robert F. "Mac" McLean, Regional Supervisor
Division of Habitat

ecc: Chris Milles, ANDR, Fairbanks
Merry Johnson, ADNR, Anchorage
Jewel Bennett, USFWS, Fairbanks
NOAA Fisheries, Anchorage
Brendan Scanlon, ADF&G, Fairbanks
Jim Menard, ADF&G, Nome
Al Ott, ADF&G, Fairbanks

RFM/mac

APPENDIX C

Photograph Log

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
July 16, 2011	MOC	Bulk bag loading at eastern tank footprint in MOC	Southeast	Russell James
July 17, 2011	MOC	Bag loading and marking in MOC tank footprint area.	Northeast	Russell James
July 18, 2011	MOC	Excavating eastern tank footprint at the MOC.	Northeast	Eric Barnhill
July 18, 2011	MOC	Building pad 98 where bulk bags were stored over winter, with rock screener parked on it.	North	Russell James
July 19, 2011	MOC	The bulk bag staging area at the MOC	South	Russell James
July 19, 2011	MOC	Prepping the future stockpile area.	North	Russell James
July 20, 2011	MOC	Initial POL stockpile	West	Chuck Croley
July 20, 2011	MOC	Excavation at J1A plume	Northwest	Russell James
July 21, 2011	MOC	Excavation of contaminated material 2'-4' bgs at J1A	North	Russell James
July 21, 2011	MOC	Sampling bulk bags at the J1A excavation	South	Russell James
July 21, 2011	MOC	The J1A excavation area	Northeast	Eric Barnhill
July 24, 2011	MOC	The J1A excavation with boom	Northeast	Russell James

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
July 25, 2011	MOC	J1A excavation with silt fence and dump truck for transporting clean overburden	North	Russell James
July 28, 2011	MOC	J1A excavation at the MOC	Northwest	Russell James
August 3, 2011	MOC	Removing soil from two feet below water at J1A	Northwest	Russell James
August 5, 2011	MOC	Excavation of POL contaminated soil at A1	North	Russell James
August 6, 2011	MOC	Buried debris and underground piping exposed at the southern extent of A1 excavation	Southwest	Russell James
August 9, 2011	MOC	Mobile lab samples being collected at the A1 excavation	Northwest	Russell James
August 9, 2011	MOC	Breaking up concrete at the MOC	South	Russell James
August 15, 2011	MOC	An oil-containing drum uncovered in the southeast corner of the J1A excavation	Southeast	Russell James
August 19, 2911	MOC	Northwest sidewall of A1 showing newly excavated area	Northwest	Russell James
August 20, 2011	MOC	Groundwater flowing into deepened A1 excavation	North	Russell James
August 25, 2011	MOC	Lined sumps with filtered water from dewatering area at the MOC	Northwest	Russell James

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
September 3, 2011	MOC	Excavating POL hot spots at the A1 plume	Southwest	Russell James
September 14, 2011	MOC	Backfilling the J1A excavation	West	Russell James
July 19, 2011	Site 13	Baseline sampling of the future stockpile location	South	Eric Barnhill
July 20, 2011	Site 13	Removing clean overburden from site 13	South	Russell James
August 22, 2011	Site 13	Bulk bag preparation at site 13	Northwest	Russell James
July 24, 2011	Site 13	Discrete sampling from a grid with Eric Barnhill of BERS	North	Russell James
July 26, 2011	Site 13	Site 13 excavations with sampling grid	South	Russell James
July 26, 2011	Site 13	Setting up load frames for bulk bags	North	Russell James
July 27, 2011	Site 13	A concrete slab and wood frame in the bottom of site 13 excavation	West	Eric Barnhill
August 2, 2011	Site 13	Setting up a sampling grid at site 13	Southeast	Russell James
August 10, 2011	Site 13	Site 13 excavation	South	Russell James
August 22, 2011	Site 13	Collecting samples from bulk bags from site 13	Northwest	Russell James

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
September 11, 2011	Site 13	Utility corridor, pipe and wires buried in southwestern section of excavation.	Southwest	Eric Barnhill
September 11, 2011	Site 13	Concrete removal, material to be used as backfill at A1 excavation.	North	Eric Barnhill
September 24, 2011	Site 13	Liner installations at site 13.	South	Russell James
September 26, 2011	Site 13	Site 13 excavation during bag-armoring operations.	Southwest	Russell James
July 20, 2011	Site 31	Sample locations for future stockpile area	North	Eric Barnhill
July 21, 2011	Site 31	Exposing the site 31 excavation	Southwest	Russell James
July 23, 2011	Site 31	Excavation of site 31	North	Russell James
July 25, 2011	Site 31	Site 31 excavation area and sampling grid	North	Eric Barnhill
July 29, 2011	Site 31	Water pooling behind berm at site 31	North	Russell James
August 7, 2011	Site31	Sampling grid for possible stockpile location at site 31	North	Russell James
August 18, 2011	Site 31	Excavating and bulk bagging PCB-contaminated soil	South	Russell James
September 16, 2011	Site 31	Concrete wipe sample locations 16 and 17, marked with orange marking paint	East	Russell James

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
September 18, 2011	Site 31	Sidewall sampling with excavator and sampling attachment	Southeast	Russell James
September 25, 2011	Site 31	Placing liner in the site 31 excavation	Northeast	Russell James
September 26,2011	Site 31	Site 31 excavation rimmed with bulk bags	North	Russell James
September 31, 2011	Roofing Tar Area	Removal area and resulting stockpile	Southeast	Eric Barnhill
July 18, 2011	Roofing Tar Area	Roofing tar stockpile with Lyndsey Kleppin of BERS in the foreground	North	Russell James
July 18, 2011	Roofing Tar Area	Roofing tar stockpile	West	Russell James
August 7, 2011	Roofing tar area	Confirmation sampling at the tar removal area	August 7, 2011	Russell James
July 17, 2011	Site 28	Site 28 background location	North	Russell James
August 13, 2011	Site 28	Transect sample locations at site 28	South	Russell James
August 14, 2011	Site 28	Sampling at site 28 with Julie Clark of BERS	South	Russell James
August 18, 2011	Site 28	Soil sampling with Charles Kava and Julie Clark	Southeast	Russell James
July 22, 2011	Site 21	The background area for site 21	South	Eric Barnhill

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
July 22, 2011	Site 21	Site 21 background sample location	South	Eric Barnhill
July 22, 2011	Site 21	Example of soil at a background sample location	West	Russell James
July 22, 2011	Site 21	Background soil sample	N/A	Russell James
August 21, 2011	Site 21	Site 21 after excavation and confirmation sampling	South	Russell James
July 16, 2011	MOC Wells	Monitoring well sampling	South	Russell James
July 15, 2011	Fuel Containment Area	Fuel containment area	South	Russell James
July 18, 2011	N/A	Eco-Land, LLC surveying the NE Cape site	West	Russell James
July 23, 2011	Site 8	Surface water collection at site 8	South	Chuck Croley
July 31, 2011	Cargo Beach	Bulk bags being loaded onto flats at cargo Beach	West	Russell James
October 7, 2011	Cargo Beach	Loading a Northland barge with bulk bags at Cargo Beach	South	Chuck Croley
July 30, 2011	Site 13	Metal debris was machine and hand-picked during site work	North	Chuck Croley
August 11, 2011	Pad 98	Screen plant operations at Pad 98	West	Russell James

PHOTOGRAPH LOG
NORTHEAST CAPE, 2011

DATE	LOCATION	DESCRIPTION OF PHOTOGRAPH	VIEW DIRECTION	PHOTOGRAPHER/COMMENTS
August 28, 2011	Site 9	Collecting surface water samples from drainage between site 9 and the Suki R.	North	Russell James
July 3, 2011	Cargo Beach Road	Road re-grading and repair	North	Chuck Croley
September 28, 2011	Cargo Beach	Nunaniq landing craft unloading flats to load bulk bags	East	Chuck Croley
October 10, 2011	MOC	The majority of the equipment parked for the winter	South	Chuck Croley
October 10, 2011	Cargo beach	Empty Northland flats are all that is left on Cargo Beach for the winter	East	Chuck Croley
October 12, 2011	Shop Pad	Containers and ISO tanks secured for the winter on the shop pad	Southwest	Chuck Croley
October 12, 2011	Camp	Demobilization of camp	North	Chuck Croley

Job Site: Main Operation Complex (MOC)

Photograph 1 Bulk bag loading at eastern tank footprint in Main Operations Complex (MOC) Northeast Cape
July 16, 2011 Direction: Southeast

Photograph 2 Bag loading and marking in MOC tank footprint area Northeast Cape
July 17, 2011 Direction: Northeast

Photograph 3 Excavating eastern tank footprint at the MOC Northeast Cape
July 18, 2011 Direction: Northeast

Photograph 4 Building pad 98 where bulk bags were stored overwinter, with rock screener parked on it Northeast Cape
July 18, 2011 Direction: North

Photograph 5 The bulk bag staging area at the MOC — Northeast Cape
July 19, 2011 — Direction: South

Photograph 6 Prepping the future Petroleum, oil, and lubricants (POL) stockpile area — Northeast Cape
July 19, 2011 — Direction: North

Photograph 7 Initial POL stockpile Northeast Cape
July 20, 2011 Direction: West

Photograph 8 Excavation at J1A plume Northeast Cape
July 20, 2011 Direction: Northwest

Photograph 9 Excavation of contaminated material 2-4 feet below ground surface (bgs) at J1A Northeast Cape
July 21, 2011 Direction: North

Photograph 10 Sampling bulk bags at the J1A excavation Northeast Cape
July 21, 2011 Direction: South

Photograph 11 The J1A excavation area Northeast Cape
July 21, 2011 Direction: Northeast

Photograph 12 The J1A excavation with boom Northeast Cape
July 24, 2011 Direction: Northeast

Photograph 13 J1A excavation with silt fence and dump truck for transporting clean overburden Northeast Cape
July 25, 2011 Direction: North

Photograph 14 J1A excavation at the MOC Northeast Cape
July 28, 2011 Direction: Northwest

Photograph 15 Removing soil from 2 feet below water at J1A
Northeast Cape
August 3, 2011
Direction: Northwest

Photograph 16 Excavation of POL-contaminated soil at A1
Northeast Cape
August 5, 2011
Direction: North

Photograph 17 Buried debris and underground piping exposed at southern extent of A1 excavation Northeast Cape
August 6, 2011 Direction: Southwest

Photograph 18 Mobile lab samples being collected at the A1 excavation Northeast Cape
August 9, 2011 Direction: Northwest

Photograph 19   Breaking up concrete at the MOC   Northeast Cape
August 9, 2011   Direction: South

Photograph 20   An oil-containing drum uncovered   Northeast Cape
In the southeast corner of the J1A excavation
August 15, 2011   Direction: Southeast

Photograph 21 Northwest sidewall of A1 showing newly excavated area Northeast Cape
August 19, 2011 Direction: Northwest

Photograph 22 Groundwater flowing into deepened A1 excavation Northeast Cape
August 20, 2011 Direction: North

Photograph 23 Lined sumps with filtered water from dewatering area at the MOC
Northeast Cape
August 25, 2011
Direction: Northwest

Photograph 24 Excavating POL hot spots at the A1 plume
Northeast Cape
September 3, 2011
Direction: Southwest

Photograph 25 Backfilling the J1A excavation Northeast Cape
September 14, 2011 Direction: West

Job Site: 13 Heat and Power

Photograph 26 Baseline sampling of the future stockpile location Northeast Cape
July 19, 2011 Direction: South

Photograph 27 Removing clean overburden from Site 13 Northeast Cape
July 20, 2011 Direction: South

Photograph 28 Bulk bag preparation at Site 13 Northeast Cape
August 22, 2011 Direction: Northwest

Photograph 29 Eric Barnhill of Bristol performs discrete sampling from a grid
July 24, 2011

Northeast Cape

Direction: N/A

Photograph 30 Site 13 excavations with sampling grid
July 26, 2011

Northeast Cape

Direction: South

Photograph 31 Setting up load frames for bulk bags Northeast Cape
July 26, 2011 Direction: North

Photograph 32 A concrete slab and wood frame in the bottom of Site 13 excavation Northeast Cape
July 27 2011 Direction: West

Photograph 33 Setting up a sampling grid at Site 13 Northeast Cape
August 2, 2011 Direction: Southeast

Photograph 34 Site 13 excavation Northeast Cape
August 10, 2011 Direction: South

Photograph 35 Collecting samples from bulk bags from Site 13 Northeast Cape
August 22, 2011 Direction: Northwest

Photograph 36 Utility corridor, pipe and wires buried in southwestern section of excavation Northeast Cape
September 11, 2011 Direction: Southwest

Photograph 37 Concrete removal, material to be used as backfill at A1 excavation Northeast Cape
September 11, 2011 Direction: North

Photograph 38 Liner installations at Site 13 Northeast Cape
September 24, 2011 Direction: South

Photograph 39 Site 13 excavation during bag-armoring operations — Northeast Cape
September 26, 2011 — Direction: Southwest

Job Site: 31 White Alice Communication Station

Photograph 40 Sample locations for future stockpile area — Northeast Cape
July 20, 2011 — Direction: North

Photograph 41 Exposing the Site 31 excavation Northeast Cape
July 21, 2011 Direction: Southwest

Photograph 42 Excavation of Site 31 Northeast Cape
July 23, 2011 Direction: North

Photograph 43 Site 31 excavation area and sampling grid Northeast Cape
July 25, 2011 Direction: North

Photograph 44 Water pooling behind berm at Site 31 Northeast Cape
July 29, 2011 Direction: North

Photograph 45 Sampling grid for possible stockpile location at Site 31 — Northeast Cape
August 7, 2011 — Direction: North

Photograph 46 Excavating and bulk bagging polychlorinated biphenyls- (PCB-) contaminated soil — Northeast Cape
August 18, 2011 — Direction: South

Photograph 47 Concrete wipe-sample locations 16 and 17 marked with orange marking paint — Northeast Cape
September 16, 2011 — Direction: East

Photograph 48 Sidewall sampling with excavator and sampling attachment — Northeast Cape
September 18, 2011 — Direction: Southeast

Photograph 49 Placing liner in the Site 31 excavation Northeast Cape
September 25, 2011 Direction: Northeast

Photograph 50 Site 31 excavation rimmed with bulk bags Northeast Cape
September 26, 2011 Direction: North

Job Site: Roofing Tar Area

Photograph 51 Removal area and resulting stockpile Northeast Cape
July 31, 2011 Direction: Southeast

Photograph 52 Roofing tar stockpile with Northeast Cape
Lyndsey Kleppin of Bristol in the foreground
July 18, 2011 Direction: North

Photograph 53 Roofing tar stockpile Northeast Cape
July 18, 2011 Direction: West

Photograph 54 Confirmation sampling at the Tar Removal Area Northeast Cape
August 7, 2011 Direction: Southwest

Job Site: 28

Photograph 55 Site 28 background location Northeast Cape
July 17, 2011 Direction: North

Photograph 56 Transect sample locations Northeast Cape
at Site 28
August 13, 2011 Direction: South

Photograph 57 Sampling at Site 28 with Julie Clark of Bristol
Northeast Cape
August 14, 2011
Direction: South

Photograph 58 Soil sampling with Charles Kava and Julie Clark
Northeast Cape
August 18, 2011
Direction: Southeast

Job Site: 21

Photograph 59 The background area for Site 21 Northeast Cape
July 22, 2011 Direction: South

Photograph 60 Northeast Cape
Site 21 background sample location
July 22, 2011 Direction: South

Photograph 61 Example of soil at a background sample location Northeast Cape
July 22, 2011 Direction: N/A

Photograph 62 Background soil sample Northeast Cape
July 22, 2011 Direction: N/A

Photograph 63 Site 21 after excavation and confirmation sampling Northeast Cape
August 21, 2011 Direction: South

Job Site: Miscellaneous

Photograph 64 Monitoring well sampling Northeast Cape
July 16, 2011 Direction: South

Photograph 65 Fuel containment area Northeast Cape
July 15, 2011 Direction: South

Photograph 66 ECO-Land, LLC, surveying the NE Cape Site Northeast Cape
July 18, 2011 Direction: West

Photograph 67 Surface water sample collection at Site 8 Northeast Cape
July 23, 2011 Direction: South

Photograph 68 Bulk bags being loaded onto flats at Cargo Beach Northeast Cape
July 31, 2011 Direction: West

Photograph 69 Loading a Northland barge with bulk bags at Cargo Beach | Northeast Cape
October 7, 2011 | Direction: South

Photograph 70 Metal debris was machine and hand-picked during site work | Northeast Cape
July 30, 2011 | Direction: North

Photograph 71 Screen plant operations at Pad 98 Northeast Cape
August 11, 2011 Direction: West

Photograph 72 Chuck Croley of Bristol gives members of Kukulget Corporation a tour of the site Northeast Cape
August 27, 2011 Direction: South

Photograph 73 Collecting surface water samples from drainage between Site 9 and the Saqitughneq River — Northeast Cape
August 28, 2011 — Direction: North

Photograph 74 Road regrading and repair — Northeast Cape
July 3, 2011 — Direction: North

Photograph 75 Nunaniq landing craft unloading flats to load bulk bags
Northeast Cape
September 28, 2011
Direction: East

Photograph 76 The majority of the equipment parked for the winter
Northeast Cape
October 10, 2011
Direction: South

Photograph 77 Empty Northland flats are all that is left on Cargo Beach for the winter — Northeast Cape
October 10, 2011 — Direction: East

Photograph 78 Containers and ISO tanks secured for the winter on the shop pad — Northeast Cape
October 12, 2011 — Direction: Southwest

Photograph 79 Demobilization of the camp Northeast Cape
October 12, 2011 Direction: North

APPENDIX D

Chemical Data Quality Report

TABLE OF CONTENTS

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TABLES

ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
Bristol	Bristol Environmental Remediation Services, LLC
BTEX	benzene, toluene, ethylbenzene, and xylenes
CoC	chain-of-custody
DL	detection limit
DoD	Department of Defense
DQO	data quality objective
DRO	diesel-range organics
GRO	gasoline-range organics
HTRW	Hazardous, Toxic, and Radioactive Waste
LCS	laboratory control sample
LCSD	laboratory control sample duplicate
LOD	limit of detection
LOQ	limit of quantitation
MBs	method blanks
MOC	Main Operations Complex
MS	matrix spike
MSD	matrix spike duplicate
NE Cape	Northeast Cape, St. Lawrence Island, Alaska
PAHs	polynuclear aromatic hydrocarbons
PCBs	polychlorinated biphenyls
QAPP	Quality Assurance Project Plan
QC	quality control
Report	Data Verification Report
RL	reporting limit
RPD	relative percent difference
RRO	residual-range organics
SIM	selected ion mode
SVOCs	semivolatile organic compounds
SW	U.S. EPA Solid Waste Method

ACRONYMS AND ABBREVIATIONS (continued)

TADC	TestAmerica Laboratories, Inc., Denver, Colorado
TATW	TestAmerica Laboratories, Inc., Tacoma, Washington
TCLP	toxicity characteristic leaching procedure
TCX	tetrachloro-m-xylene
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

This Data Verification Report (Report) has been completed on the submitted data packages in accordance with an agreement between Bristol Environmental Remediation Services, LLC (Bristol), and the U.S. Army Corps of Engineers (USACE), Alaska District. As per this agreement, all laboratory results were generated as part of work on the Remedial Actions at Northeast Cape (NE Cape), St. Lawrence Island, Alaska. The USACE assigned this project to Bristol under Contract No. W911KB-06-D-0007.

Data verification for this report was performed on the data collected as part of the Remedial Actions at NE Cape in 2011 at Sites 8, 9, 13, 21, 31, the Main Operations Complex (MOC), and the Tar Removal Area. Data verification is a process for evaluating the completeness, correctness, consistency, compliance with method procedures and quality control (QC) requirements, and identification of anomalous data. The reported project sample values, as well as any method laboratory control samples extracted or prepared with the project samples were reviewed. Specifically, the following items were reviewed in this data verification:

- Sample receipt conditions:
  - Sample preservation,
  - Cooler temperatures upon receipt,
  - Chain-of-custody (CoC) condition/correspondence to submitted sample set, and
  - Presence/absence of custody seals.
- Extraction and analytical procedures:
  - Holding times,
  - Method blanks (MBs),
  - Laboratory control samples (LCSs)/laboratory control sample duplicates (LCSDs),
  - Matrix spike (MS)/matrix spike duplicate (MSD),
  - Duplicate samples, and
  - Surrogate recoveries.
- Sampling procedures:
  - Field blanks,
  - Trip blanks,
  - Equipment blanks, and

   - Field duplicate samples.
- Correspondence to method criteria and project data quality objectives (DQOs)

Unless otherwise discussed in this document, the above parameters were within control limits specified in the NE Cape HTRW Remedial Actions Quality Assurance Project Plan (QAPP) dated July, 2011. If control limits were not specified in the QAPP, laboratory control limits were used for review.

No information on internal standards, calibrations, instrument tunes, chromatograms, quantitation reports, spectra, summaries identifying any analytical irregularities and the subsequent corrective action taken by the laboratories, and results from any other analytical procedures other than those listed above were reviewed and are not included in this Report. Laboratory narratives were examined and any documented calibration or other QC outliers were included as appropriate in this Report.

Data verification was performed in accordance with:

- *NE Cape HTRW Remedial Actions Northeast Cape, St. Lawrence Island, Alaska Quality Assurance Project Plan (QAPP)* (July, 2011);
- *Department of Defense (DoD) Quality Systems Manual*, Version 4.1 (2009); and
- Alaska Department of Environmental Conservation (ADEC) Technical Memorandum: *Environmental Laboratory and Quality Assurance Requirements* (Updated March 2009).

Precision and accuracy were assessed by comparing surrogate, MS/MSD and LCS/LCSD recoveries and relative percent differences (RPDs) to the QAPP-specified control limits. The frequency of QC samples was compared to the frequency specified in the QAPP. The MS/MSDs performed on non-project samples are not applicable, and were not evaluated.

The reviewed data sets include data from samples collected for the NE Cape Remedial Actions from July through September 2011 which were analyzed by TestAmerica Laboratories, Inc., Tacoma, Washington (TATW) and TestAmerica Laboratories, Inc., Denver, Colorado (TADC). TADC was specified as a backup for overflow samples in the QAPP. The following methods were utilized for the analysis of the samples:

- Benzene, toluene, ethylbenzene, and xylenes (BTEX) by U.S. Environmental Protection Agency (USEPA) Solid Waste (SW-846) Methods 5030B/8260B;
- Volatile organic compounds (VOCs) by SW-846 methods 5030B/8260B;
- Gasoline-range organics (GRO) by ADEC method AK101;
- Diesel-range organics (DRO) and residual-range organics (RRO) by ADEC method AK102/103;
- DRO and RRO by ADEC method AK102/103 with silica gel clean-up;
- Methane by RSK 175;
- Semivolatile organic compounds (SVOCs) by SW-846 method 3550B/8270C.
- Polynuclear aromatic hydrocarbons (PAHs) by SW-846 method 3510C (or 3520C)//8270C (waters) or 3550B (or 3550C)/8270C (soils) selected ion mode (SIM);
- Polychlorinated biphenyls (PCBs) by SW-846 method 3510C (or 3520C)/8082 (waters) or 3550B/8082 (soils);
- Total organic carbon (TOC)-Quad by SW-846 9060;
- Metals by SW-846 methods 3005A/6020 (waters) or 3050B/6020 (soils);
- Mercury by SW-846 method 7470A (waters);

The sites sampled, laboratory work order numbers, and laboratory used for analysis are presented in Table 1-0.

Table 1-0 Laboratory Work Order Numbers

Site	Sample Matrix	Work Order Number	Laboratory
Site 8	Soil	580-27899-1	TATW
	Water	580-27899-1	TATW
	Water	580-27633-2	TATW
Site 9	Water	580-28786-2	TATW
Site 13	Soil	280-20054	TADC
		280-20410	TADC
		280-20698	TADC
Site 21	Soil	580-27633-1	TATW
		580-28199-1	TATW
Site 31	Soil	280-20446	TADC
		580-28787	TATW
MOC	Soil	280-20411-1	TADC
		580-27882-1	TATW
		580-28199-1	TATW
		580-28350-1	TATW
		580-28786-1	TATW
	Water	280-20500-1	TADC
		580-27518-1	TATW
		580-28349-1	TATW
Tar Removal Area	Soil	580-27899-1	TATW

Notes:
MOC = Main Operations Complex
TADC = TestAmerica Denver, Colorado
TATW = TestAmerica Tacoma, Washington

Analytical results tables are presented in Appendix A. The tables include sample IDs, which reference the year (11), the project (NC) for NE Cape, the site (-09 for site 9), the matrix (SS for soil sample) and the sample location or LocID. The LocID indicates the specific site at NE Cape, as well as a specific location within the sites. For samples composited for PCB analysis, the composite sample IDs were assigned at the laboratory and were unique per Laboratory Work Order. However, there are instances when the same IDs were used for a single sampling event (e.g. 11NC13SS Composite 30). Therefore, when composite sample IDs are referenced, a laboratory ID will also be included for clarification.

Data qualifiers assigned during the data review are included on the results tables in Appendix A. The following data qualifiers may be used to identify data points when data verification determines that results should be qualified because of a potential bias in the result, or a deviation from method or QAPP QC procedures:

- J – Analyte result is considered an estimated value because the level is below the laboratory limit of quantitation (LOQ) but above the detection limit (DL) (formerly the method detection limit).
- ND (LOD) – Analyte result is less than the DL. The non-detected result has the limit of detection (LOD) in parentheses.
- R – Analyte result is rejected – result is not usable. Note that “R” replaces the chemical result (no result shall be reported with an “R” flag).
- B – Analyte result is considered a high estimated value due to contamination present in the method or trip blank. Results less than 10 times the reported method blank concentration will be B flagged to indicate bias.
- MH, ML, MN – Analyte result is considered an estimated value biased (high, low, uncertain) due to matrix effects.
- QH, QL, QN – Analyte result is considered an estimated value biased (high, low, uncertain) due to a quality control failure.

2.0 DATA VERIFICATION

Data verification was performed for samples collected from each site as follows:

- Site 8: Four soil samples and 30 water samples including one soil field duplicate, three water field duplicates, plus one trip blank;
- Site 9: Five surface water samples including one field duplicate plus a trip blank;
- Site 13: 87 Composite soil samples and 383 discrete samples including 20 field duplicates;
- Site 21: 18 Soil samples including two field duplicates;
- Site 31: 70 Composite soil samples and 323 discrete samples including 7 field duplicates;
- Tar Removal Area: 24 samples including three field duplicates.
- MOC: 14 water samples, 69 soil samples and two tar samples including two water field duplicates and 12 soil field duplicates.

Field sample numbers, corresponding laboratory numbers, and analyses are presented in Tables 2-0.1 through 2-0.7. Notes defining acronyms used on the tables follow Table 2-0.7.

Table 2-0.1 Site 8

Field Sample Identification	Laboratory Sample Number	Location ID	Methane (RSK 175)	TOC (9060)	DRO/RRO (AK102/103)	DRO/RRO with Silica Gel (AK102/103)	PAHs (8270C SIM)	Remarks
Site 8 Water:								
11NC08WA001	580-27899-27	LDU D9	X					
11NC08WA002	580-27899-28	LDU C8	X					
11NC08WA003	580-27899-29	LDU C7	X					
11NC08WA004	580-27899-30	LDU C5	X					
11NC08WA005	580-27899-31	LDU A3	X					
11NC08WA006	580-27899-32	LDU B3	X					
11NC08WA007	580-27899-33	LDU C2	X					
11NC08WA008	580-27899-34	LDU D1	X					
11NC08WA009	580-27899-35	LDU B3	X					FD of 11NC08WA008
11NC08WA010	580-27899-36	MDU A2	X					
11NC08WA011	580-27899-37	MDU B3	X					
11NC08WA012	580-27899-38	MDU A3	X					
11NC08WA013	580-27899-39	MDU A4	X					FD of 11NC08WA012
11NC08WA014	580-27899-40	MDU C5	X					
11NC08WA015	580-27899-41	MDU B6	X					
11NC08WA016	580-27899-42	MDU B7	X					
11NC08WA017	580-27899-43	MDU D1	X					
11NC08WA018	580-27899-44	MDU C5	X					
11NC08WA019	580-27899-45	UDU A1	X					FD of 11NC08WA018
11NC08WA020	580-27899-46	UDU D1	X					
11NC08WA021	580-27899-47	UDU C2	X					
11NC08WA022	580-27899-48	UDU A3	X					*continued*

Table 2-0.1 Site 8

Field Sample Identification	Laboratory Sample Number	Location ID	Methane (RSK 175)	TOC (9060)	DRO/RRO (AK102/103)	DRO/RRO with Silica Gel (AK102/103)	PAHs (8270C SIM)	Remarks
11NC08WA023	580-27899-49	UDU C3	X					
11NC08WA024	580-27899-50	UDU D5	X					
11NC08WA025	580-27899-51	UDU D8	X					
11NC08WA026	580-27899-52	UDU B9	X					
11NC08WA027	580-27899-53	UDU B9	X					FD of 11NC08WA026
080811#1-Methane Trip Blank	580-27899-58		X					
Site 8 Surface Water:								
11NC08WA01	580-27633-11	8-01			X		X	MS/MSD
11NC08WA02	580-27633-12	8-02			X		X	
11NC08WA03	580-27633-13	8-02			X		X	FD of 11NC08WA02
Site 8 Soil Composite:								
11NC08SS001	580-27899-54	UDU-1		X	X	X	X	MS/MSD
11NC08SS002	580-27899-55	MDU-1		X	X	X	X	
11NC08SS003	580-27899-56	LDU-1		X	X	X	X	
11NC08SS004	580-27899-57	LDU-1		X	X	X	X	FD of 11NC08SS004

Table 2-0.2 Site 9

Field Sample Identification	Laboratory Sample Number	Location ID	VOCs (SW8260B)	Remarks
Site 9 Surface Water:				
11NC09WA006	580-28786-14	009-01	X	MS/MSD
11NC09WA007	580-28786-15	009-02	X	
11NC09WA008	580-28786-16	009-03	X	
11NC09WA009	580-28786-17	009-04	X	
11NC09WA010	580-28786-18	009-04	X	FD of 11NC09WA009
Trip Blank 1	580-28786-19		X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS001	280-20054-1	013-01	X	MS/MSD
11NC13SS003	280-20054-3	013-03	X	MS/MSD
11NC13SS004	280-20054-4	013-04	X	MS/MSD
11NC13SS006	280-20054-6	013-06	X	
11NC13SS007	280-20054-7	013-07	X	
11NC13SS009	280-20054-9	013-09	X	
11NC13SS010	280-20054-10	013-10	X	
11NC13SS011	280-20054-11	013-11	X	
11NC13SS012	280-20054-12	013-12	X	
11NC13SS013	280-20054-13	013-13	X	
11NC13SS014	280-20054-14	013-14	X	
11NC13SS015	280-20054-15	013-15	X	
11NC13SS016	280-20054-16	013-16	X	
11NC13SS022	280-20054-22	013-22	X	
11NC13SS024	280-20054-24	013-24	X	
11NC13SS025	280-20054-25	013-25	X	
11NC13SS026	280-20054-26	013-26	X	
11NC13SS027	280-20054-27	013-27	X	
11NC13SS030	280-20054-30	013-30	X	
11NC13SS031	280-20054-31	013-31	X	
11NC13SS036	280-20054-36	013-36	X	MS/MSD
11NC13SS037	280-20054-37	013-37	X	
11NC13SS039	280-20054-39	013-39	X	MS/MSD
11NC13SS042	280-20054-42	013-42	X	
11NC13SS043	280-20054-43	013-43	X	
11NC13SS046	280-20054-46	013-46	X	MS/MSD
11NC13SS047	280-20054-47	013-47	X	
11NC13SS048	280-20054-48	013-48	X	
11NC13SS049	280-20054-49	013-49	X	
11NC13SS050	280-20054-50	013-50	X	
11NC13SS051	280-20054-51	013-51	X	
11NC13SS052	280-20054-52	013-52	X	
11NC13SS053	280-20054-53	013-53	X	
11NC13SS054	280-20054-54	013-54	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS055	280-20054-55	013-55	X	
11NC13SS056	280-20054-56	013-56	X	
11NC13SS057	280-20054-57	013-57	X	
11NC13SS058	280-20054-58	013-58	X	
11NC13SS059	280-20054-59	013-59	X	
11NC13SS060	280-20054-60	013-60	X	
11NC13SS061	280-20054-61	013-61	X	
11NC13SS062	280-20054-62	013-62	X	
11NC13SS070	280-20054-70	013-70	X	
11NC13SS079	280-20054-79	013-79	X	MS/MSD
11NC13SS080	280-20054-80	013-80	X	
11NC13SS081	280-20054-81	013-81	X	
11NC13SS082	280-20054-82	013-82	X	
11NC13SS083	280-20054-83	013-83	X	
11NC13SS084	280-20054-84	013-84	X	
11NC13SS085	280-20054-85	013-85	X	
11NC13SS086	280-20054-86	013-86	X	
11NC13SS087	280-20054-87	013-87	X	
11NC13SS088	280-20054-88	013-88	X	
11NC13SS089	280-20054-89	013-89	X	
11NC13SS096	280-20054-96	013-96	X	
11NC13SS097	280-20054-97	013-97	X	
11NC13SS105	280-20054-105	013-105	X	
11NC13SS108	280-20054-108	013-108	X	
11NC13SS111	280-20054-111	013-111	X	
11NC13SS114	280-20054-114	013-114	X	
11NC13SS123	280-20054-123	013-123	X	
11NC13SS124	280-20054-124	013-124	X	
11NC13SS125	280-20054-125	013-125	X	
11NC13SS126	280-20054-126	013-126	X	
11NC13SS127	280-20054-127	013-127	X	
11NC13SS128	280-20054-128	013-128	X	
11NC13SS129	280-20054-129	013-129	X	
11NC13SS130	280-20054-130	013-130	X	
11NC13SS131	280-20054-131	013-131	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS138	280-20054-138	013-138	X	11NC13SS009 FD
11NC13SS139	280-20054-139	013-139	X	11NC13SS010 FD
11NC13SS140	280-20054-140	013-140	X	11NC13SS011 FD
11NC13SS141	280-20054-141	013-141	X	
11NC13SS142	280-20054-142	013-142	X	
11NC13SS143	280-20054-143	013-143	X	
11NC13SS144	280-20054-144	013-144	X	
11NC13SS145	280-20054-145	013-145	X	11NC13SS030 FD, MS/MSD
11NC13SS Composite 1	280-20054-146		X	
11NC13SS Composite 2	280-20054-147		X	
11NC13SS Composite 3	280-20054-148		X	
11NC13SS Composite 4	280-20054-149		X	
11NC13SS Composite 5	280-20054-150		X	
11NC13SS Composite 6	280-20054-151		X	
11NC13SS Composite 7	280-20054-152		X	
11NC13SS Composite 8	280-20054-153		X	
11NC13SS Composite 9	280-20054-154		X	
11NC13SS Composite 10	280-20054-155		X	MS/MSD
11NC13SS Composite 11	280-20054-156		X	
11NC13SS Composite 12	280-20054-157		X	
11NC13SS Composite 13	280-20054-158		X	
11NC13SS Composite 14	280-20054-159		X	
11NC13SS Composite 15	280-20054-160		X	
11NC13SS Composite 16	280-20054-161		X	
11NC13SS Composite 17	280-20054-162		X	
11NC13SS Composite 18	280-20054-163		X	
11NC13SS Composite 19	280-20054-164		X	
11NC13SS Composite 20	280-20054-165		X	
11NC13SS Composite 21	280-20054-166		X	MS/MSD
11NC13SS Composite 22	280-20054-167		X	
11NC13SS Composite 23	280-20054-168		X	
11NC13SS Composite 24	280-20054-169		X	
11NC13SS Composite 25	280-20054-170		X	
11NC13SS Composite 26	280-20054-171		X	
11NC13SS Composite 27	280-20054-172		X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS Composite 28	280-20054-173		X	
11NC13SS Composite 29	280-20054-174		X	
11NC13SS Composite 30	280-20054-175		X	
11NC13SS Composite 31	280-20054-176		X	
11NC13SS Composite 32	280-20054-177		X	
11NC13SS Composite 33	280-20054-178		X	
11NC13SS Composite 34	280-20054-179		X	MS/MSD
11NC13SS Composite 35	280-20054-180		X	
11NC13SS Composite 36	280-20054-181		X	
11NC13SS146	280-20410-1	013-146	X	
11NC13SS149	280-20410-4	013-149	X	
11NC13SS150	280-20410-5	013-150	X	
11NC13SS151	280-20410-6	013-151	X	
11NC13SS152	280-20410-7	013-152	X	
11NC13SS Composite 1	280-20410-32		X	
11NC13SS Composite 2	280-20410-33		X	
11NC13SS Composite 3	280-20410-34		X	
11NC13SS Composite 4	280-20410-35		X	
11NC13SS Composite 5	280-20410-36		X	
11NC13SS Composite 6	280-20410-37		X	
11NC13SS Composite 7	280-20410-38		X	
11NC13SS Composite 8	280-20410-39		X	
11NC13SS Composite 9	280-20410-40		X	
11NC13SS177	280-20698-1	013-177	X	
11NC13SS178	280-20698-2	013-178	X	
11NC13SS181	280-20698-5	013-181	X	
11NC13SS182	280-20698-6	013-182	X	
11NC13SS183	280-20698-7	013-183	X	
11NC13SS184	280-20698-8	013-184	X	
11NC13SS191	280-20698-15	013-191	X	
11NC13SS195	280-20698-19	013-195	X	
11NC13SS210	280-20698-34	013-210	X	
11NC13SS211	280-20698-35	013-211	X	
11NC13SS214	280-20698-38	013-214	X	
11NC13SS216	280-20698-40	013-216	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS223	280-20698-47	013-223	X	
11NC13SS225	280-20698-49	013-225	X	
11NC13SS226	280-20698-50	013-226	X	
11NC13SS227	280-20698-51	013-227	X	
11NC13SS230	280-20698-54	013-230	X	
11NC13SS231	280-20698-55	013-231	X	
11NC13SS236	280-20698-60	013-236	X	
11NC13SS237	280-20698-61	013-237	X	
11NC13SS238	280-20698-62	013-238	X	
11NC13SS241	280-20698-65	013-241	X	MS/MSD
11NC13SS242	280-20698-66	013-242	X	MS/MSD
11NC13SS243	280-20698-67	013-243	X	
11NC13SS244	280-20698-68	013-244	X	
11NC13SS245	280-20698-69	013-245	X	
11NC13SS246	280-20698-70	013-246	X	
11NC13SS247	280-20698-71	013-247	X	
11NC13SS248	280-20698-72	013-248	X	
11NC13SS249	280-20698-73	013-249	X	
11NC13SS250	280-20698-74	013-250	X	
11NC13SS251	280-20698-75	013-251	X	MS/MSD
11NC13SS252	280-20698-76	013-252	X	
11NC13SS255	280-20698-79	013-255	X	
11NC13SS256	280-20698-80	013-256	X	
11NC13SS257	280-20698-81	013-257	X	
11NC13SS258	280-20698-82	013-258	X	
11NC13SS259	280-20698-83	013-259	X	MS/MSD
11NC13SS260	280-20698-84	013-260	X	MS/MSD
11NC13SS261	280-20698-85	013-261	X	
11NC13SS262	280-20698-86	013-262	X	
11NC13SS263	280-20698-87	013-263	X	
11NC13SS264	280-20698-88	013-264	X	
11NC13SS265	280-20698-89	013-265	X	
11NC13SS266	280-20698-90	013-266	X	
11NC13SS267	280-20698-91	013-267	X	
11NC13SS268	280-20698-92	013-291	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS269	280-20698-93	013-269	X	
11NC13SS270	280-20698-94	013-270	X	
11NC13SS271	280-20698-95	013-271	X	
11NC13SS272	280-20698-96	013-272	X	
11NC13SS273	280-20698-97	013-273	X	MS/MSD
11NC13SS274	280-20698-98	013-274	X	MS/MSD
11NC13SS275	280-20698-99	013-275	X	MS/MSD
11NC13SS276	280-20698-100	013-276	X	
11NC13SS278	280-20698-102	013-278	X	
11NC13SS279	280-20698-103	013-279	X	
11NC13SS280	280-20698-104	013-280	X	
11NC13SS281	280-20698-105	013-281	X	
11NC13SS282	280-20698-106	013-282	X	
11NC13SS283	280-20698-107	013-283	X	
11NC13SS284	280-20698-108	013-284	X	
11NC13SS285	280-20698-109	013-285	X	
11NC13SS286	280-20698-110	013-286	X	
11NC13SS287	280-20698-111	013-287	X	
11NC13SS288	280-20698-112	013-288	X	
11NC13SS289	280-20698-113	013-289	X	
11NC13SS290	280-20698-114	013-290	X	
11NC13SS291	280-20698-115	013-291	X	
11NC13SS295	280-20698-119	013-295	X	
11NC13SS296	280-20698-120	013-296	X	MS/MSD
11NC13SS297	280-20698-121	013-297	X	
11NC13SS298	280-20698-122	013-298	X	
11NC13SS299	280-20698-123	013-299	X	
11NC13SS300	280-20698-124	013-300	X	
11NC13SS301	280-20698-125	013-301	X	
11NC13SS302	280-20698-126	013-302	X	
11NC13SS303	280-20698-127	013-303	X	
11NC13SS304	280-20698-128	013-304	X	
11NC13SS305	280-20698-129	013-305	X	
11NC13SS306	280-20698-130	013-306	X	
11NC13SS307	280-20698-131	013-307	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS308	280-20698-132	013-308	X	
11NC13SS309	280-20698-133	013-309	X	
11NC13SS310	280-20698-134	013-310	X	
11NC13SS311	280-20698-135	013-311	X	
11NC13SS312	280-20698-136	013-312	X	
11NC13SS313	280-20698-137	013-313	X	
11NC13SS314	280-20698-138	013-314	X	
11NC13SS315	280-20698-139	013-315	X	
11NC13SS316	280-20698-140	013-316	X	
11NC13SS317	280-20698-141	013-317	X	
11NC13SS318	280-20698-142	013-318	X	
11NC13SS321	280-20698-145	013-321	X	
11NC13SS322	280-20698-146	013-322	X	
11NC13SS323	280-20698-147	013-323	X	
11NC13SS324	280-20698-148	013-324	X	
11NC13SS325	280-20698-149	013-325	X	
11NC13SS326	280-20698-150	013-326	X	
11NC13SS327	280-20698-151	013-327	X	
11NC13SS330	280-20698-154	013-330	X	
11NC13SS331	280-20698-155	013-331	X	
11NC13SS332	280-20698-156	013-332	X	
11NC13SS333	280-20698-157	013-333	X	
11NC13SS334	280-20698-158	013-334	X	
11NC13SS335	280-20698-159	013-335	X	
11NC13SS336	280-20698-160	013-336	X	
11NC13SS337	280-20698-161	013-337	X	
11NC13SS338	280-20698-162	013-338	X	
11NC13SS339	280-20698-163	013-339	X	
11NC13SS340	280-20698-164	013-340	X	
11NC13SS341	280-20698-165	013-341	X	
11NC13SS342	280-20698-166	013-342	X	
11NC13SS343	280-20698-167	013-343	X	MS/MSD
11NC13SS344	280-20698-168	013-344	X	
11NC13SS345	280-20698-169	013-345	X	
11NC13SS346	280-20698-170	013-346	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS347	280-20698-171	013-347	X	
11NC13SS348	280-20698-172	013-348	X	
11NC13SS349	280-20698-173	013-349	X	
11NC13SS350	280-20698-174	013-350	X	
11NC13SS351	280-20698-175	013-351	X	
11NC13SS352	280-20698-176	013-352	X	
11NC13SS353	280-20698-177	013-353	X	
11NC13SS354	280-20698-178	013-354	X	
11NC13SS355	280-20698-179	013-355	X	
11NC13SS356	280-20698-180	013-356	X	
11NC13SS357	280-20698-181	013-357	X	
11NC13SS358	280-20698-182	013-358	X	
11NC13SS359	280-20698-183	013-359	X	MS/MSD
11NC13SS360	280-20698-184	013-360	X	
11NC13SS362	280-20698-186	013-362	X	
11NC13SS363	280-20698-187	013-363	X	
11NC13SS368	280-20698-192	013-368	X	
11NC13SS373	280-20698-197	013-373	X	
11NC13SS379	280-20698-203	013-379	X	
11NC13SS380	280-20698-204	013-380	X	
11NC13SS381	280-20698-205	013-381	X	
11NC13SS382	280-20698-206	013-382	X	
11NC13SS383	280-20698-207	013-383	X	
11NC13SS384	280-20698-208	013-384	X	
11NC13SS385	280-20698-209	013-385	X	
11NC13SS386	280-20698-210	013-386	X	
11NC13SS387	280-20698-211	013-387	X	
11NC13SS388	280-20698-212	013-388	X	
11NC13SS389	280-20698-213	013-389	X	
11NC13SS390	280-20698-214	013-390	X	
11NC13SS391	280-20698-215	013-391	X	
11NC13SS392	280-20698-216	013-392	X	
11NC13SS393	280-20698-217	013-393	X	
11NC13SS394	280-20698-218	013-394	X	
11NC13SS395	280-20698-219	013-395	X	MS/MSD

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS396	280-20698-220	013-396	X	
11NC13SS397	280-20698-221	013-397	X	
11NC13SS398	280-20698-222	013-398	X	
11NC13SS399	280-20698-223	013-399	X	
11NC13SS400	280-20698-224	013-400	X	
11NC13SS401	280-20698-225	013-401	X	
11NC13SS402	280-20698-226	013-402	X	
11NC13SS403	280-20698-227	013-403	X	
11NC13SS404	280-20698-228	013-404	X	
11NC13SS405	280-20698-229	013-405	X	
11NC13SS406	280-20698-230	013-406	X	
11NC13SS407	280-20698-231	013-407	X	
11NC13SS408	280-20698-232	013-408	X	
11NC13SS419	280-20698-243	013-195	X	11NC13SS195 FD
11NC13SS420	280-20698-244	013-216	X	11NC13SS216 FD
11NC13SS421	280-20698-245	013-226	X	11NC13SS226 FD
11NC13SS422	280-20698-246	013-237	X	11NC13SS237 FD
11NC13SS423	280-20698-247	013-280	X	11NC13SS280 FD
11NC13SS424	280-20698-248	013-281	X	11NC13SS281 FD
11NC13SS425	280-20698-249	013-283	X	11NC13SS283 FD
11NC13SS426	280-20698-250	013-289	X	11NC13SS289 FD
11NC13SS427	280-20698-251	013-284	X	11NC13SS284 FD
11NC13SS428	280-20698-252	013-285	X	11NC13SS285 FD, MS/MSD
11NC13SS429	280-20698-253	013-286	X	11NC13SS286 FD
11NC13SS430	280-20698-254	013-287	X	11NC13SS287 FD
11NC13SS431	280-20698-255	013-288	X	11NC13SS288 FD
11NC13SS432	280-20698-256	013-282	X	11NC13SS282 FD
11NC13SS433	280-20698-257	013-301	X	11NC13SS301 FD
11NC13SS434	280-20698-258	013-302	X	11NC13SS302 FD
11NC13SS435	280-20698-259	013-435	X	
11NC13SS436	280-20698-260	013-436	X	
11NC13SS437	280-20698-261	013-437	X	
11NC13SS438	280-20698-262	013-438	X	
11NC13SS439	280-20698-263	013-439	X	
11NC13SS440	280-20698-264	013-440	X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS441	280-20698-265	013-441	X	
11NC13SS442	280-20698-266	013-442	X	
11NC13SS443	280-20698-267	013-443	X	
11NC13SS444	280-20698-268	013-444	X	
11NC13SS445	280-20698-269	013-445	X	MS/MSD
11NC13SS446	280-20698-270	013-446	X	MS/MSD
11NC13SS447	280-20698-271	013-447	X	
11NC13SS Composite 1	280-20698-272		X	
11NC13SS Composite 2	280-20698-273		X	
11NC13SS Composite 3	280-20698-274		X	
11NC13SS Composite 4	280-20698-275		X	
11NC13SS Composite 5	280-20698-276		X	
11NC13SS Composite 6	280-20698-277		X	
11NC13SS Composite 7	280-20698-278		X	
11NC13SS Composite 8	280-20698-279		X	
11NC13SS Composite 9	280-20698-280		X	
11NC13SS Composite 10	280-20698-281		X	
11NC13SS Composite 11	280-20698-282		X	
11NC13SS Composite 12	280-20698-283		X	
11NC13SS Composite 13	280-20698-284		X	
11NC13SS Composite 14	280-20698-285		X	
11NC13SS Composite 15	280-20698-286		X	
11NC13SS Composite 16	280-20698-287		X	
11NC13SS Composite 17	280-20698-288		X	
11NC13SS Composite 18	280-20698-289		X	
11NC13SS Composite 19	280-20698-290		X	
11NC13SS Composite 20	280-20698-291		X	
11NC13SS Composite 21	280-20698-292		X	
11NC13SS Composite 22	280-20698-293		X	
11NC13SS Composite 23	280-20698-294		X	
11NC13SS Composite 24	280-20698-295		X	
11NC13SS Composite 25	280-20698-296		X	
11NC13SS Composite 26	280-20698-297		X	
11NC13SS Composite 27	280-20698-298		X	
11NC13SS Composite 28	280-20698-299		X	

Table 2-0.3 Site 13 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC13SS Composite 29	280-20698-300		X	
11NC13SS Composite 30	280-20698-301		X	
11NC13SS Composite 31	280-20698-302		X	
11NC13SS Composite 32	280-20698-303		X	
11NC13SS Composite 33	280-20698-304		X	
11NC13SS Composite 34	280-20698-305		X	
11NC13SS Composite 35	280-20698-306		X	
11NC13SS Composite 36	280-20698-307		X	
11NC13SS Composite 37	280-20698-308		X	
11NC13SS Composite 38	280-20698-309		X	MS/MSD
11NC13SS Composite 39	280-20698-310		X	
11NC13SS Composite 40	280-20698-311		X	
11NC13SS Composite 41	280-20698-312		X	
11NC13SS Composite 42	280-20698-313		X	

Table 2-0.4 Site 21

Field Sample Identification	Laboratory Sample Number	Location ID	Arsenic (6020)	Remarks
Site 21 Soil:				
11NC21SS01	580-27633-1	21-01	X	
11NC21SS02	580-27633-2	21-02	X	
11NC21SS03	580-27633-3	21-03	X	
11NC21SS04	580-27633-4	21-04	X	
11NC21SS05	580-27633-5	21-05	X	
11NC21SS06	580-27633-6	21-06	X	
11NC21SS07	580-27633-7	21-07	X	MS/MSD
11NC21SS08	580-27633-8	21-08	X	
11NC21SS09	580-27633-9	21-09	X	
11NC21SS10	580-27633-10	21-03	X	FD of 11NC21SS03
11NC21SS001	580-28199-5	21-001	X	
11NC21SS002	580-28199-6	21-002	X	MS/MSD
11NC21SS003	580-28199-7	21-003	X	
11NC21SS004	580-28199-8	21-004	X	
11NC21SS005	580-28199-9	21-005	X	
11NC21SS006	580-28199-10	21-006	X	
11NC21SS007	580-28199-11	21-004	X	FD of 11NC21SS004
11NC21SS008	580-28199-12	21-008	X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS001	280-20446-1	031-01	X	
11NC31SS002	280-20446-2	031-02	X	
11NC31SS003	280-20446-3	031-03	X	
11NC31SS004	280-20446-4	031-04	X	
11NC31SS005	280-20446-5	031-05	X	MS/MSD
11NC31SS007	280-20446-7	031-07	X	
11NC31SS008	280-20446-8	031-08	X	
11NC31SS010	280-20446-10	031-10	X	
11NC31SS011	280-20446-11	031-11	X	
11NC31SS012	280-20446-12	031-12	X	
11NC31SS014	280-20446-14	031-14	X	
11NC31SS015	280-20446-15	031-15	X	
11NC31SS016	280-20446-16	031-16	X	
11NC31SS017	280-20446-17	031-17	X	
11NC31SS020	280-20446-20	031-20	X	
11NC31SS021	280-20446-21	031-21	X	
11NC31SS022	280-20446-22	031-22	X	
11NC31SS023	280-20446-23	031-23	X	
11NC31SS024	280-20446-24	031-24	X	
11NC31SS025	280-20446-25	031-25	X	
11NC31SS026	280-20446-26	031-26	X	
11NC31SS027	280-20446-27	031-27	X	
11NC31SS028	280-20446-28	031-28	X	
11NC31SS029	280-20446-29	031-29	X	
11NC31SS030	280-20446-30	031-30	X	
11NC31SS031	280-20446-31	031-31	X	
11NC31SS032	280-20446-32	031-32	X	
11NC31SS033	280-20446-33	031-33	X	
11NC31SS034	280-20446-34	031-34	X	
11NC31SS035	280-20446-35	031-35	X	
11NC31SS036	280-20446-36	031-36	X	
11NC31SS039	280-20446-39	031-39	X	
11NC31SS040	280-20446-40	031-40	X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS044	280-20446-44	031-44	X	MS/MSD
11NC31SS047	280-20446-47	031-47	X	
11NC31SS048	280-20446-48	031-48	X	
11NC31SS049	280-20446-49	031-49	X	
11NC31SS050	280-20446-50	031-50	X	
11NC31SS051	280-20446-51	031-51	X	
11NC31SS052	280-20446-52	031-52	X	
11NC31SS053	280-20446-53	031-53	X	
11NC31SS054	280-20446-54	031-54	X	
11NC31SS063	280-20446-63	031-63	X	MS/MSD
11NC31SS067	280-20446-67	031-67	X	
11NC31SS068	280-20446-68	031-68	X	MS/MSD
11NC31SS071	280-20446-71	031-71	X	
11NC31SS072	280-20446-72	031-72	X	
11NC31SS073	280-20446-73	031-73	X	
11NC31SS074	280-20446-74	031-74	X	
11NC31SS075	280-20446-75	031-75	X	
11NC31SS076	280-20446-76	031-76	X	
11NC31SS077	280-20446-77	031-77	X	
11NC31SS078	280-20446-78	031-78	X	
11NC31SS079	280-20446-79	031-79	X	
11NC31SS080	280-20446-80	031-80	X	
11NC31SS081	280-20446-81	031-81	X	
11NC31SS082	280-20446-82	031-82	X	
11NC31SS083	280-20446-83	031-83	X	
11NC31SS084	280-20446-84	031-84	X	MS/MSD
11NC31SS085	280-20446-85	031-85	X	
11NC31SS086	280-20446-86	031-86	X	
11NC31SS087	280-20446-87	031-87	X	
11NC31SS088	280-20446-88	031-88	X	
11NC31SS089	280-20446-89	031-89	X	
11NC31SS096	280-20446-96	031-96	X	
11NC31SS097	280-20446-97	031-97	X	
11NC31SS098	280-20446-98	031-98	X	
11NC31SS099	280-20446-99	031-99	X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS100	280-20446-100	031-100	X	
11NC31SS101	280-20446-101	031-101	X	
11NC31SS102	280-20446-102	031-102	X	
11NC31SS104	280-20446-104	031-104	X	
11NC31SS106	280-20446-106	031-106	X	
11NC31SS107	280-20446-107	031-107	X	
11NC31SS108	280-20446-108	031-108	X	
11NC31SS109	280-20446-109	031-109	X	
11NC31SS110	280-20446-110	031-110	X	
11NC31SS113	280-20446-113	031-113	X	
11NC31SS114	280-20446-114	031-114	X	
11NC31SS115	280-20446-115	031-115	X	
11NC31SS116	280-20446-116	031-116	X	
11NC31SS117	280-20446-117	031-117	X	
11NC31SS118	280-20446-118	031-118	X	
11NC31SS119	280-20446-119	031-119	X	
11NC31SS124	280-20446-124	031-124	X	
11NC31SS125	280-20446-125	031-125	X	
11NC31SS126	280-20446-126	031-126	X	
11NC31SS127	280-20446-127	031-127	X	
11NC31SS128	280-20446-128	031-128	X	
11NC31SS129	280-20446-129	031-129	X	
11NC31SS130	280-20446-130	031-130	X	
11NC31SS132	280-20446-132	031-132	X	
11NC31SS133	280-20446-133	031-133	X	
11NC31SS134	280-20446-134	031-134	X	
11NC31SS135	280-20446-135	031-135	X	MS/MSD
11NC31SS139	280-20446-139	031-139	X	
11NC31SS140	280-20446-140	031-140	X	
11NC31SS141	280-20446-141	031-141	X	
11NC31SS142	280-20446-142	031-142	X	
11NC31SS143	280-20446-143	031-143	X	
11NC31SS144	280-20446-144	031-144	X	
11NC31SS145	280-20446-145	031-145	X	
11NC31SS146	280-20446-146	031-146	X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS147	280-20446-147	031-147	X	
11NC31SS148	280-20446-148	031-148	X	
11NC31SS150	280-20446-150	031-150	X	MS/MSD
11NC31SS151	280-20446-151	031-151	X	
11NC31SS152	280-20446-152	031-152	X	
11NC31SS153	280-20446-153	031-153	X	
11NC31SS154	280-20446-154	031-154	X	
11NC31SS155	280-20446-155	031-155	X	
11NC31SS158	280-20446-158	031-158	X	
11NC31SS159	280-20446-159	031-159	X	
11NC31SS160	280-20446-160	031-160	X	
11NC31SS165	280-20446-165	031-165	X	
11NC31SS166	280-20446-166	031-166	X	MS/MSD
11NC31SS169	280-20446-169	031-169	X	
11NC31SS170	280-20446-170	031-170	X	
11NC31SS173	280-20446-173	031-173	X	
11NC31SS174	280-20446-174	031-174	X	
11NC31SS181	280-20446-181	031-181	X	
11NC31SS182	280-20446-182	031-002	X	11NC31SS002 FD
11NC31SS183	280-20446-183	031-4	X	11NC31SS004 FD
11NC31SS184	280-20446-184	031-8	X	11NC31SS008 FD
11NC31SS185	280-20446-185	031-21	X	11NC31SS021 FD
11NC31SS186	280-20446-186	031-34	X	11NC31SS034 FD
11NC31SS187	280-20446-187	031-36	X	11NC31SS036 FD
11NC31SS188	280-20446-188	031-39	X	
11NC31SS189	280-20446-189	031-40	X	
11NC31SS Composite 1	280-20446-201		X	
11NC31SS Composite 2	280-20446-202		X	
11NC31SS Composite 3	280-20446-203		X	
11NC31SS Composite 4	280-20446-204		X	
11NC31SS Composite 5	280-20446-205		X	
11NC31SS Composite 6	280-20446-206		X	
11NC31SS Composite 7	280-20446-207		X	
11NC31SS Composite 8	280-20446-208		X	
11NC31SS Composite 9	280-20446-209		X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS Composite 10	280-20446-210		X	
11NC31SS Composite 11	280-20446-211		X	
11NC31SS Composite 12	280-20446-212		X	
11NC31SS Composite 13	280-20446-213		X	
11NC31SS Composite 14	280-20446-214		X	MS/MSD
11NC31SS Composite 15	280-20446-215		X	MS/MSD
11NC31SS Composite 16	280-20446-216		X	MS/MSD
11NC31SS Composite 17	280-20446-217		X	
11NC31SS Composite 18	280-20446-218		X	
11NC31SS Composite 19	280-20446-219		X	
11NC31SS Composite 20	280-20446-220		X	
11NC31SS Composite 21	280-20446-221		X	
11NC31SS Composite 22	280-20446-222		X	
11NC31SS Composite 23	280-20446-223		X	
11NC31SS Composite 24	280-20446-224		X	
11NC31SS Composite 25	280-20446-225		X	
11NC31SS Composite 26	280-20446-226		X	
11NC31SS Composite 27	280-20446-227		X	
11NC31SS Composite 28	280-20446-228		X	
11NC31SS Composite 29	280-20446-229		X	
11NC31SS Composite 30	280-20446-230		X	
11NC31SS Composite 31	280-20446-231		X	
11NC31SS Composite 32	280-20446-232		X	
11NC31SS Composite 33	280-20446-233		X	
11NC31SS Composite 34	280-20446-234		X	
11NC31SS Composite 35	280-20446-235		X	
11NC31SS Composite 36	280-20446-236		X	
11NC31SS Composite 37	280-20446-237		X	
11NC31SS Composite 38	280-20446-238		X	
11NC31SS Composite 39	280-20446-239		X	
11NC31SS Composite 40	280-20446-240		X	
11NC31SS Composite 41	280-20446-241		X	
11NC31SS Composite 42	280-20446-242		X	
11NC31SS Composite 43	280-20446-243		X	
11NC31SS Composite 44	280-20446-244		X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS Composite 45	280-20446-245		X	
11NC31SS Composite 46	280-20446-246		X	
11NC31SS Composite 47	280-20446-247		X	
11NC31SS Composite 48	280-20446-248		X	
11NC31SS201	580-28787-1	031-20	X	
11NC31SS202	580-28787-2	031-202	X	
11NC31SS203	580-28787-3	031-203	X	
11NC31SS204	580-28787-4	031-204	X	
11NC31SS207	580-28787-7	031-207	X	
11NC31SS208	580-28787-8	031-208	X	
11NC31SS209	580-28787-9	031-209	X	
11NC31SS210	580-28787-10	031-210	X	
11NC31SS211	580-28787-11	031-21	X	
11NC31SS214	580-28787-14	031-214	X	
11NC31SS215	580-28787-15	031-215	X	
11NC31SS216	580-28787-16	031-216	X	
11NC31SS217	580-28787-17	031-217	X	
11NC31SS218	580-28787-18	031-218	X	
11NC31SS220	580-28787-20	031-220	X	
11NC31SS222	580-28787-22	031-222	X	
11NC31SS223	580-28787-23	031-223	X	
11NC31SS225	580-28787-25	031-225	X	MS/MSD
11NC31SS226	580-28787-26	031-226	X	MS/MSD
11NC31SS233	580-28787-33	031-233	X	
11NC31SS236	580-28787-36	031-236	X	
11NC31SS237	580-28787-37	031-237	X	
11NC31SS238	580-28787-38	031-238	X	
11NC31SS239	580-28787-39	031-239	X	
11NC31SS240	580-28787-40	031-240	X	
11NC31SS253	580-28787-53	031-253	X	
11NC31SS275	580-28787-75	031-275	X	MS/MSD
11NC31SS276	580-28787-76	031-276	X	MS/MSD
11NC31SS277	580-28787-77	031-277	X	
11NC31SS278	580-28787-78	031-278	X	
11NC31SS279	580-28787-79	031-279	X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
11NC31SS288	580-28787-88	031-214	X	
11NC31SS289	580-28787-89	031-215	X	
11NC31SS290	580-28787-90	031-216	X	
11NC31SS291	580-28787-91	031-236	X	11NC31SS236 FD
11NC31SS292	580-28787-92	031-237	X	
11NC31SS295	580-28787-95	031-295	X	
11NC31SS296	580-28787-96	031-296	X	
11NC31SS297	580-28787-97	031-297	X	
11NC31SS298	580-28787-98	031-298	X	
11NC31SS299	580-28787-99	031-299	X	
11NC31SS300	580-28787-100	031-300	X	
11NC31SS301	580-28787-101	031-30	X	
11NC31SS302	580-28787-102	031-301	X	
11NC31SS303	580-28787-103	031-303	X	
11NC31SS304	580-28787-104	031-304	X	
11NC31SS305	580-28787-105	031-305	X	
11NC31SS306	580-28787-106	031-306	X	
11NC31SS307	580-28787-107	031-307	X	
Comp Group 1	580-28787-124		X	
Comp Group 2	580-28787-128		X	
Comp Group 3	580-28787-114		X	
Comp Group 4	580-28787-115		X	
Comp Group 5	580-28787-109		X	
Comp Group 6	580-28787-123		X	
Comp Group 7	580-28787-127		X	
Comp Group 8	580-28787-122		X	
Comp Group 9	580-28787-110		X	
Comp Group 10	580-28787-121		X	
Comp Group 11	580-28787-111		X	
Comp Group 12	580-28787-116		X	
Comp Group 13	580-28787-126		X	
Comp Group 14	580-28787-108		X	
Comp Group 15	580-28787-113		X	
Comp Group 16	580-28787-117		X	
Comp Group 17	580-28787-120		X	

Table 2-0.5 Site 31 Soils

Field Sample Identification	Laboratory Sample Number	Location ID	PCB (SW8082)	Remarks
Comp Group 18	580-28787-125		X	
Comp Group 19	580-28787-112		X	
Comp Group 20	580-28787-118		X	
Comp Group 21	580-28787-119		X	
Comp Group 22	580-28787-129		X	

Table 2-0.6 Tar Removal Area

Field Sample Identification	Laboratory Sample Number	Location ID	PAHs (8270C SIM)	SVOCs (SW82670C)	Remarks
MOC Tar Results:					
11NCTAR001	580-27899-1	TAR-1		X	MS/MSD
11NCTAR002	580-27899-2	TAR-1		X	
Soil for Tar Removal Area:					
11NCTARSS001	580-27899-3	TAR-2	X		MS/MSD
11NCTARSS002	580-27899-4	TAR-3	X		
11NCTARSS003	580-27899-5	TAR-4	X		
11NCTARSS004	580-27899-6	TAR-5	X		
11NCTARSS005	580-27899-7	TAR-6	X		
11NCTARSS006	580-27899-8	TAR-7	X		
11NCTARSS007	580-27899-9	TAR-8	X		
11NCTARSS008	580-27899-10	TAR-9	X		
11NCTARSS009	580-27899-11	TAR-10	X		
11NCTARSS010	580-27899-12	TAR-11	X		
11NCTARSS011	580-27899-13	TAR-12	X		
11NCTARSS012	580-27899-14	TAR-15	X		
11NCTARSS013	580-27899-15	TAR-14	X		
11NCTARSS014	580-27899-16	TAR-15	X		MS/MSD
11NCTARSS015	580-27899-17	TAR-16	X		
11NCTARSS016	580-27899-18	TAR-17	X		
11NCTARSS017	580-27899-19	TAR-18	X		
11NCTARSS018	580-27899-20	TAR-19	X		
11NCTARSS019	580-27899-21	TAR-20	X		
11NCTARSS020	580-27899-22	TAR-21	X		
11NCTARSS021	580-27899-23	TAR-22	X		
11NCTARSS022	580-27899-24	TAR-12	X		FD of 11NCTARSS011
11NCTARSS023	580-27899-25	TAR-17	X		FD of 11NCTARSS016
11NCTARSS024	580-27899-26	TAR-9	X		FD of 11NCTARSS008

Table 2-0.7 Site MOC

Field Sample Identification	Laboratory Sample Number	Location ID	BTEX (SW8260B)	Methane (RSK 175)	GRO (AK101)	DRO/RRO (AK102/103)	PAHs (8270C SIM)	PCB (SW8082)	Total Metals (SW6020/7470A)	Dissolved Metals (SW6020/7470A))	Remarks
MOC Ground Water:											
11NCMOCWA01	580-27518-1	MW-10-1	X	X	X	X	X	X	X	X	
11NCMOCWA02	580-27518-2	26MW1	X	X	X	X	X	X	X	X	MS/MSD
11NCMOCWA03	580-27518-3	22MW2	X	X	X	X	X	X	X	X	
11NCMOCWA04	580-27518-4	20MW1	X	X	X	X	X	X	X	X	
11NCMOCWA05	580-27518-5	17MW1	X	X	X	X	X	X	X	X	
11NCMOCWA06	580-27518-6	MW88-5	X	X	X	X	X	X	X	X	
11NCMOCWA07	580-27518-7	MW88-5	X	X	X	X	X	X	X	X	FD of 11NCMOCWA06
11NCMOCWA08	580-27518-8	MW88-4	X	X	X	X	X	X	X	X	
11NCMOCWA09	580-27518-9	MW-88-1	X	X	X	X	X	X	X	X	
11NCMOCWA10	580-27518-10	MW88-10	X	X	X	X	X	X	X	X	
Trip Blank	580-27518-11		X		X						
MOC Impoundment Water:											
11NCMOCWA011	580-28349-1	11NCMOC026	X				X				MS/MSD
11NCMOCWA012	580-28349-2	11NCMOC026	X				X				FD of 11NCMOCWA011
11NCMOCWA013	280-20500-1	Pad98Sump	X				X				MS/MSD
11NCMOCWA014	280-20500-2	Pad98Sump	X				X				
MOC Soil:											
11NCMOCSS001	580-27882-1	MOCJ1A001				X					
11NCMOCSS002	580-27882-2	MOCJ1A002				X					
11NCMOCSS003	580-27882-3	MOCJ1A003				X					RRO MS/MSD
11NCMOCSS004	580-27882-4	MOCJ1A004				X					
11NCMOCSS005	580-27882-5	MOCJ1A005				X					
11NCMOCSS006	580-27882-6	MOCJ1A006				X					

Table 2-0.7 Site MOC

Field Sample Identification	Laboratory Sample Number	Location ID	BTEX (SW8260B)	Methane (RSK 175)	GRO (AK101)	DRO/RRO (AK102/103)	PAHs (8270C SIM)	PCB (SW8082)	Total Metals (SW6020/7470A)	Dissolved Metals (SW6020/7470A))	Remarks
11NCMOCSS007	580-27882-7	MOCJ1A007				X					
11NCMOCSS008	580-27882-8	MOCJ1A008				X					DRO MS/MSD
11NCMOCSS009	580-27882-9	MOCJ1A009				X					RRO MS/MSD
11NCMOCSS010	580-27882-10	MOCJ1A010				X					DRO MS/MSD
11NCMOCSS011	580-27882-11	MOCJ1A011				X					
11NCMOCSS012	580-27882-12	MOCJ1A012				X					
11NCMOCSS013	580-27882-13	MOCJ1A013				X					FD of 11NCMOCSS020
11NCMOCSS014	580-27882-14	MOCJ1A014				X					FD of 11NCMOCSS021
11NCMOCSS015	580-27882-15	MOCJ1A015				X					
11NCMOCSS016	580-27882-16	MOCJ1A016				X					
11NCMOCSS017	580-27882-17	MOCJ1A017				X					
11NCMOCSS018	580-27882-18	MOCJ1A018				X					
11NCMOCSS019	580-27882-19	MOCJ1A019				X					
11NCMOCSS020	580-27882-20	MOCJ1A013				X					
11NCMOCSS021	580-27882-21	MOCJ1A014				X					
11NCMOCSS022	580-28199-1	MOCJ1A022				X					MS/MSD
11NCMOCSS023	580-28199-2	MOCJ1A023				X					
11NCMOCSS024	580-28199-3	MOCJ1A024				X					
11NCMOCSS025	580-28199-4	MOCJ1A023				X					FD of 11NCMOCSS023
11NCMOCSS026	580-28350-1	MOCJ1A001				X					
11NCMOCSS027	580-28350-2	MOCJ1A002				X					
11NCMOCSS028	580-28350-3	MOCJ1A003				X					
11NCMOCSS029	580-28350-4	MOCJ1A004				X					
11NCMOCSS030	580-28350-5	MOCJ1A005				X					
11NCMOCSS031	580-28350-6	MOCJ1A006				X					MS/MSD
11NCMOCSS032	580-28350-7	MOCJ1A007				X					
11NCMOCSS035	580-28350-8	MOCJ1A011				X					

Table 2-0.7 Site MOC

Field Sample Identification	Laboratory Sample Number	Location ID	BTEX (SW8260B)	Methane (RSK 175)	GRO (AK101)	DRO/RRO (AK102/103)	PAHs (8270C SIM)	PCB (SW8082)	Total Metals (SW6020/7470A)	Dissolved Metals (SW6020/7470A))	Remarks
11NCMOCSS036	580-28350-9	MOCJ1A011				X					
11NCMOCSS037	580-28350-10	MOCJ1A012				X					
11NCMOCSS040	580-28350-13	MOCJ1A015				X					
11NCMOCSS041	580-28350-14	MOCJ1A016				X					
11NCMOCSS042	580-28350-15	MOCJ1A017				X					
11NCMOCSS043	580-28350-16	MOCJ1A018				X					
11NCMOCSS044	580-28350-17	MOCJ1A019				X					
11NCMOCSS045	580-28350-18	MOCJ1A020				X					
11NCMOCSS046	580-28350-19	MOCJ1A021				X					
11NCMOCSS047	580-28350-20	MOCJ1A022				X					MS/MSD
11NCMOCSS048	580-28350-21	MOCJ1A023				X					
11NCMOCSS049	580-28350-22	MOCJ1A024				X					
11NCMOCSS050	580-28350-23	MOCJ1A008				X					
11NCMOCSS051	580-28350-24	MOCJ1A011				X					FD of 11NCMOCSS036
11NCMOCSS052	580-28350-25	MOCJ1A009				X					
11NCMOCSS053	280-20411-1	MOCJ1A053				X					
11NCMOCSS054	280-20411-2	MOCJ1A054				X					MS/MSD
11NCMOCSS055	280-20411-3	MOCJ1A055				X					FD of 11NCMOCSS053
11NCMOCSS056	280-20411-4	MOCJ1A056				X					FD of 11NCMOCSS054
11NCMOCSS057	280-20411-5	MOCJ1A057				X					
11NCMOCSS058	280-20411-6	MOCJ1A058				X					
11NCMOCSS059	280-20411-7	MOCJ1A059				X					
11NCMOCSS060	280-20411-8	MOCJ1A060				X					
11NCMOCSS061	580-28786-1	MOCJ1A061				X					
11NCMOCSS062	580-28786-2	MOCJ1A062				X					
11NCMOCSS063	580-28786-3	MOCJ1A063				X					
11NCMOCSS064	580-28786-4	MOCJ1A064				X					

Table 2-0.7 Site MOC

Field Sample Identification	Laboratory Sample Number	Location ID	BTEX (SW8260B)	Methane (RSK 175)	GRO (AK101)	DRO/RRO (AK102/103)	PAHs (8270C SIM)	PCB (SW8082)	Total Metals (SW6020/7470A)	Dissolved Metals (SW6020/7470A))	Remarks
11NCMOCSS065	580-28786-5	MOCJ1A065				X					
11NCMOCSS066	580-28786-6	MOCJ1A066				X					
11NCMOCSS067	580-28786-7	MOCJ1A067				X					
11NCMOCSS068	580-28786-8	MOCJ1A068				X					MS/MSD
11NCMOCSS069	580-28786-9	MOCJ1A069				X					
11NCMOCSS070	580-28786-10	MOCJ1A070				X					
11NCMOCSS071	580-28786-11	MOCJ1A071				X					
11NCMOCSS072	580-28786-12	MOCJ1A067				X					FD of 11NCMOCSS067
11NCMOCSS073	580-28786-13	MOCJ1A065				X					FD of 11NCMOCSS065

Notes:

AK	=	State of Alaska Method	MSD	=	matrix spike duplicate
BTEX	=	benzene, toluene, ethylbenzene, xylene	PAHs	=	polynuclear aromatic hydrocarbons
DRO	=	diesel range organics	PCBs	=	polychlorinated biphenyls
FD	=	field duplicate	RRO	=	residual range organics
GRO	=	gasoline range organics	SIM	=	selective ion monitoring
ID	=	identifier	SVOCs	=	semivolatile organic compounds
MOC	=	Main Operations Complex	TOC	=	total organic carbon
MS	=	matrix spike	VOCs	=	volatile organic compounds

2.1 Sample Receipt Conditions

The laboratory performing the analyses also received the samples. No inter-lab sample transfers were performed. With the exceptions listed below, samples were received within 0-6 degrees Celsius, and in good condition.

Site 8 (Lab Work Order 580-27633-2): One of the three coolers received on July 27, 2011 was at a cooler receipt temperature of 6.3 °C and the temperature blank reading was 6.6 °C.

Since the average temperature rounds to 6 °C, results, the three associated DRO/RRO and PAH surface water samples were not qualified.

Site 13 (Lab Work Order 280-20410): The CoC indicated three containers were submitted from 11NC13SS155 for a MS/MSD associated with Composite 1, however only one container was received. Three containers were received for sample 11NC13SS165, which was not included in Composite 1, and the CoC indicated one container was submitted. Because this sample was not included in the Composite requested for MS/MSD analyses, the requested MS/MSD sample was not performed due to inadequate sample volume. The client was notified and no further action was taken.

Site 13 (Lab Work Order 280-20054): Following sample receipt**,** the laboratory was directed to modify a composite noted on the CoC; sample 11NC12SS031 was to be included in 11NC13SS Composite 21 instead of 11NC13SS Composite mix 31 as directed on the CoC.

Site 13 (Lab Work Order 280-20698): The CoC indicated additional containers were submitted from 11NC13SS261 for MS/MSD, however only one was received. Subsequently, the client directed the laboratory to perform MS/MSD analyses on samples 11NC13SS259 and 11NC13SS260.

The sample "NCS13SS Composite 30" was requested by the client following sample receipt at the laboratory and this specific sample composite was not listed on the CoC associated with the samples collected 9/21/2011. The laboratory narrative indicated the composite consists of samples 11NC13SS363, 11NC13SS192, and 11NC13SS197 (Laboratory IDs: 20698-187, -192, and -197).

Site 21 (Lab Work Order 580-27633-1): One of the three coolers received on July 27, 2011 was at a cooler receipt temperature of 6.3 °C and the temperature blank reading was 6.6 °C. Since the average temperature rounds to 6 °C, results, and the method does not require cooling of soil arsenic samples, the ten associated arsenic soil samples were not qualified.

Site 31 (Lab Work Order 280-20446): The lab received instructions following sample receipt to modify the discrete samples combined in 11NC31SS Composite 5. Field sample

11NC31SS003 and 11NC31SS005 were included in Composite 5 rather than into the originally designated 11NC31SS Composite 3.

Tar Removal Area (Lab Work Order 580-27899): Tar samples (11NCTAR001 and 11NCTAR002) were originally submitted as toxicity characteristic leaching procedure (TCLP) SVOC samples; however, during the TCLP extraction the matrix became non-filterable for extraction and after consultation with the client, the analysis was switched to total SVOCs.

MOC Site

Lab Work Order 580-27518: One of the VOC vials for sample 11NCMOCWA02 was mis-labeled as 11NCMOCWA01, with the collection date and time of sample 11NCMOCWA02. The laboratory determine this VOC vial belonged to sample 11NCMOCWA02 based on the collection time and the overall number of containers.

The sampling time on the sample label did not match the time listed on the CoC for sample 11NCMOCWA10 (580-27518-10). The laboratory used the time listed on the CoC. In addition, the COC listed 16 containers for sample 11NCMOCWA08 (580-27518-8), however, 17 containers were received.

Lab Work Order 580-28349 (2 BTEX and PAH Water samples): The sample dates and times on the sample containers did not match the CoC. The laboratory logged the samples in according to the CoC.

Lab Work Order 580-28350: For DRO/RRO soil sample 11NCMOCSS046 (580-28350-19), no collection time was listed on sample container. This sample was logged and labeled according to the collection time reported on the COC.

Lab Work Order 580-28786 (soil DRO/RRO): The cooler received on September 22, 2011 was at a cooler receipt temperature of 8.9 °C and the temperature blank reading was 5.7 °C. Since the one of temperature reading was within the 6 °C criterion, results for the thirteen associated DRO/RRO soil samples were not qualified.

2.2 BTEX ANALYSES

TestAmerica analyzed samples for BTEX by SW-846 method 8260B. The sample QC batches are summarized in Table 2-2.1.

Table 2-2.1 BTEX QC Batches

Site	QC Batch	QC Batch Date	Matrix
MOC	280-87732	09/24/2011	Water
MOC	580-91253	07/26/2011	Water
MOC	580-94936	09/09/2011	Water

Notes:
BTEX = benzene, toluene, ethylbenzene, and xylenes
MOC = Main Operations Complex
QC = quality control

Required QC for an analytical batch of up to 20 samples includes an MB, LCS/LCSD, and MS/MSD pair. An MB, LCS/LCSD, and MS/MSD pair were analyzed with each batch with the exception that no LCSD was analyzed with batch 280-87732.

The following items were reviewed and met QAPP criteria: holding times, MB, surrogate recoveries, LCS/LCSD recoveries and RPDs, and MS/MSD RPDs.

The laboratory reported surrogate recoveries for fluorobenzene, trifluorotoluene, and ethylbenzene-d10 rather than the QAPP specified surrogates 1,2-dichloroethane-d4 and dibromofluoromethane for water samples reported in SDG 580-27518-1. This discrepancy has not affected data quality and qualifiers were not assigned.

MS/MSD recoveries were outside QAPP Worksheet #12-14 control limits as follows:

Site	Spiked Sample	Analyte	%R	Control Limits
MOC	11NCMOCWA013	Benzene	65/--	80-120
		Ethylbenzene	60/--	75-125
		m&p-Xylenes	60/--	75-130
		o-Xylene	59/78	80-120
		Toluene	65/--	75-120
		Xylenes, total	60/--	75-130

-- - In control
%R = percent recovery

All results associated with an MS or MSD recovery less than the lower control limit were ML qualified to indicate the potential for bias due to matrix.

Associated samples were those collected from the same site and from the same matrix.

2.3 VOC ANALYSES

TestAmerica analyzed samples for VOCs by SW-846 method 8260B. The sample QC batch is summarized in Table 2-3.1.

Table 2-3.1 VOC QC Batches

Site	QC Batch	QC Batch Date	Matrix
Site 9	580-96554	9/30/11	Water

Notes:
QC = quality control

Required QC for an analytical batch of up to 20 samples includes an MB, LCS/LCSD, and MS/MSD pair. An MB, LCS and MS/MSD pair were performed with each QC batch. An LCSD was not analyzed.

The following items were reviewed and met QAPP criteria: holding times, MBs, surrogate recoveries, LCS recoveries, and MS/MSD RPDs.

The laboratory reported surrogate recoveries for fluorobenzene, trifluorotoluene, and ethylbenzene-d10 rather than the QAPP specified surrogates 1,2-dichloroethane-d4 and dibromofluoromethane for water samples reported in SDG 580-28786-2. This discrepancy has not affected data quality and qualifiers were not assigned.

Two of the surrogates reported were different than those listed in the QAPP. The two QAPP surrogates analyzed (4-bromofluorobenzene and toluene-d8) were within QAPP limits and the three extra surrogates were within the laboratory QC limits.

MS/MSD recoveries were outside control limits as follows:

Site/Spiked Sample	Analyte	%R	Control Limits
Site 9/ 11NC09WA006	1,1,2,2-Tetrachloroethane	78/78	80-130

%R = percent recovery

All results associated with MS/MSD recoveries less than the lower control limit were ML qualified to indicate the potential for bias due to matrix. , Associated samples were those collected from the same site and from the same matrix.

2.4 METHANE ANALYSES

TestAmerica analyzed samples for methane by RSK 175. The sample QC batches are summarized in Table 2-4.1.

Table 2-4.1 Methane QC Batches

Site	QC Batch	QC Batch Date	Matrix
Site 8	280-81710	08/16/2011	Water
Site 8	280-81840	08/17/2011	Water
MOC	680-210181	07/26/2011	Water
MOC	680-210182	07/26/2011	Water
MOC	680-210414	07/28/2011	Water

Notes:
MOC = Main Operations Complex
QC = quality control

A MB and LCS/LCSD were performed with each batch. Additionally, per the QAPP frequency, project MS/MSD pairs were analyzed on a 1 per 20 frequency. Also, two laboratory duplicates were analyzed for batch 280-81710 and one laboratory duplicate was analyzed for batch 280-81840. The laboratory duplicates were performed due to insufficient sample volume for MS/MSD analysis.

The following items were reviewed and met QAPP criteria: holding times, MB, and LCSD recoveries and RPDs, MS/MSD recoveries and RPDs, and laboratory duplicate RPDs.

LCS/LCSD recoveries were outside QAPP control limits as follows:

Site	QC Batch	Analyte	%R	Control Limits
MOC Water	680-210181	Methane	121/--	80-120

-- - In control
%R = percent recovery

Associated detected results were QH qualified to indicate an estimated value with a potential high bias.

2.5 GRO ANALYSES

TestAmerica analyzed samples for GRO by ADEC method AK101. The sample QC batches are summarized in Table 2-5.1.

Table 2-5.1 GRO QC Batches

Site	QC Batch	QC Batch Date	Matrix
MOC	580-91108	07/25/2011	Water
MOC	580-91209	07/26/2011	Water
MOC	580-91108	07/24/2011	Water
MOC	580-91209	07/26/2011	Water

Notes:
GRO = gasoline-range organics
MOC = Main Operations Complex
QC = quality control

Required QC for an analytical batch of up to 20 samples includes an MB, LCS/LCSD pair, and MS/MSD pair. An MB, and LCS/LCSD pair were performed with each batch.

Additionally, per the QAPP frequency, project MS/MSD pairs were analyzed on a 1 per 20 frequency.

The following items were reviewed and met QAPP criteria: holding times, surrogate recoveries, LCS/LCSD recoveries and RPDs, and MS/MSD recoveries and RPDs.

GRO was detected in the batch method blanks as shown below. Associated detected results were <10 times the blank concentrations and were qualified B to indicate the potential for a false positives or high bias.

Site	Laboratory Work Order	Batch	Analytes	Units	Concentration
MOC Water	580-27518-1	580-91108	GRO	ug/L	0.0169 J

2.6 SVOC Analyses

TestAmerica analyzed samples by method SW-846 8270C. The extraction batches are summarized in Table 2-6.1.

Table 2-6.1 SVOC QC Batches

Site	QC Batch	QC Batch Dates	Matrix
Tar Samples	580-93174	08/18/2011	Tar

Notes:
SVOC = semivolatile organic compounds
QC = quality control

Required QC for an analytical batch of up to 20 samples includes an MB, LCS/LCSD, and MS/MSD pair. An MB, LCS/LCSD and MS/MSD pair were performed with each QC batch.

The following items were reviewed and met QAPP criteria: MBs, surrogate recoveries, LCS/LCSD recoveries and RPDs, and MS/MSD recoveries.

The holding time of 14 days from collection to sample prep was exceeded for the tar samples listed below. These samples were originally submitted as TCLP SVOC samples; however, during the TCLP extraction the matrix became non-filterable for extraction and after consultation with the client, the analysis was switched to total SVOCs. This scenario caused a delay in the total SVOC extraction. SVOC results were not detected and QL qualified and are considered to be estimated with a low bias.

Site	Sample No.	Analyte	Days Over Hold Time
Tar Samples	11NCTAR001	SVOCs	4
	11NCTAR002	SVOCs	3

The MS/MSD RPD for 2-methylphenol was above the limit of 25% (30%). 2-Methylphenol was not detected in the samples and results did not require qualification.

2.7 PCB ANALYSES

TestAmerica analyzed samples by method SW-846 8082. The extraction batches are summarized in Table 2-7.1.

Table 2-7.1 PCB QC Batches

QC Batch	QC Batch Date	QC Batch	QC Batch Date
Site 13 Soils			
280-85400	9/9/2011	280-88008	9/27/2011
280-85404	9/9/2011	280-88102	9/27/2011
280-85409	9/9/2011	280-88109	9/27/2011
280-85411	9/10/2011	280-88148	9/28/2011
280-85535	9/12/2011	280-88364	9/29/2011
280-85541	9/12/2011	280-88520	9/29/2011
280-86158	9/15/2011	280-88527	9/29/2011
280-86293	9/15/2011	280-88530	9/29/2011
280-86355	9/15/2011	280-89262	10/04/2011
280-86671	9/18/2011	280-89277	10/4/2011
280-87966	9/27/2011	280-89514	10/5/2011
280-88001	9/27/2011	280-89522	10/5/2011
Site 31 Soils			
280-87321	9/22/2011	280-88269	9/28/2011
280-87329	9/22/2011	280-88275	9/28/2011
280-87335	9/22/2011	280-88940	10/3/2011
280-87356	9/22/2011	580-96409	9/29/2011

QC Batch	QC Batch Date	QC Batch	QC Batch Date
280-87383	9/22/2011	580-96415	9/29/2011
280-87408	9/22/2011	580-96420	9/29/2011
280-88165	9/28/2011	580-96447	9/29/2011
280-88217	9/28/2011		
MOC Waters			
580-91024	07/22/2011		

Notes:

MOC = Main Operations Complex
PCB = polychlorinated biphenyl
QC = quality control

Required QC for an analytical batch of up to 20 samples includes an MB, LCS, and MS/MSD pair. A MB, LCS/LCSD, and MS/MSD pair was analyzed with each batch with the exception that an MS/MSD pair was not associated with the following QC extraction batches: 280-86671, 280-89262, 280-89277, and 280-88940.

The following items were reviewed and met QAPP criteria: MBs and LCS/LCSD recoveries and RPDs.

2.7.1 Holding Times

The soil hold time criteria of 14 days to extraction and 40 days from extraction to analysis was met with the exception of sample 11NC31SS082 (280-20446-82). PCB results for this sample were reported from a re-extraction performed 16 days after sample collection. The sample was re-extracted due to surrogate recoveries of less than 20% for the initial analysis. Surrogate recoveries were acceptable for the re-extracted sample and PCB results were reported from the re-extracted sample with a QL qualifier due to the missed holding time.

2.7.2 Surrogate Recoveries

Many samples were diluted due to the presence of either target or non-target analytes. Surrogate recoveries were evaluated for samples analyzed at a dilution of 4x or less. For dilutions greater than 4x, the surrogates were considered to be diluted out and recoveries were not evaluated. Surrogate recoveries were outside the QAPP control limits as follows:

Site	Field Sample ID	Affected Analyte	Surrogate	%R	Criteria
13	11NC13SS181	All Results	DCB	33	60-125
13	11NC13SS226	All Results	DCB	34	60-125
13	11NC13SS182	All Results	DCB	45	60-125
13	11NC13SS248	All Results	DCB	46	60-125
13	11NC13SS Composite 9 (280-20410-40)	All Results	DCB	59	60-125
13	11NC13SS150	All Results	DCB	57	60-125
13	11NC13SS013	Detected PCBs	DCB	126	60-125
13	11NC13SS014	Detected PCBs	DCB	199	60-125
13	11NC13SS015	Detected PCBs	DCB	218	60-125
13	11NC13SS042	Detected PCBs	DCB	199	60-125
31	11NC31SS023	Detected PCBs	DCB	128	60-125
31	11NC31SS034	Detected PCBs	DCB	126	60-125
31	11NC31SS036	Detected PCBs	DCB	131	60-125
MOC	11NCMOCWA06	All Results	DCB	29	40-135

DCB = decachlorobiphenyl
%R = percent recovery

All PCB results with low surrogate recoveries (detections and non-detections) were QL qualified to indicate a potential low bias. Detected PCB results associated with extremely high (>150%) surrogate decachlorobiphenyl (DCB) recoveries were QH qualified to indicate the potential for high bias. As discussed in Section 12-13, all detected soil PCB-1260 results were qualified due to field duplicate imprecision. For surrogate recoveries from 125-150% the qualifiers assigned due to field duplicate imprecision take precedence and further qualifiers were not assigned due to high surrogate recoveries. Non-detected results are not affected by high recoveries.

The QAPP specifies the addition of two surrogates for PCB determination. However, the lab followed the method which requires only one surrogate, DCB, with an optional second surrogate, tetrachloro-m-xylene (TCX). All samples were analyzed with a single surrogate with the exception of the samples analyzed at TATW under WO 580-28787 which included both surrogates. The surrogate DCB is more closely associated with PCBs and no action was required due to the lack of TCX recovery information.

2.7.3 MS/MSD Recoveries and RPDs

Samples used for MS/MSD analyses are listed below. Numerical values for recoveries and RPDs outside QAPP Table 12-4 control limits are presented. A dash indicates results were within control limits.

Spiked Client ID	Lab ID	PCB-1016 %R MS / MSD (RPD) Limits: 40-140 (<20%)	PCB-1260 %R MS/ MSD (RPD) Limits: 60-130 (<20%)
11NC13SS241	20698-65	--	-16% / 40% (39%)
11NC13SS242	20698-66	--	-- / 11%
11NC13SS251	20698-75	--	--
11NC13SS260	20698-83	--	-79% / -106% (10%)
11NC13SS261	20698-84	na, diluted out	na, >4x spike
11NC13SS273	20698-97	229% / 286% (22%)	na, >4x spike
11NC13SS274	20698-98	--	--
11NC13SS275	20698-99	--	--
11NC13SS296	20698-120	--	--
11NC13SS343	20698-167	na, diluted out	na, >4x spike
11NC13SS359	20698-183	--	169% / 25% (38%)
11NC13SS395	20698-219	--	--
11NC13SS428	20698-252	146% / 143%	-- / 138%
11NC13SS445	20698-269	--	-- / 54%
11NC13SS446	20698-270	-- / 147%	--
11NC13SS Comp 38	20698-309	--	na, >4x spike
11NC13SS001	20054-1	167% / -- (69%)	na, >4x spike
11NC13SS003	20054-3	--	na, >4x spike
11NC13SS004	20054-4	--	--
11NC13SS036	20054-36	na, Diluted out	na, >4x spike
11NC13SS039	20054-39	--	54% / 50%
11NC13SS046	20054-46	--	--
11NC13SS079	20054-79	-- / 143%	-- / 150%
11NC13SS145	20054-145	141% -- (27%)	na, >4x spike
11NC13SS Comp 10	20054-155	--	--
11NC13SS Comp 21	20054-166	-- / 141%	na, >4x spike
11NC13SS Comp 34	20054-179	--	--

Spiked Client ID	**Lab ID**	**PCB-1016 %R MS / MSD (RPD)** Limits: 40-140 (<20%)	**PCB-1260 %R MS/ MSD (RPD)** Limits: 60-130 (<20%)
11NC31SS225	580-28787-25	--	--
11NC31SS226	580-28787-26	--	na, >4x spike
11NC31SS275	580-28787-75	142% / 157%	na, >4x spike
11NC31SS276	580-28787-76	--	565% / 26% (126%)
11NC31SS005	20446-5	435% / 433%	117% / 667% (79%)
11NC31SS044	20446-44	--	--
11NC31SS063	20446-63	--	138% / -- (24%)
11NC31SS068	20446-68	na, Diluted out	na, >4x spike
11NC31SS084	20446-84	--	--
11NC31SS135	20446-135	na, Diluted out	na, >4x spike
11NC31SS150	20446-150	--	143% / 150%
11NC31SS166	20446-166	na, diluted out	na, >4x spike
11NC31SS Comp 14	20446-214	144% / --	171% / -- (26%)
11NC31SS Comp 15	20446-215	--	na, >4x spike
11NC31SS Comp 16	20446-216	190% / 210%	360% / 248% (21%)
11NCMOCWA02	580-27518-2	--	--

na – not applicable
%R = percent recovery

All PCB-1016 recovery outliers were outside the upper control limit. PCB-1016 was not detected in the samples, and results were not affected by the high recoveries.

In all instances where PCB-1260 failed criteria (either high or low %Rs or high RPDs) the source sample contained concentrations ranging from 1x to 3x the spiking concentration. Examination of the field duplicate results (Section 2-13) shows the outlier recoveries are more a function of the variability of concentrations in the samples rather than laboratory procedure or extraction efficiency and qualifiers due to MS/MSD outliers were not assigned.

When the source sample concentration exceeds the spike concentration by greater than 4x or the sample was analyzed at a dilution >4x , recoveries were not applicable (na) and recovery and RPD information were not evaluated.

2.7.4 Laboratory Replicates

The following MS/MSD pair results were evaluated as laboratory replicates due to the high concentrations of PCB-1260 present in the samples (the spiking concentration added was not significant). Because TADC analyzed the MS/MSD samples at the same dilutions as the parent samples, concentration results obtained from the MS and MSD were within the PCB calibration range. TATW MS/MSD results were outside the calibration range and were not evaluated. In two instances, variability occurred around the screening criteria of 1 mg/kg (bold results). However, the generally good agreement observed between the MS and MSDs indicates that laboratory procedures were acceptable.

Spiked Client ID	Lab ID	PCB-1260 Parent Sample	PCB-1260 MS	PCB-1260 MSD
11NC13SS145	20054-145	0.440mg/kg	0.546mg/kg	0.508mg/kg
11NC13SS001	20054-1	0.450mg/kg	0.399mg/kg	0.450mg/kg
11NC13SS003	20054-3	0.340mg/kg	0.433mg/kg	0.443mg/kg
11NC13SS Comp 21	20054-166	0.570mg/kg	0.634mg/kg	0.673mg/kg
11NC13SS036	20054-36	31.000mg/kg	29.800mg/kg	-
11NC13SS261	20698-84	33.000mg/kg	24.600mg/kg	32.200mg/kg
11NC13SS273	20698-97	0.900mg/kg	0.729mg/kg	0.975mg/kg
11NC13SS343	20698-167	**1.500mg/kg**	**0.346mg/kg**	**0.259mg/kg**
11NC13SS Comp 38	20698-309	0.560mg/kg	0.190mg/kg	0.178mg/kg
11NC13SS260	20698-83	0.260mg/kg	0.201mg/kg	0.182mg/kg
11NC31SS166	20446-166	2.600mg/kg	2.350mg/kg	2.230mg/kg
11NC31SS Comp 16	20446-216	0.240mg/kg	0.499mg/kg	0.404mg/kg
11NC31SS068	20446-68	3.200mg/kg	1.740mg/kg	1.510mg/kg
11NC31SS135	20446-135	**1.600mg/kg**	**1.470mg/kg**	**0.997mg/kg**

- Not analyzed

2.7.5 Continuing Calibration Verifications

The laboratory narrative indicated a failing continuing calibration verification (CCV) with a low bias for the DCB surrogate in analytical batch 280-87866. Because all associated results met criteria, qualification was not necessary.

2.7.6 Shared PCB Peaks

The laboratory narrative indicated that the following samples contained more than one PCB with shared peaks. Detected PCB results for these samples were qualified as estimated with an unknown bias (MN):

Site	Field ID	Lab ID	Site	Field ID	Lab ID
13	11NC13SS140	280-20054-140	13	11NC13SS080	280-20054-80
13	11NC13SS Composite 2	280-20054-147	13	11NC13SS085	280-20054-85
13	11NC13SS Composite 3	280-20054-148	13	11NC13SS086	280-20054-86
13	11NC13SS Composite 6	280-20054-151	13	11NC13SS089	280-20054-89
13	11NC13SS051	280-20054-51	13	11NC13SS124	280-20054-124
13	11NC13SS052	280-20054-52	13	11NC13SS126	280-20054-126
13	11NC13SS053	280-20054-53	13	11NC13SS127	280-20054-127
13	11NC13SS056	280-20054-56	13	11NC13SS128	280-20054-128
13	11NC13SS057	280-20054-57	13	11NC13SS129	280-20054-129

2.7.7 Percent Moisture

The volume for sample 11NC13SS036 (280-20054-36) was used up during the PCB sample extraction, with no volume remaining for a % moisture determination. The lab was directed to use 10% moisture for results reporting. Because the sample was heavily contaminated with PCBs, exceeded the screening criteria for PCB-1260, and was analyzed at a 100x dilution, any effect to the usability is negligible. No data qualifiers were applied.

In three of the percent moisture soil batches (280-86415, 280-88062, and 280-88164) the laboratory duplicate exceeded the 20% criteria (ex. 19% and 14% for an RPD of 31%; 9% and 7% for an RPD of 27%). In all cases, the soil moisture sample results ranged around 10% (from approximately 1% to 22% moisture observed from both sites). This type of variability is inherent in a soil matrix, and any effect to the results is minimal, no data qualification was performed as a result of the percent moisture duplicate results.

2.7.8 Confirmation Column RPD

The laboratory narrative indicated the RPD between the detected PCB concentrations on the primary versus the confirmation columns exceeded 40% for the following samples:

Site	Field ID	Lab ID	Reported PCB
13	11NC13SS057	280-20054-57	PCB-1254
13	11NC13SS126	280-20054-126	PCB-1254
13	11NC13SS181	280-20698-5	PCB-1260
13	11NC13SS182	280-20698-6	PCB-1260
13	11NC13SS184	280-20698-8	PCB-1260
13	11NC13SS306	280-20698-130	PCB-1260

The laboratory reported the lower of the two results due to noted obvious matrix interference. The PCB-1254 results were previously qualified due to shared peaks, and PCB-1260 results are qualified due to the variability indicated by the field duplicate imprecision. Additional qualifiers were not applied.

2.8 PAH ANALYSES

TestAmerica analyzed samples by SW-846 method 8270C SIM for PAHs. The extraction batches are summarized in Table 2-8-1.

Table 2-8.1 PAH QC Batches

Site	QC Batch	QC Batch Dates	Matrix
Site 8	580-91592	07/29/2011	Water
Site 8	580-93114	08/18/2011	Soil
Tar Removal Area	280-81466	08/15/2011	Soil
Tar Removal Area	280-81469	08/15/2011	Soil
MOC Water	280-87205	09/21/2011	Water
MOC Water	580-90999	07/22/2011	Water
MOC Water	580-94181	08/31/2011	Water

Notes:
MOC = Main Operations Complex
PAH = polynuclear aromatic hydrocarbons
QC = quality control

Required QC for an analytical batch of up to 20 samples includes an MB, LCS/LCSD, and MS/MSD pair. An MB, LCS/LCSD, and MS/MSD pair were performed with each QC batch.

The following items were reviewed and met QAPP criteria: holding times, LCS/LCSD recoveries and RPDs and MS/MSD recoveries and RPDs.

PAH compounds were detected in the method blanks as shown below. Associated detected results were <10 times the blank concentrations and were qualified B to indicate the potential for a false positive or high bias.

Site	Laboratory Work Order	Preparation Batch	Analytes	Units	Concentration
Site 8	580-27899-1	580-93114	Pyrene	ug/Kg	2.58

For work orders 580-27518, 580-27633-2, and 580-28349-1 the laboratory reported only the terphenyl-d14 surrogate, while the QAPP also requires 2-fluorobiphenyl and nitrobenzene-d5 for the aqueous samples. The QAPP surrogates 2-fluorobiphenyl and nitrobenzene-d5 were not reported. The raw data was reviewed and adequate instrument response was found for 2-fluorobiphenyl and nitrobenzene-d5 and results were not qualified.

Many samples were diluted due to the presence of either target or non-target analytes. Surrogate recoveries were evaluated for samples analyzed at a dilution of 4x or less. For dilutions greater than 4x, the surrogates were considered to be diluted out and recoveries were not evaluated. Surrogate recoveries for samples analyzed at a dilution of 4x or less were outside QAPP control limits as follows:

Site	Sample No.	Affected Analyte	Surrogate	%R	Control Limits
Tar Area	11NCTARSS002	PAHs	nitrobenzene-d5	146	35-100
Tar Area	11NCTARSS005	PAHs	nitrobenzene-d5	110	35-100
Tar Area	11NCTARSS006	PAHs	nitrobenzene-d5	122	35-100
Tar Area	11NCTARSS022 (1x)	PAHs	nitrobenzene-d5	104	35-100
Tar Area	11NCTARSS023	PAHs	nitrobenzene-d5	133	35-100
MOC Water	11NCMOCWA011	PAHs	terphenyl-d14	42	50-135
MOC Water	11NCMOCWA012	PAHs	terphenyl-d14	40	50-135

%R = percent recovery

Detected results associated with an exceedance of the upper control limit were qualified QH to indicate a potential for high bias and all results associated with an exceedance of a lower control limit were QL qualified to indicate the potential for low bias.

No qualifiers were assigned to MS/MSD recoveries outside control limits if the sample concentration was >4x the spike concentration, or analyzed at a dilution >4x. The MS/MSD spiked samples this rule applies to were:

Site	Spiked Sample	Analyte	Reason
Tar Areas	11NCTARSS001	PAHs	dilution/high sample conc
Tar Areas	11NCTARSS014	PAHs	dilution/high sample conc

The laboratory indicated that sample 11NCTARSS017 (580-27899-19) could not be concentrated to the final method required volume of 1 ml, it was instead taken to a final volume of 10 mls. Since the sample required dilution to bring the concentrations within the instrument calibration range, this discrepancy has not affected data quality.

2.9 DRO/RRO ANALYSES

TestAmerica analyzed samples for DRO/RRO following ADEC methods AK102/103. The QC batches are summarized in Table 2-9.1.

Table 2-9.1 DRO/RRO QC Batches

Site	Analysis	QC Batch	QC Batch Date	Matrix
Site 8	DRO/RRO	580-92043	08/04/2011	Water
Site 8	DRO/RRO	580-93139	08/18/2011	Soil
Site 8	DRO/RRO with silica gel cleanup	580-93139	08/18/2011	Soil
MOC	DRO/RRO	280-86816	09/19/2011	Soil
MOC	DRO/RRO	280-80762	08/10/2011	Soil
MOC	DRO/RRO	280-80769	08/10/2011	Soil
MOC	DRO/RRO	580-94384	09/02/2011	Soil
MOC	DRO/RRO	580-94408	09/02/2011	Soil
MOC	DRO/RRO	580-96331	09/28/2011	Soil
MOC	DRO/RRO	580-96342	09/28/2011	Soil
MOC	DRO/RRO	580-91153	07/25/2011	Water

Notes:
DRO = diesel-range organics
MOC = Main Operations Complex
QC = quality control
RRO = residual range organics

Required QC for a batch of up to 20 samples includes an MB, LCS /LCSD, and MS/MSD pair. An MB and LCS/LCSD were analyzed with each QC batch. Additionally, per the QAPP frequency, project MS/MSD pairs were analyzed on a 1 per 20 frequency.

The following items were reviewed and met QAPP criteria: LCS/LCSD recoveries and RPDs, and MS/MSD RPDs.

The QAPP holding time of 7 days from collection to sample prep was exceeded for eleven water samples. Results were not qualified since the extractions were performed in the method holding time of 14 days.

DRO and RRO were detected in the batch method blanks as shown below. Associated detected results were <10 times the blank concentrations and were qualified B to indicate the potential for a false positive.

Site	Laboratory Work Order	Preparation Batch	Analytes	Units	Concentration
Site 8	580-27899-1	580-93139A	RRO	mg/kg	18
Site 8	580-27899-1	580-93139B	RRO with silica gel cleanup	mg/kg	2.01
MOC	580-28199-1& 580-28350-1	580-94384	DRO	mg/kg	2.12
MOC	580-28350-1	580-94408	DRO	mg/kg	8.67

Many samples were diluted due to the presence of either target or non-target analytes. Surrogate recoveries were evaluated for samples analyzed at a dilution of 4x or less. For dilutions greater than 4x, the surrogates were considered to be diluted out and recoveries were not evaluated. Surrogate recoveries for samples analyzed at a dilution of 4x or less were outside QAPP control limits as follows:

Site	Sample No.	Affected Analyte	Surrogate	%R	Control Limits
Site 8	11NC08SS002	RRO	n-triacontane-d62	192	50-150
MOC	11NCMOCSS045	RRO	n-triacontane-d62	162	50-150

%R = percent recovery

Detected RRO results for the affected samples were QH qualified to indicate the potential for a high bias.

For batches 280-86816 and 280-80762 the laboratory reported the surrogate n-octacosane, rather than n-triacontane-d62 for RRO analyses. Laboratory control limits were used to evaluate the n-octacosane recoveries.

No qualifiers were assigned to MS/MSD recoveries outside control limits if the sample concentration was >4x the spike concentration, or analyzed at a dilution >4x. The MS/MSD spiked samples this rule applies to were:

Site	Spiked Sample	Analyte	Reason
MOC	11NCMOCSS054	DRO	high sample conc
MOC	11NCMOCSS054	RRO	dilution
MOC	11NCMOCSS008	DRO	high sample conc
MOC	11NCMOCSS009	RRO	dilution
MOC	11NCMOCSS010	DRO	high sample conc
MOC	11NCMOCSS031	DRO	high sample conc
MOC	11NCMOCSS068	DRO	high sample conc

MS/MSD recoveries were outside QAPP Table 5-1 control limits as follows:

Site	Spiked Sample	Analyte	%R	Control Limits
Site 8	11NC08SS001	RRO with silica gel cleanup	146/129	53-116
MOC soil	11NCMOCSS047	DRO	7/7	72-128
MOC soil	11NCMOCSS047	RRO	1/-0.3	53-116

%R = percent recovery

Detected results associated with an exceedance of the upper control limit were MH qualified to indicate the potential for high bias and all results associated with an exceedance of a lower control limit were ML qualified to indicate the potential for bias due to matrix. Associated samples were those collected in the same day and from the same site and matrix. For sample 11NCMOCSS047 which was associated with recoveries less than 10 percent, DRO/RRO were detected above the LOQ and MH qualified. In addition for sample 11NCMOCSS047, more than one MS/MSD was reported in the batch and qualification was limited to the spiked sample.

2.10 TOC Analyses

TestAmerica analyzed samples for TOC-Quad by SW-846 method 9060. The QC batches are summarized in Table 2-10.1.

Table 2-10.1 TOC QC Batches

Site	QC Batch	QC Batch Date	Matrix
Site 8	580-93022	08/17/2011	Soil

An MB, LCS, MS/MSD, and laboratory duplicate were analyzed with each batch. The following items were reviewed and met QAPP criteria: holding time, MB, and LCS %Rs, MS/MSD %R and RPD, and laboratory duplicate RPDs.

2.11 Total and Dissolved Metals Analyses

TestAmerica analyzed water and soil samples by SW-846 method 6020; the waters were analyzed for both total and dissolved (field filtered) metals. The QC batches are summarized in Table 2-11.1.

Table 2-11.1 Total and Dissolved Metals QC Batches

Site	QC Batch	QC Batch Date	Matrix
Site 21	580-91441	07/28/2011	Soil
Site 21	580-95009	9/9/11	Soil
MOC	580-91011	07/22/2011	Water
MOC	580-91018	07/22/2011	Water

Note:
MOC = Main Operations Complex
QC = quality control

Required QC for a batch of up to 20 samples includes an MB, LCS/LCSD, and MS/MSD pair. An MB, MS/MSD, LCS/LCSD, and a laboratory duplicate were analyzed per batch.

The following items were reviewed and met QAPP: holding time, MB, LCS/LCSD %Rs and RPDs, MS/MSD %Rs and RPD.

For the MOC site, laboratory work order 580-27518-1, analytical batch 580-91011, the laboratory duplicate for total chromium had an RPD of 23% which is outside the control limits of <20%. The project sample was used as the laboratory duplicate. This sample and the associated detected project sample in the batch were QN qualified to indicate the matrix may be non-homogenous.

2.12 MERCURY ANALYSES

TestAmerica analyzed total and dissolved mercury in water samples by SW-846 method 7470A. The QC batches are summarized in Table 2-12.1.

Table 2-12.1 Mercury QC Batches

Site	QC Batch	QC Batch Date	Matrix
MOC	580-91725	08/01/2011	Water

Note:
MOC = Main Operations Complex
QC = quality control

Required QC for a batch of up to 20 samples includes an MB, LCS/LCSD, and MS/MSD pair. An MB, MS/MSD, and LCS/LCSD were analyzed per batch. In addition, a laboratory duplicate was reported.

The following items were reviewed and met QAPP criteria: hold time, MB, LCS/LCSD recoveries and RPDs, MS/MSD recoveries and RPDs, and laboratory duplicate RPDs.

2.13 FIELD QA/QC

Field QC samples included field duplicate pairs, MS/MSD pairs, and trip blanks. The same methods used to analyze the investigative samples were used to analyze the field QC samples.

2.13.1 Field Sample Duplicates

Comparison of field sample duplicate results to the associated parent sample results provides precision information for the overall sample collection and analytical process, including possible variability related to sample collection, handling, shipping, storage, preparation, and analysis. The RPD between the primary (parent) sample and field duplicate sample also accounts for the variation of target analyte concentrations within a matrix. This variability is assessed by evaluating the calculated RPDs between the field duplicates and the associated parent samples. If target analytes were detected in one sample greater than the LOQ and not detected in the duplicate, both detected and non-detected results should be flagged to indicate imprecision. Data which is J flagged was detected between the LOQ and the DL. The RPD assessment criteria in the QAPP of ≤30% for water matrices and ≤50% for soils was used to evaluate the field duplicates.

Field Duplicate Frequencies

Field sample duplicate pairs are required by the QAPP at a rate of 10 percent. Field duplicates were collected at each site for the following frequencies per method:

- Site 8:
    - Three aqueous field duplicate pairs were collected for methane analysis at a frequency of 12%.
    - No aqueous field duplicate pair was associated with the surface water samples collected for DRO/RRO and PAHs.
    - One soil field duplicate pair was collected for TOC, DRO/RRO, DRO/RRO with silica gel cleanup, and PAHs, at a frequency of 33%.

- Site 9: One aqueous field duplicate pair was collected for VOCs at a frequency of 25%.

- Site 13: Twenty soil field duplicate pairs per a total of 470 samples were collected for PCBs by 8082 at a frequency of 4%. The low frequency is attributed to analysis of discrete samples following composite results exceeding cleanup levels, nessitating discrete sample analysis.

- Site 21: Two soil field duplicate pairs were collected for analysis of arsenic at a frequency of 12%.

- Site 31: Seven soil field duplicate pairs per a total of 393 samples were collected for PCBs by 8082 at a frequency of 2%. The low frequency is attributed to analysis of discrete samples following composite results exceeding cleanup levels, nessitating discrete sample analysis.

- Tar Removal Area:
    - A field duplicate was not associated with the two tar samples collected for SVOCs. The results were used for disposal purposes only.
    - Three soil field duplicate pairs were collected for analysis of PAHs at a frequency of 14%.

- MOC Site:

- o One aqueous field duplicate pair was collected for analysis of all methods at a frequency of 11%.
- o One impoundment water field duplicate pair was collected for analysis of BTEX and PAHs for a frequency of 33%.
- o Eight soil field duplicate pairs were collected for the analysis of DRO/RRO at a frequency of 14 percent.

The QAPP duplicate frequency criteria of 10% was not met for all sites and matrixes. An assessment of precision was made using the available information.

Field Duplicate RPDs

Tables 2-13.1 lists the RPDs calculated between the field duplicate and parent sample results for target analytes that were detected above the LOQ in both the parent and field duplicate sample.

Table 2-13.1 Field Sample Duplicate Pair Results

Parent Sample ID/ Laboratory Sample ID	Field Duplicate Sample ID/ Laboratory Sample ID	Compound	Units	Parent Field Sample Result	Field Duplicate Result	RPD (%)
Site 8:						
11NC08SS003 580-27899-56	11NC08SS004 580-27899-57	1-Methylnaphthalene	ug/Kg	300	130	**79**
		2-Methylnaphthalene	ug/Kg	210	92	**78**
		Acenaphthene	ug/Kg	20	4.2 U	nc
		Acenaphthylene	ug/Kg	8.9 J	4.2 U	nc
		Anthracene	ug/Kg	4.7 U	6 J	nc
		Chrysene	ug/Kg	4.7 U	9.7	nc
		Fluoranthene	ug/Kg	4.7 U	9	nc
		Fluorene	ug/Kg	53	47	12
		Naphthalene	ug/Kg	240	42	**140**
		Phenanthrene	ug/Kg	42	39	7
		Pyrene	ug/Kg	4.3 B	11 B	nc
		DRO	mg/Kg	550	1600	**98**
		RRO	mg/Kg	1300 MH	1200 MH	**93**
		Total Organic Carbon	mg/Kg	140000	97000	38
11NC08WA006 580-27899-32	11NC08WA0009 580-27899-35	Methane	ug/L	14	21	**40**
11NC08WA014 580-27899-40	11NC08WA0018 580-27899-44	Methane	ug/L	8.0	8.8	10
11NC08WA026 580-27899-52	11NC08WA0027 580-27899-53	Methane	ug/L	20	30	**40**
11NC08WA02 580-27899-12	11NC08WA03 580-27899-13	DRO	mg/L	0.19	0.28	**38**
		RRO	mg/L	0.28	0.44	**44**
Site 9:						
11NC09WA009 580-28786-17	11NC09WA010 580-28786-18	VOCs	ug/L	All ND	All ND	**-**
Site 13:						
11NC13SS009	11NC13SS138	PCB-1260	mg/kg	0.340	0.340	0

Table 2-13.1 Field Sample Duplicate Pair Results

Parent Sample ID/ Laboratory Sample ID	Field Duplicate Sample ID/ Laboratory Sample ID	Compound	Units	Parent Field Sample Result	Field Duplicate Result	RPD (%)
280-20054-9	280-20054-138					
11NC13SS010 280-20054-10	11NC13SS139 280-20054-139	PCB-1260	mg/kg	1.600	0.790	**68**
11NC13SS011 280-20054-11	11NC13SS140 280-20054-140	PCB-1254	mg/kg	ND (0.041)	0.420	nc
		PCB-1260	mg/kg	0.890	1.100	21
		Total PCBs	mg/kg	0.890	1.52	**52**
11NC13SS030 280-20054-30	11NC13SS145 280-20054-145	PCB-1260	mg/kg	0.530	0.440	19
11NC13SS195 280-20698-19	11NC13SS419 280-20698-243	PCB-1260	mg/kg	0.730	0.280	**89**
11NC13SS216 280-20698-40	11NC13SS420 280-20698-244	PCB-1260	mg/kg	0.660	0.500	28
11NC13SS226 280-20698-50	11NC13SS421 280-20698-245	PCB-1260	mg/kg	0.170	0.095	**57**
11NC13SS237 280-20698-61	11NC13SS422 280-20698-246	PCB-1260	mg/kg	0.930	1.100	17
11NC13SS281 280-20698-105	11NC13SS424 280-20698-248	PCB-1260	mg/kg	0.028 J	1.600	**nc**
11NC13SS282 280-20698-106	11NC13SS432 280-20698-256	PCB-1260	mg/kg	0.270	0.038	**151**
11NC13SS283 280-20698-107	11NC13SS425 280-20698-249	PCB-1260	mg/kg	0.092	0.036	**88**
11NC13SS284 280-20698-108	11NC13SS427 280-20698-251	PCB-1260	mg/kg	0.067	0.049	31
11NC13SS285 280-20698-109	11NC13SS428 280-20698-252	PCB-1260	mg/kg	0.170	0.016 J	nc
11NC13SS286 280-20698-110	11NC13SS429 280-20698-253	PCB-1260	mg/kg	0.430	1.200	**95**
11NC13SS287 280-20698-111	11NC13SS430 280-20698-254	PCB-1260	mg/kg	230.000	4.600	**192**
11NC13SS288 280-20698-112	11NC13SS431 280-20698-255	PCB-1260	mg/kg	1.400	4.700	**108**
11NC13SS289 280-20698-113	11NC13SS426 28020698-250	PCB-1260	mg/kg	0.600	3.000	**133**
11NC13SS301 280-20698-125	11NC13SS433 280-20698-257	PCB-1260	mg/kg	2.100	0.680	**102**
11NC13SS302 280-20698-126	11NC13SS434 280-20698-258	PCB-1260	mg/kg	3.300	4.100	22

Table 2-13.1 Field Sample Duplicate Pair Results

Parent Sample ID/ Laboratory Sample ID	Field Duplicate Sample ID/ Laboratory Sample ID	Compound	Units	Parent Field Sample Result	Field Duplicate Result	RPD (%)
11NC13SS280 280-20698-104	11NC13SS423 280-20698-247	PCBs	mg/kg	All ND	All ND	-
Site 21:						
11NC21SS03 580-27633-3	11NC21SS10 580-27633-10	Arsenic	mg/Kg	3.5	2.9	19
11NC21SS004 580-28199-8	11NC21SS007 580-28199-11	Arsenic	mg/Kg	100	140	33
Site 31:						
11NC31SS002 280-20446-2	11NC31SS182 280-20446-182	PCB-1260	mg/kg	3.500	0.380	**161**
11NC31SS004 280-20446-4	11NC31SS183 280-20446-183	PCB-1260	mg/kg	0.074	1.400	**180**
11NC31SS008 280-20446-8	11NC31SS184 280-20446-184	PCB-1260	mg/kg	0.042	0.120	**96**
11NC31SS021 280-20446-21	11NC31SS185 280-20446-185	PCB-1260	mg/kg	1.100	0.490	**77**
11NC31SS034 280-20446-34	11NC31SS186 280-20446-186	PCB-1260	mg/kg	0.510	0.640	23
11NC31SS036 280-20446-36	11NC31SS187 280-20446-187	PCB-1260	mg/kg	0.610	1.400	**79**
11NC31SS236 580-28787-36	11NC31SS291 580-28787-91	PCB-1260	mg/kg	1.600	1.000	46
Tar Area:						
11NCTARSS008 580-27899-10	11NCTARSS024 580-27899-26	1-Methylnaphthalene	ug/Kg	4.7 J	14 U	nc
		2-Methylnaphthalene	ug/Kg	7.8 J	14 U	nc
		Acenaphthene	ug/Kg	22 J	14 U	nc
		Acenaphthylene	ug/Kg	1.6 J	2.7 J	nc
		Anthracene	ug/Kg	110	4.7 J	nc
		Benzo[a]Anthracene	ug/Kg	220	18 J	nc
		Benzo[a]Pyrene	ug/Kg	66	15 J	nc
		Benzo[b]Fluoranthene	ug/Kg	120	14 U	nc
		Benzo[g,h,i]perylene	ug/Kg	17 J	10 J	nc
		Benzo[k]Fluoranthene	ug/Kg	46	14 U	nc
		Chrysene	ug/Kg	280	48	**141**
		Dibenzo[a,h]Anthracene	ug/Kg	11 J	14 U	nc
		Fluoranthene	ug/Kg	450	25 J	nc
		Fluorene	ug/Kg	42	2.9 J	nc
		Indeno[1,2,3-cd]Pyrene	ug/Kg	22 J	14 U	nc
		Naphthalene	ug/Kg	6.3 J	14 U	nc
		Phenanthrene	ug/Kg	350	11 J	nc
		Pyrene	ug/Kg	330	33	**164**
11NCTARSS011	11NCTARSS022	1-Methylnaphthalene	ug/Kg	30 U	2 J QH	nc

Table 2-13.1 Field Sample Duplicate Pair Results

Parent Sample ID/ Laboratory Sample ID	Field Duplicate Sample ID/ Laboratory Sample ID	Compound	Units	Parent Field Sample Result	Field Duplicate Result	RPD (%)
580-27899-13	580-27899-24	2-Methylnaphthalene	ug/Kg	30 U	2.1 J QH	nc
		Acenaphthene	ug/Kg	30 U	15 QH	nc
		Acenaphthylene	ug/Kg	2.9 J	4.1 J QH	9
		Anthracene	ug/Kg	30 U	98 QH	nc
		Benzo[a]Anthracene	ug/Kg	12 J	250 QH	45
		Benzo[a]Pyrene	ug/Kg	11 J	110 QH	41
		Benzo[b]Fluoranthene	ug/Kg	30 U	200 QH	nc
		Benzo[g,h,i]perylene	ug/Kg	30 U	36 QH	nc
		Benzo[k]Fluoranthene	ug/Kg	30 U	63 QH	nc
		Chrysene	ug/Kg	54 J	270 QH	33
		Dibenzo[a,h]Anthracene	ug/Kg	30 U	19 QH	nc
		Fluoranthene	ug/Kg	16 J	450 QH	47
		Fluorene	ug/Kg	30 U	28 QH	nc
		Indeno[1,2,3-cd]Pyrene	ug/Kg	30 U	42 QH	nc
		Naphthalene	ug/Kg	30 U	1.3 J QH	nc
		Phenanthrene	ug/Kg	30 U	240 QH	nc
		Pyrene	ug/Kg	26 J	360 QH	nc
11NCTARSS016 580-27899-18	11NCTARSS023 580-27899-25	1-Methylnaphthalene	ug/Kg	15 U	0.56 J QH	nc
		2-Methylnaphthalene	ug/Kg	1.8 J	0.93 J QH	nc
		Acenaphthene	ug/Kg	3.9 J	2.2 J QH	nc
		Acenaphthylene	ug/Kg	63	26 QH	**83**
		Anthracene	ug/Kg	30	17 QH	**55**
		Benzo[a]Anthracene	ug/Kg	90	50 QH	**57**
		Benzo[a]Pyrene	ug/Kg	150	61 QH	**84**
		Benzo[b]Fluoranthene	ug/Kg	140	64 QH	**75**
		Benzo[g,h,i]perylene	ug/Kg	59	23 QH	**88**
		Benzo[k]Fluoranthene	ug/Kg	49	21 QH	**80**
		Chrysene	ug/Kg	120	60 QH	**67**
		Dibenzo[a,h]Anthracene	ug/Kg	20 J	8.1 QH	nc
		Fluoranthene	ug/Kg	98	67 QH	38
		Fluorene	ug/Kg	9.2 J	7.3 QH	23
		Indeno[1,2,3-cd]Pyrene	ug/Kg	63	25 QH	**86**
		Naphthalene	ug/Kg	15 U	1 J QH	nc
		Phenanthrene	ug/Kg	26 J	25 QH	4
		Pyrene	ug/Kg	150	83 QH	**58**
MOC:						
11NCMOCSS020 580-27882-20	11NCMOCSS013 580-27882-13	DRO	mg/Kg	4600	5800	23
11NCMOCSS021 580-27882-21	11NCMOCSS014 580-27882-14	DRO	mg/Kg	11000	14000	24
11NCMOCSS023 580-28199-2	11NCMOCSS025 580-28199-4	DRO	mg/Kg	460	310	39
		RRO	mg/Kg	20 J	13 J	nc
11NCMOCSS036 580-28350-9	11NCMOCSS051 580-28350-24	DRO	mg/Kg	2200	3500	46
		RRO	mg/Kg	43 J	55 U	nc
11NCMOCSS053 280-20411-1	11NCMOCSS055 280-20411-3	DRO	mg/Kg	58	51	13
		RRO	mg/Kg	150	130	14

Table 2-13.1 Field Sample Duplicate Pair Results

Parent Sample ID/ Laboratory Sample ID	Field Duplicate Sample ID/ Laboratory Sample ID	Compound	Units	Parent Field Sample Result	Field Duplicate Result	RPD (%)
11NCMOCSS054 280-20411-2	11NCMOCSS056 280-20411-4	DRO	mg/Kg	1600	5800	**114**
		RRO	mg/Kg	79 J	260	nc
11NCMOCSS065 580-28786-5	11NCMOCSS073 580-28786-13	DRO	mg/Kg	6900	5100	30
		RRO	mg/Kg	340	750	**75**
11NCMOCSS067 580-28786-7	11NCMOCSS072 580-28786-12	DRO	mg/Kg	330	330	0
		RRO	mg/Kg	54 J	64 J	17
11NCMOCWA06 580-27518-6	11NCMOCWA07 580-27518-7	Benzene	ug/L	20	16	22
		Toluene	ug/L	2.1	1.9	10
		Ethylbenzene	ug/L	3.3	3.2	3
		m-Xylene & p-Xylene	ug/L	6.0	6.1	2
		o-Xylene	ug/L	4.1	3.9	5
		Xylenes (Total)	ug/L	10.1	10	1
		Acenaphthene	ug/L	0.12	0.16	29
		Anthracene	ug/L	0.071 U	0.064 J	nc
		Fluorene	ug/L	0.071 U	0.048 J	nc
		Naphthalene	ug/L	0.78	0.84	7
		GRO	mg/L	0.24	0.23	4
		DRO	mg/L	7.2	7.5	4
		RRO	mg/L	1.8	2.0	11
		Methane	ug/L	630	620	2
		Arsenic-dissolved	mg/L	0.0052	0.0049 J	nc
		Barium-dissolved	mg/L	0.055	0.054	2
		Chromium-dissolved	mg/L	0.0029 J	0.0026 J	nc
		Lead-dissolved	mg/L	0.00049 J	0.00046 J	nc
		Nickel-dissolved	mg/L	0.013 J	0.012 J	nc
		Vanadium-dissolved	mg/L	0.0079 J	0.0087 J	nc
		Arsenic- total	mg/L	0.0057	0.0058	2
		Barium- total	mg/L	0.062	0.064	3
		Chromium- total	mg/L	0.0041	0.004	2
		Lead- total	mg/L	0.0019 J	0.0019 J	nc
		Nickel- total	mg/L	0.014 J	0.014 J	nc
		Vanadium- total	mg/L	0.0051 J	0.0069 J	nc
11NCMOCWA011 580-28349-1	11NCMOCWA012 580-28349-2	1-Methylnaphthalene	ug/L	0.065 J	0.078 J	nc
		2-Methylnaphthalene	ug/L	0.075 U	0.039 J	nc
		Naphthalene	ug/L	0.097 J	0.095 J	nc

Notes:

BOLD = Exceeds acceptance criteria
B = also detected in the blank at a concentration<10x the sample concentration
DRO = diesel range organics
FD = field duplicate
GRO = gasoline range organics
ID = identifier
nc = not calculated, one or more concentration below the LOQ
PCBs = polychlorinated biphenyls
QH = estimated with a high bias
QL = estimated with a low bias
RPD = relative percent difference
RRO = residual rang organics

J	=	The analyte was positively identified; the quantitation is an estimation	TOC	=	total organic carbon
LOD	=	limit of detection	U	=	not detected at the LOD
LOQ	=	limit or quantitation			
M	=	a matrix effect was present	ug/kg	=	micrograms per kilogram
mg/kg	=	milligrams per kilogram	ug/L	=	micrograms per liter
mg/L	=	milligrams per liter	###	=	FD pair results bracket screening criteria
MH	=	Estimated biased high due to matrix			
MOC	=	Main Operations Complex			

For the Site 8 soil samples, results for acenaphthene, chrysene and fluoranthene were not detected in one sample but detected in the duplicate pair. In addition the RPDs were exceeded for 1-methylnaphthalene, 2-methylnaphthalene, naphthalene, DRO/RRO and TOC.Three Site 8 water samples were collected in the decision unit area for methane. Two of the three sets failed RPD criteria in water, both with 40% RPD. A duplicate set of surface water samples were collected near the confluence of the Suqi River for PAHs, DRO andRRO. The PAHs were non-detect so no calculation was performed. The DRO and RRO duplicate results failed RPD at 38 and 44% respectively. No other field duplicates were collected from this site for these analytes. Since the action/cleanup levels are well above the uncertainty, results were not qualified.

For Sites 13 and 31, variability was observed for PCBs in the field duplicate pairs. The laboratory MS/MSD RPD results showed good reproducibility, indicating either the sampling procedure or sample heterogeneity was the reason for the variability in the field duplicate results. Results at the screening criteria of 1 mg/kg were specifically evaluated. Seven of the 20 duplicate pairs from Site 13 and four of the seven duplicate pairs collected from Site 31 showed one result above and one result below the screening criteria as follows (and in blue on Table 2-13):

PCB 1260 FD Pair Results Bracketing Screening Criteria

Site 13							Site 31			
0.028 J	0.43	0.6	0.68	0.79	0.89	0.93	0.61	0.49	0.074	0.38
1.6	1.2	3	2.1	1.6	1.1	1.1	1.4	1.1	1.4	3.5

In general, the above results indicate that detected concentrations of 0.4 mg/kg or greater have the potential to exceed the screening criteria if the area was re-sampled, or conversely, field results at 3.5 mg/kg or less may be reported to be less than the screening criteria upon re-sampling.

For Site 13, eleven of the 20 duplicate pairs exceeded the RPD criteria of 50%. For Site 31, five of the seven duplicate pairs exceeded the RPD criteria of 50%. Since more than half of the field duplicates exceeded the RPD criteria and variability was observed at the screening criteria all detected PCB-1260 results (not otherwise qualified with a bias) were qualified as estimated. Since the PCB-1260 result is used to calculate total PCBs, the total PCB result was also qualified. A QN qualifier was used to show variability with an unknown bias.

For the tar area soil sample, three field duplicates were provided for PAH analysis. For field duplicate pair 11NCTARSS008/ 11NCTARSS024 four PAHs had either RPD exceedances or detections in one sample, but not the duplicate pair. For field duplicate pair 11NCTARSS011/ 11NCTARSS022, 10 compounds were detected in the field duplicate, but not the parent sample. For field duplicate pair 11NCTARSS016/ 11NCTARSS023, ten compounds had RPD exceedances. Since the action/cleanup level is well above the uncertainty, results were not qualified.

For the MOC soil samples, eight field duplicates for DRO/RRO were provided. One DRO and one RRO duplicate pair exceed the RPD criteria of 50%. DRO and RRO precision for the other duplicate pairs were acceptable and results in the sample and duplicate pairs which showed imprecision only were QN qualified to indicate the results are estimated with an unknown bias.

2.13.2 Matrix Spikes and Matrix Spike Duplicates

The MS/MSD samples are spiked in the laboratory with known concentrations of target analytes. The MS/MSD sample results provide information on possible matrix effects encountered during sample extraction, digestion, and analysis. Analytical results from MS/MSD samples are used to evaluate the sample matrix, method efficiency and applicability, accuracy, and precision. Accuracy was assessed by calculating the percent recovery of the target analytes added to the primary sample; precision was assessed by calculating the RPD for the MS/MSD sample pairs.

The MS/MSD sample pairs are required by the QAPP at a rate of one MS/MSD pair per 20 samples per matrix. The MS/MSD sample pairs were collected at the following frequencies:

- Site 8:
  - One aqueous (groundwater) MS/MSD was analyzed for methane at a frequency of 4%. Laboratory duplicates were performed for methane for batch 280-81840 due to insufficient sample volume for MS/MSD analysis.
  - One surface water MS/MSD was analyzed for DRO/RRO and PAHs at a frequency of 33%.
  - One soil MS/MSD was analyzed for TOC, DRO/RRO, DRO/RRO with silica gel cleanup and PAHs at a frequency of 33%.

- Site 9: One aqueous MS/MSD for VOCs at a frequency of 25%.

- Site 13: 27 soil matrix MS/MSD sets were analyzed for PCBs at a frequency of 6%.

- Site 21: Two soil MS/MSDs were analyzed for arsenic at a frequency of 12%.

- Site 31: 15 soil matrix MS/MSD sets were analyzed for PCBs at a frequency of 4%.

- Tar Removal Area:
  - One tar MS/MSD was analyzed for SVOCs for a frequency of 50%.
  - Two soil matrix MS/MSDs were analyzed for PAHs at a frequency of 9%.

- MOC:
  - One aqueous (groundwater) MS/MSD was analyzed for all methods except methane at a frequency of 11%.
  - One aqueous (surface water) MS/MSD was analyzed for BTEX and PAHs at a frequency of 33%.
  - Seven soil MS/MSDs were analyzed for DRO/RRO at a frequency of 12%.

The MS and MSD recoveries and RPDs are discussed in Sections 2.2 through 2.12.

2.13.3 Trip Blanks

Aqueous and soil trip blanks are included in shipments containing samples which are submitted to the laboratory for VOC, BTEX, and GRO analyses. Trip blanks are collected to assess the potential for VOC, BTEX, or GRO cross-contamination introduced by sample bottles, from sample handling during field operations, shipping, or storage at the laboratory.

Trip blanks were included with shipments containing samples for VOC, BTEX, and GRO analysis and were free of target analytes with the exceptions noted below.

Methylene chloride was detected at a concentration greater than the detection limit but less than the LOQ (0.32 ug/L) in the aqueous trip blank shipped with water samples on 9/21/11 from Site 9 Surface Water (laboratory work order 580-28786-2). Associated results were not detected and qualification was not required.

GRO was detected in the aqueous trip blank at a concentration greater than the detection limit, but less than the LOQ (0.017 ug/L) with water samples shipped on 7/19/11 from MOC Groundwater (laboratory work order 580-27518-1). Associated detected results <10 times the blank concentration were < LOQ and were B qualified.

2.14 Sample Qualifiers

Sample qualifiers are presented in Table 2-14.

Table 2-14 Sample Qualifiers

Field Sample Identification	Laboratory Sample Number	Compounds Affected	Reason	Flag	Bias
Site 8:					
11NC08SS001 11NC08SS002 11NC08SS003 11NC08SS004	580-27899-54 580-27899-55 580-27899-56 580-27899-57	Pyrene	Detected at similar concentration in method blank	B	High
11NC08SS001 11NC08SS002 11NC08SS003 11NC08SS004	580-27899-54 580-27899-55 580-27899-56 580-27899-57	RRO with silica gel cleanup	High MS/MSD recovery	MH	High
11NC08SS002	580-27899-55	RRO	High surrogate recovery	QH	High
Site 9:					
11NC09WA006 11NC09WA007 11NC09WA008 11NC09WA009 11NC09WA010	580-28786-14 580-28786-15 580-28786-16 580-28786-17 580-28786-18	1,1,1,2-Tetrachloroethane	Low MS/MSD recovery	ML	Low
Site 13:					
11NC13SS140 11NC13SS Composite 2 11NC13SS Composite 3 11NC13SS Composite 6 11NC13SS051	280-20054-140 280-20054-147 280-20054-148 280-20054-151 280-20054-51	All Detected PCBs	Multiple PCBs, Shared peaks	MN	Unknown

Table 2-14 Sample Qualifiers

Field Sample Identification	Laboratory Sample Number	Compounds Affected	Reason	Flag	Bias
11NC13SS052 11NC13SS053 11NC13SS056 11NC13SS057 11NC13SS080 11NC13SS085 11NC13SS086 11NC13SS089 11NC13SS124 11NC13SS126 11NC13SS127 11NC13SS128 11NC13SS129	280-20054-52 280-20054-53 280-20054-56 280-20054-57 280-20054-80 280-20054-85 280-20054-86 280-20054-89 280-20054-124 280-20054-126 280-20054-127 280-20054-128 280-20054-129				
11NC13SS014 11NC13SS015 11NC13SS042	280-20054-14 280-20054-15 280-20054-42	Detected PCBs	High Surrogate %Rs	QH	High
11NC13SS181 11NC13SS226 11NC13SS182 11NC13SS248 11NC13SS Composite 9 11NC13SS150	280-20698-5 280-20698-50 280-20698-6 280-20698-72 280-20410-40 280-20410-5	All PCBs	Low surrogate %Rs	QL	Low
All samples not previously qualified	All samples not previously qualified	Detected PCB-1260 And total PCBs with detected PCB-1260	High Field Varibabilty	QN	Unknown
Site 31:					
11NC31SS082	280-20446-82	All PCBs	Extracted outside holding time	QL	Low
All samples not previously qualified	All samples not previously qualified	Detected PCB-1260 And total PCBs with detected PCB-1260	High Field Varibabilty	QN	Unknown
MOC Water:					
11NCMOCWA013 11NCMOCWA014	280-20500-1 280-20500-2	BTEX	Low MS and/or MSD recovery	ML	Low
11NCMOCWA01 11NCMOCWA03 11NCMOCWA04 11NCMOCWA05	580-27518-1 580-27518-3 580-27518-4 580-27518-5	GRO	Detected at similar concentration in method blank	B	High
1NCMOCWA06	580-27518-6	PCBs	Low surrogate recovery	QL	Low
11NCMOCWA011 11NCMOCWA012	580-28349-1 580-28349-2	PAHs	Low surrogate recovery	QL	Low
11NCMOCWA01	580-27518-1	Methane	High LCS recovery	QH	High

Table 2-14 Sample Qualifiers

Field Sample Identification	Laboratory Sample Number	Compounds Affected	Reason	Flag	Bias
11NCMOCWA01 11NCMOCWA02 11NCMOCWA03 11NCMOCWA04 11NCMOCWA05 11NCMOCWA06 11NCMOCWA07 11NCMOCWA08 11NCMOCWA09 11NCMOCWA10	580-27518-1 580-27518-2 580-27518-3 580-27518-4 580-27518-5 580-27518-6 580-27518-7 580-27518-8 580-27518-9 580-27518-10	Total Chromium	Laboratory duplicate imprecision	QN	Unknown
MOC Soils:					
11NCMOCSS022 11NCMOCSS024 11NCMOCSS041 11NCMOCSS046	580-28199-1 580-28199-3 580-28350-14 580-28350-19	DRO	Detected at similar concentration in method blank	B	High
11NCMOCSS045	580-28350-18	RRO	High surrogate recovery	QH	High
11NCMOCSS047	580-28350-20	DRO/RRO	Low MS/MSD recovery	ML	Low
11NCMOCSS054 11NCMOCSS056	280-20411-2 280-20411-4	DRO	Field duplicate imprecision	QN	Unknown
11NCMOCSS065 11NCMOCSS073	580-28786-5 580-28786-13	RRO	Field duplicate imprecision	QN	Unknown
Tar Samples:					
11NCTAR001 11NCTAR002	580-27899-1 580-27899-2	SVOCs	Hold time exceedance	QL	Low
11NCTARSS002 11NCTARSS005 11NCTARSS006 11NCTARSS022 (1x) 11NCTARSS023	580-27899-4 580-27899-7 580-27899-8 580-27899-24 580-27899-25	All detected PAHs	High surrogate recovery	QH	High

%R = percent recovery

3.0 SUMMARY

This Report evaluates the analytical data generated during the NE Cape Remedial Actions conducted from July through September 2011. This assessment evaluated whether program objectives and data quality goals were met. The assessment reviewed sample receipt conditions, extraction and analytical procedures, sampling procedures, and correspondence to method criteria and project DQOs. The following conclusions were drawn based on this assessment of the analytical data:

- Sample receipt conditions were acceptable based on temperatures upon receipt and CoC correspondence to submitted sample set.
- Holding times were met with the following exceptions:
  - One soil PCB sample, and
  - Two SVOC tar samples.

  Results reported outside hold time requirements were qualified as estimated with a low bias (QL).
- Extraction and analytical procedures were acceptable based on MBs, LCS/LCSDs, MS/MSDs, and surrogates except as noted below.
  - GRO, DRO and pyrene were detected in method blanks. Associated results with sample concentrations <10x the blank concentration were B qualified.
  - All PCB results in six soil samples and one water sample and all PAH results in two water samples were qualified as estimated with a low bias (QL) due to low surrogate recoveries.
  - Detected RRO results in two soil samples, detected PCB results in three soil samples, and detected PAH results in five tar samples were qualified as estimated with a high bias (QH) due to high surrogate recoveries.
  - Five soil results for 1,1,1,2-tetrachloroethane and two water results for BTEX were qualified as estimated with a low bias due to a matrix effect (ML) due to low MS or MSD recoveries.
  - Four detected soil results for RRO with silica gel cleanup were qualified as estimated with a high bias due to a matrix effect (MH) due to high MS or MSD recoveries.
  - Multiple PCBs with shared peaks were detected in 18 samples. Individual PCB concentrations were MN qualified to indicate a potential matrix effect with an unknown bias.

- One water methane result was qualified as estimated with a high bias (QH) due to an associated high LCS recovery
- Ten total chromium results in water were qualified as estimated with an unknown bias (QN) due to a high RPD observed with laboratory duplicates.

- Imprecision was observed in field duplicates samples for DRO/RRO, several PAHs and TOC. If the action/cleanup level was well above the uncertainty, results were not qualified. Two DRO and two RRO results were within the uncertainty of the action/cleanup level and were qualified as QN.
- Imprecision was observed in field duplicate samples for PCB 1260. Results were reviewed on a site by site basis. The majority of duplicate sample result RPDs were outside control limits (≥50%) for both Sites 13 and 31, and all detected PCB-1260 results and total PCB results including detected PCB-1260 were qualified estimated with an unknown bias (QN) due to heterogeneity at both sites.
- A comparison of soil duplicate PCB results to screening criteria showed that detections ranging from 0.4 mg/kg to 3.5 mg/kg had the potential to provide a misleading conclusion since in several duplicate pairs for both Sites 13 and 31 reported result pairs showed one above the screening criteria of 1 mg/kg while the duplicate result was below.

Based on this review, the analytical data generated during the NE Cape Remedial Action at Sites 8, 9, 13, 21, 31, the MOC, and the Tar Removal Area are complete, correct, consistent, and compliant with method procedures and QC requirements, and are usable as qualified.

LABORATORY
ACCREDITATION
BUREAU

Certificate of Accreditation

ISO/IEC 17025:2005 ***Certificate Number L2236***

TestAmerica Laboratories, Inc

5755 8th Street East
Tacoma, WA 98424

has met the requirements set forth in L-A-B's policies and procedures, all requirements of ISO/IEC 17025:2005 "General Requirements for the competence of Testing and Calibration Laboratories" and the U.S. Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP).*

The accredited lab has demonstrated technical competence to a defined "Scope of Accreditation" and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Accreditation Granted through: January 19, 2013

R. Douglas Leonard, Jr., Managing Director
Laboratory Accreditation Bureau
Presented the 19th of January 2010

*See the laboratory's Scope of Accreditation for details of the DoD ELAP requirements
Laboratory Accreditation Bureau is found to be in compliance with ISO/IEC 17011:2004 and recognized by ILAC (International Laboratory Accreditation Cooperation) and NACLA (National Cooperation for Laboratory Accreditation).

LABORATORY ACCREDITATION BUREAU

Certificate # L2236

Scope of Accreditation
For
TestAmerica Laboratories, Inc.

5755 8th Street East
Tacoma, WA 98424
Dave Wunderlich
1-253-922-2310

In recognition of a successful assessment to ISO/IEC 17025:2005 and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in the DoD Quality Systems Manual for Environmental Laboratories (DoD QSM v4.1) based on the National Environmental Laboratory Accreditation Conference Chapter 5 Quality Systems Standard (NELAC Voted Revision June 5, 2003), accreditation is granted to TestAmerica Laboratories, Inc. to perform the following tests:

Accreditation granted through: January 19, 2013

Testing - Environmental

Non-Potable Water		
Technology	**Method**	**Analyte**
ICP-AES	6010B/200.7	Silver
ICP-AES	6010B/200.7	Aluminum
ICP-AES	6010B/200.7	Arsenic
ICP-AES	6010B/200.7	Boron
ICP-AES	6010B/200.7	Barium
ICP-AES	6010B/200.7	Beryllium
ICP-AES	6010B/200.7	Calcium
ICP-AES	6010B/200.7	Cadmium
ICP-AES	6010B/200.7	Cobalt
ICP-AES	6010B/200.7	Chromium
ICP-AES	6010B/200.7	Copper
ICP-AES	6010B/200.7	Iron
ICP-AES	6010B/200.7	Potassium
ICP-AES	6010B/200.7	Magnesium
ICP-AES	6010B/200.7	Manganese
ICP-AES	6010B/200.7	Molybdenum
ICP-AES	6010B/200.7	Sodium
ICP-AES	6010B/200.7	Nickel
ICP-AES	6010B/200.7	Lead
ICP-AES	6010B/200.7	Antimony
ICP-AES	6010B/200.7	Selenium

Non-Potable Water		
Technology	**Method**	**Analyte**
ICP-AES	6010B/200.7	Silicon
ICP-AES	6010B/200.7	Tin
ICP-AES	6010B/200.7	Titanium
ICP-AES	6010B/200.7	Strontium
ICP-AES	6010B/200.7	Thallium
ICP-AES	6010B/200.7	Vanadium
ICP-AES	6010B/200.7	Zinc
ICP-MS	6020/200.8	Silver
ICP-MS	6020/200.8	Arsenic
ICP-MS	6020/200.8	Barium
ICP-MS	6020/200.8	Beryllium
ICP-MS	6020/200.8	Cadmium
ICP-MS	6020/200.8	Cobalt
ICP-MS	6020/200.8	Chromium
ICP-MS	6020/200.8	Copper
ICP-MS	6020/200.8	Manganese
ICP-MS	6020/200.8	Molybdenum
ICP-MS	6020/200.8	Nickel
ICP-MS	6020/200.8	Lead
ICP-MS	6020/200.8	Antimony
ICP-MS	6020/200.8	Selenium
ICP-MS	6020/200.8	Thallium
ICP-MS	6020/200.8	Uranium
ICP-MS	6020/200.8	Vanadium
ICP-MS	6020/200.8	Zinc
CVAAS	7470A/245.1	Mercury
ICP-AES	7195/6010B	Hexavalent Chromium
GC/MS	8260B/624	1,1,1,2-Tetrachloroethane
GC/MS	8260B/624	1,1,1-Trichloroethane
GC/MS	8260B/624	1,1,2,2-Tetrachloroethane
GC/MS	8260B/624	1,1,2-Trichloroethane
GC/MS	8260B/624	1,1-Dichloroethane
GC/MS	8260B/624	1,1-Dichloroethene
GC/MS	8260B/624	1,1-Dichloropropene
GC/MS	8260B/624	1,2,3-Trichlorobenzene
GC/MS	8260B/624	1,2,3-Trichloropropane
GC/MS	8260B/624	1,2,4-Trichlorobenzene
GC/MS	8260B/624	1,2,4-Trimethylbenzene
GC/MS	8260B/624	1,2-Dibromo-3-Chloropropane
GC/MS	8260B/624	1,2-Dichlorobenzene

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Non-Potable Water

Technology	Method	Analyte
GC/MS	8260B/624	1,2-Dichloroethane
GC/MS	8260B/624	1,2-Dichloropropane
GC/MS	8260B/624	1,3,5-Trimethylbenzene
GC/MS	8260B/624	1,3-Dichlorobenzene
GC/MS	8260B/624	1,3-Dichloropropane
GC/MS	8260B/624	1,4-Dichlorobenzene
GC/MS	8260B/624	2,2-Dichloropropane
GC/MS	8260B/624	2-Chlorotoluene
GC/MS	8260B/624	2-Hexanone
GC/MS	8260B/624	4-Chlorotoluene
GC/MS	8260B/624	4-Isopropyltoluene
GC/MS	8260B/624	Acetone
GC/MS	8260B/624	Benzene
GC/MS	8260B/624	Bromobenzene
GC/MS	8260B/624	Bromodichloromethane
GC/MS	8260B/624	Bromoform
GC/MS	8260B/624	Bromomethane
GC/MS	8260B/624	Carbon disulfide
GC/MS	8260B/624	Carbon tetrachloride
GC/MS	8260B/624	Chlorobenzene
GC/MS	8260B/624	Chlorobromomethane
GC/MS	8260B/624	Chlorodibromomethane
GC/MS	8260B/624	Chloroethane
GC/MS	8260B/624	Chloroform
GC/MS	8260B/624	Chloromethane
GC/MS	8260B/624	cis-1,2-Dichloroethene
GC/MS	8260B/624	cis-1,3-Dichloropropene
GC/MS	8260B/624	Dibromomethane
GC/MS	8260B/624	Dichlorodifluoromethane
GC/MS	8260B/624	Ethylbenzene
GC/MS	8260B/624	Ethylene Dibromide
GC/MS	8260B/624	Hexachlorobutadiene
GC/MS	8260B/624	Isopropylbenzene
GC/MS	8260B/624	Methyl Ethyl Ketone
GC/MS	8260B/624	Methyl Isobutyl Ketone
GC/MS	8260B/624	Methyl tert-butyl ether
GC/MS	8260B/624	Methylene Chloride
GC/MS	8260B/624	m-Xylene & p-Xylene
GC/MS	8260B/624	Naphthalene
GC/MS	8260B/624	n-Butylbenzene

Non-Potable Water		
Technology	**Method**	**Analyte**
GC/MS	8260B/624	N-Propylbenzene
GC/MS	8260B/624	o-Xylene
GC/MS	8260B/624	sec-Butylbenzene
GC/MS	8260B/624	Styrene
GC/MS	8260B/624	tert-Butylbenzene
GC/MS	8260B/624	Tetrachloroethene
GC/MS	8260B/624	Toluene
GC/MS	8260B/624	trans-1,2-Dichloroethene
GC/MS	8260B/624	trans-1,3-Dichloropropene
GC/MS	8260B/624	Trichloroethene
GC/MS	8260B/624	Trichlorofluoromethane
GC/MS	8260B/624	Vinyl chloride
GC/MS	8270C/625	1,2,4-Trichlorobenzene
GC/MS	8270C/625	1,2-Dichlorobenzene
GC/MS	8270C/625	1,3-Dichlorobenzene
GC/MS	8270C/625	1,4-Dichlorobenzene
GC/MS	8270C/625	bis(2-chloroisoprolyl)ether
GC/MS	8270C/625	2,4,5-Trichlorophenol
GC/MS	8270C/625	2,4,6-Trichlorophenol
GC/MS	8270C/625	2,4-Dichlorophenol
GC/MS	8270C/625	2,4-Dimethylphenol
GC/MS	8270C/625	2,4-Dinitrophenol
GC/MS	8270C/625	2,4-Dinitrotoluene
GC/MS	8270C/625	2,6-Dinitrotoluene
GC/MS	8270C/625	2-Chloronaphthalene
GC/MS	8270C/625	2-Chlorophenol
GC/MS	8270C/625	2-Methylnaphthalene
GC/MS	8270C/625	2-Methylphenol
GC/MS	8270C/625	2-Nitroaniline
GC/MS	8270C/625	2-Nitrophenol
GC/MS	8270C/625	3 & 4 Methylphenol
GC/MS	8270C/625	3,3'-Dichlorobenzidine
GC/MS	8270C/625	3-Nitroaniline
GC/MS	8270C/625	4,6-Dinitro-2-methylphenol
GC/MS	8270C/625	4-Bromophenyl phenyl ether
GC/MS	8270C/625	4-Chloro-3-methylphenol
GC/MS	8270C/625	4-Chloroaniline
GC/MS	8270C/625	4-Chlorophenyl phenyl ether
GC/MS	8270C/625	4-Nitroaniline
GC/MS	8270C/625	Acenaphthene

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Non-Potable Water

Technology	Method	Analyte
GC/MS	8270C/625	Acenaphthylene
GC/MS	8270C/625	Anthracene
GC/MS	8270C/625	1,2-Diphenylhydrazine as Azobenzene
GC/MS	8270C/625	Benzo[a]anthracene
GC/MS	8270C/625	Benzo[a]pyrene
GC/MS	8270C/625	Benzo[b]fluoranthene
GC/MS	8270C/625	Benzo[g,h,i]perylene
GC/MS	8270C/625	Benzo[k]fluoranthene
GC/MS	8270C/625	Benzoic acid
GC/MS	8270C/625	Benzyl alcohol
GC/MS	8270C/625	Bis(2-chloroethoxy)methane
GC/MS	8270C/625	Bis(2-chloroethyl)ether
GC/MS	8270C/625	Bis(2-ethylhexyl) phthalate
GC/MS	8270C/625	Butyl benzyl phthalate
GC/MS	8270C/625	Carbazole
GC/MS	8270C/625	Chrysene
GC/MS	8270C/625	Dibenz(a,h)anthracene
GC/MS	8270C/625	Dibenzofuran
GC/MS	8270C/625	Diethyl phthalate
GC/MS	8270C/625	Dimethyl phthalate
GC/MS	8270C/625	Di-n-butyl phthalate
GC/MS	8270C/625	Di-n-octyl phthalate
GC/MS	8270C/625	Fluoranthene
GC/MS	8270C/625	Fluorene
GC/MS	8270C/625	Hexachlorobenzene
GC/MS	8270C/625	Hexachlorobutadiene
GC/MS	8270C/625	Hexachloroethane
GC/MS	8270C/625	Indeno[1,2,3-cd]pyrene
GC/MS	8270C/625	Isophorone
GC/MS	8270C/625	Naphthalene
GC/MS	8270C/625	Nitrobenzene
GC/MS	8270C/625	N-Nitrosodimethylamine
GC/MS	8270C/625	N-Nitrosodi-n-propylamine
GC/MS	8270C/625	N-Nitrosodiphenylamine
GC/MS	8270C/625	Pentachlorophenol
GC/MS	8270C/625	Phenanthrene
GC/MS	8270C/625	Phenol
GC/MS	8270C/625	Pyrene
GC/MS SIM	8270C SIM	2-Methylnaphthalene
GC/MS SIM	8270C SIM	Acenaphthene

Non-Potable Water

Technology	Method	Analyte
GC/MS SIM	8270C SIM	Acenaphthylene
GC/MS SIM	8270C SIM	Anthracene
GC/MS SIM	8270C SIM	Benzo[a]anthracene
GC/MS SIM	8270C SIM	Benzo[a]pyrene
GC/MS SIM	8270C SIM	Benzo[b]fluoranthene
GC/MS SIM	8270C SIM	Benzo[g,h,i]perylene
GC/MS SIM	8270C SIM	Benzo[k]fluoranthene
GC/MS SIM	8270C SIM	Chrysene
GC/MS SIM	8270C SIM	Dibenz(a,h)anthracene
GC/MS SIM	8270C SIM	Fluoranthene
GC/MS SIM	8270C SIM	Fluorene
GC/MS SIM	8270C SIM	Indeno[1,2,3-cd]pyrene
GC/MS SIM	8270C SIM	Naphthalene
GC/MS SIM	8270C SIM	Phenanthrene
GC/MS SIM	8270C SIM	Pyrene
GC-ECD	8011	1,2-Dibromoethane
GC-ECD	8011	1,2-Dibromo-3-Chloropropane
GC-ECD	8081A/608	4,4'-DDD
GC-ECD	8081A/608	4,4'-DDE
GC-ECD	8081A/608	4,4'-DDT
GC-ECD	8081A/608	Aldrin
GC-ECD	8081A/608	alpha-BHC
GC-ECD	8081A/608	alpha-Chlordane
GC-ECD	8081A/608	beta-BHC
GC-ECD	8081A/608	delta-BHC
GC-ECD	8081A/608	Dieldrin
GC-ECD	8081A/608	Endosulfan I
GC-ECD	8081A/608	Endosulfan II
GC-ECD	8081A/608	Endosulfan sulfate
GC-ECD	8081A/608	Endrin
GC-ECD	8081A/608	Endrin aldehyde
GC-ECD	8081A/608	Endrin ketone
GC-ECD	8081A/608	gamma-BHC (Lindane)
GC-ECD	8081A/608	gamma-Chlordane
GC-ECD	8081A/608	Heptachlor
GC-ECD	8081A/608	Heptachlor epoxide
GC-ECD	8081A/608	Methoxychlor
GC-ECD	8081A/608	Technical Chlordane
GC-ECD	8081A/608	Toxaphene
GC-ECD	8082/608	PCB-1016

Non-Potable Water		
Technology	**Method**	**Analyte**
GC-ECD	8082/608	PCB-1221
GC-ECD	8082/608	PCB-1232
GC-ECD	8082/608	PCB-1242
GC-ECD	8082/608	PCB-1248
GC-ECD	8082/608	PCB-1254
GC-ECD	8082/608	PCB-1260
GC-IT/MS	8151A mod.	2,4,5-T
GC-IT/MS	8151A mod.	2,4-D
GC-IT/MS	8151A mod.	2,4-DB
GC-IT/MS	8151A mod.	4-Nitrophenol
GC-IT/MS	8151A mod.	Dalapon
GC-IT/MS	8151A mod.	Dicamba
GC-IT/MS	8151A mod.	Dichlorprop
GC-IT/MS	8151A mod.	Dinoseb
GC-IT/MS	8151A mod.	MCPA
GC-IT/MS	8151A mod.	Mecoprop
GC-IT/MS	8151A mod.	Pentachlorophenol
GC-IT/MS	8151A mod.	Silvex (2,4,5-TP)
GC-FID	EPA 8015B/AK101/ NWTPH-Gx/NWVPH	Gasoline and Volatile Petroleum Hydrocarbons
GC-FID	EPA 8015B/AK102/ NWTPH-Dx/NWEPH	Diesel and Extractable Petroleum Hydrocarbons
GC-FID	EPA 8015B/AK102/ NWTPH-Dx/NWEPH	Motor Oil and Extractable Petroleum Hydrocarbons
Gravimetric	1664A	Oil & Grease
Colorimetric/RFA	9012A	Total Cyanides
Ion Chromatography	300.0/9056A	Bromide
Ion Chromatography	300.0/9056A	Chloride
Ion Chromatography	300.0/9056A	Fluoride
Ion Chromatography	300.0/9056A	Sulfate
Ion Chromatography	300.0/9056A	Nitrate
Ion Chromatography	300.0/9056A	Nitrite
TOC Analyzer (IR)	415.1/9060	TOC
Probe	9040/9045/150.1	pH
Conductivity meter	9050/120.1/SM2510B	Specific Conductance
Pensky-Martens closed-cup tester/ Setaflash	1010/1020	Ignitability/Flashpoint
Preparation	**Method**	**Type**
Separatory Funnel Liquid-Liquid Extraction	3510C	Semivolatile and Nonvolatile Organics

Non-Potable Water

Preparation	Method	Type
Continuous Liquid-Liquid Extraction	3520	Semivolatile and Nonvolatile Organics
Solvent Dilution	3580	Semivolatile and Nonvolatile Organics
Waste Dilution	3585	Volatile Organic Compounds
Purge and Trap	5030	Volatile Organic Compounds
Purge and Trap	5035	Volatile Organic Compounds
Acid Digestion (Aqueous)	3005/3010	Inorganics
Acid Digestion (Sediments, Sludges, and Soils)	3050	Inorganics
TCLP Extraction	1311	Toxicity Characteristic Leaching Procedure
Florisil Cleanup	3620B	Cleanup of pesticide residues and other chlorinated hydrocarbons
Silica Gel Cleanup	3630C	Column Cleanup
Gel Permeation Cleanup	3640A	Separation of Synthetic Macromolecules
Sulfur Cleanup	3660B	Sulfur Cleanup Reagent
Sulfuric Acid Cleanup	3665A	Cleanup for Quantitation of PCBs

Solid and Chemical Materials

Technology	Method	Analyte
ICP-AES	6010B	Silver
ICP-AES	6010B	Aluminum
ICP-AES	6010B	Arsenic
ICP-AES	6010B	Boron
ICP-AES	6010B	Barium
ICP-AES	6010B	Beryllium
ICP-AES	6010B	Calcium
ICP-AES	6010B	Cadmium
ICP-AES	6010B	Cobalt
ICP-AES	6010B	Chromium
ICP-AES	6010B	Copper
ICP-AES	6010B	Iron
ICP-AES	6010B	Potassium
ICP-AES	6010B	Magnesium
ICP-AES	6010B	Manganese
ICP-AES	6010B	Molybdenum
ICP-AES	6010B	Sodium
ICP-AES	6010B	Nickel
ICP-AES	6010B	Lead
ICP-AES	6010B	Antimony
ICP-AES	6010B	Selenium

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
ICP-AES	6010B	Silicon
ICP-AES	6010B	Tin
ICP-AES	6010B	Titanium
ICP-AES	6010B	Strontium
ICP-AES	6010B	Thallium
ICP-AES	6010B	Vanadium
ICP-AES	6010B	Zinc
ICP-MS	6020	Silver
ICP-MS	6020	Arsenic
ICP-MS	6020	Barium
ICP-MS	6020	Beryllium
ICP-MS	6020	Cadmium
ICP-MS	6020	Cobalt
ICP-MS	6020	Chromium
ICP-MS	6020	Copper
ICP-MS	6020	Iron
ICP-MS	6020	Manganese
ICP-MS	6020	Molybdenum
ICP-MS	6020	Nickel
ICP-MS	6020	Lead
ICP-MS	6020	Antimony
ICP-MS	6020	Selenium
ICP-MS	6020	Thallium
ICP-MS	6020	Uranium
ICP-MS	6020	Vanadium
ICP-MS	6020	Zinc
CVAAS	7471A	Mercury
ICP-AES	7195/6010B	Hexavalent Chromium
GC/MS	8260B	1,1,1,2-Tetrachloroethane
GC/MS	8260B	1,1,1-Trichloroethane
GC/MS	8260B	1,1,2,2-Tetrachloroethane
GC/MS	8260B	1,1,2-Trichloroethane
GC/MS	8260B	1,1-Dichloroethane
GC/MS	8260B	1,1-Dichloroethene
GC/MS	8260B	1,1-Dichloropropene
GC/MS	8260B	1,2,3-Trichlorobenzene
GC/MS	8260B	1,2,3-Trichloropropane
GC/MS	8260B	1,2,4-Trichlorobenzene
GC/MS	8260B	1,2,4-Trimethylbenzene

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC/MS	8260B	1,2-Dibromo-3-Chloropropane
GC/MS	8260B	1,2-Dichlorobenzene
GC/MS	8260B	1,2-Dichloroethane
GC/MS	8260B	1,2-Dichloropropane
GC/MS	8260B	1,3,5-Trimethylbenzene
GC/MS	8260B	1,3-Dichlorobenzene
GC/MS	8260B	1,3-Dichloropropane
GC/MS	8260B	1,4-Dichlorobenzene
GC/MS	8260B	2,2-Dichloropropane
GC/MS	8260B	2-Chlorotoluene
GC/MS	8260B	2-Hexanone
GC/MS	8260B	4-Chlorotoluene
GC/MS	8260B	4-Isopropyltoluene
GC/MS	8260B	Acetone
GC/MS	8260B	Benzene
GC/MS	8260B	Bromobenzene
GC/MS	8260B	Bromoform
GC/MS	8260B	Bromomethane
GC/MS	8260B	Carbon disulfide
GC/MS	8260B	Carbon tetrachloride
GC/MS	8260B	Chlorobenzene
GC/MS	8260B	Chlorodibromomethane
GC/MS	8260B	Chloroethane
GC/MS	8260B	Chloroform
GC/MS	8260B	Chloromethane
GC/MS	8260B	cis-1,2-Dichloroethene
GC/MS	8260B	cis-1,3-Dichloropropene
GC/MS	8260B	Dibromomethane
GC/MS	8260B	Dichlorodifluoromethane
GC/MS	8260B	Ethylbenzene
GC/MS	8260B	Ethylene Dibromide
GC/MS	8260B	Hexachlorobutadiene
GC/MS	8260B	Isopropylbenzene
GC/MS	8260B	Methyl Ethyl Ketone
GC/MS	8260B	Methyl Isobutyl Ketone
GC/MS	8260B	Methyl tert-butyl ether
GC/MS	8260B	Methylene Chloride
GC/MS	8260B	m-Xylene & p-Xylene
GC/MS	8260B	Naphthalene
GC/MS	8260B	n-Butylbenzene

Solid and Chemical Materials

Technology	Method	Analyte
GC/MS	8260B	N-Propylbenzene
GC/MS	8260B	o-Xylene
GC/MS	8260B	sec-Butylbenzene
GC/MS	8260B	Styrene
GC/MS	8260B	tert-Butylbenzene
GC/MS	8260B	Tetrachloroethene
GC/MS	8260B	Toluene
GC/MS	8260B	trans-1,2-Dichloroethene
GC/MS	8260B	trans-1,3-Dichloropropene
GC/MS	8260B	Trichloroethene
GC/MS	8260B	Trichlorofluoromethane
GC/MS	8260B	Vinyl chloride
GC/MS	8270C	1,2,4-Trichlorobenzene
GC/MS	8270C	1,2-Dichlorobenzene
GC/MS	8270C	1,3-Dichlorobenzene
GC/MS	8270C	1,4-Dichlorobenzene
GC/MS	8270C	bis(2-chloroisoprolyl)ether
GC/MS	8270C	2,4,5-Trichlorophenol
GC/MS	8270C	2,4,6-Trichlorophenol
GC/MS	8270C	2,4-Dichlorophenol
GC/MS	8270C	2,4-Dimethylphenol
GC/MS	8270C	2,4-Dinitrophenol
GC/MS	8270C	2,4-Dinitrotoluene
GC/MS	8270C	2,6-Dinitrotoluene
GC/MS	8270C	2-Chloronaphthalene
GC/MS	8270C	2-Chlorophenol
GC/MS	8270C	2-Methylnaphthalene
GC/MS	8270C	2-Methylphenol
GC/MS	8270C	2-Nitroaniline
GC/MS	8270C	2-Nitrophenol
GC/MS	8270C	3 & 4 Methylphenol
GC/MS	8270C	3,3'-Dichlorobenzidine
GC/MS	8270C	3-Nitroaniline
GC/MS	8270C	4,6-Dinitro-2-methylphenol
GC/MS	8270C	4-Bromophenyl phenyl ether
GC/MS	8270C	4-Chloro-3-methylphenol
GC/MS	8270C	4-Chloroaniline
GC/MS	8270C	4-Chlorophenyl phenyl ether
GC/MS	8270C	4-Nitroaniline
GC/MS	8270C	Acenaphthene

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Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC/MS	8270C	Acenaphthylene
GC/MS	8270C	Anthracene
GC/MS	8270C	1,2-Diphenylhydrazine as Azobenzene
GC/MS	8270C	Benzo[a]anthracene
GC/MS	8270C	Benzo[a]pyrene
GC/MS	8270C	Benzo[b]fluoranthene
GC/MS	8270C	Benzo[g,h,i]perylene
GC/MS	8270C	Benzo[k]fluoranthene
GC/MS	8270C	Benzoic acid
GC/MS	8270C	Benzyl alcohol
GC/MS	8270C	Bis(2-chloroethoxy)methane
GC/MS	8270C	Bis(2-chloroethyl)ether
GC/MS	8270C	Bis(2-ethylhexyl) phthalate
GC/MS	8270C	Butyl benzyl phthalate
GC/MS	8270C	Carbazole
GC/MS	8270C	Chrysene
GC/MS	8270C	Dibenz(a,h)anthracene
GC/MS	8270C	Dibenzofuran
GC/MS	8270C	Diethyl phthalate
GC/MS	8270C	Dimethyl phthalate
GC/MS	8270C	Di-n-butyl phthalate
GC/MS	8270C	Di-n-octyl phthalate
GC/MS	8270C	Fluoranthene
GC/MS	8270C	Fluorene
GC/MS	8270C	Hexachlorobenzene
GC/MS	8270C	Hexachlorobutadiene
GC/MS	8270C	Hexachloroethane
GC/MS	8270C	Indeno[1,2,3-cd]pyrene
GC/MS	8270C	Isophorone
GC/MS	8270C	Naphthalene
GC/MS	8270C	Nitrobenzene
GC/MS	8270C	N-Nitrosodimethylamine
GC/MS	8270C	N-Nitrosodi-n-propylamine
GC/MS	8270C	N-Nitrosodiphenylamine
GC/MS	8270C	Pentachlorophenol
GC/MS	8270C	Phenanthrene
GC/MS	8270C	Phenol
GC/MS	8270C	Pyrene
GC/MS SIM	8270C SIM	2-Methylnaphthalene
GC/MS SIM	8270C SIM	Acenaphthene

Solid and Chemical Materials

Technology	Method	Analyte
GC/MS SIM	8270C SIM	Acenaphthylene
GC/MS SIM	8270C SIM	Anthracene
GC/MS SIM	8270C SIM	Benzo[a]anthracene
GC/MS SIM	8270C SIM	Benzo[a]pyrene
GC/MS SIM	8270C SIM	Benzo[b]fluoranthene
GC/MS SIM	8270C SIM	Benzo[g,h,i]perylene
GC/MS SIM	8270C SIM	Benzo[k]fluoranthene
GC/MS SIM	8270C SIM	Chrysene
GC/MS SIM	8270C SIM	Dibenz(a,h)anthracene
GC/MS SIM	8270C SIM	Fluoranthene
GC/MS SIM	8270C SIM	Fluorene
GC/MS SIM	8270C SIM	Indeno[1,2,3-cd]pyrene
GC/MS SIM	8270C SIM	Naphthalene
GC/MS SIM	8270C SIM	Phenanthrene
GC/MS SIM	8270C SIM	Pyrene
GC-ECD	8081A	4,4'-DDD
GC-ECD	8081A	4,4'-DDE
GC-ECD	8081A	4,4'-DDT
GC-ECD	8081A	Aldrin
GC-ECD	8081A	alpha-BHC
GC-ECD	8081A	alpha-Chlordane
GC-ECD	8081A	beta-BHC
GC-ECD	8081A	delta-BHC
GC-ECD	8081A	Dieldrin
GC-ECD	8081A	Endosulfan I
GC-ECD	8081A	Endosulfan II
GC-ECD	8081A	Endosulfan sulfate
GC-ECD	8081A	Endrin
GC-ECD	8081A	Endrin aldehyde
GC-ECD	8081A	Endrin ketone
GC-ECD	8081A	gamma-BHC (Lindane)
GC-ECD	8081A	gamma-Chlordane
GC-ECD	8081A	Heptachlor
GC-ECD	8081A	Heptachlor epoxide
GC-ECD	8081A	Methoxychlor
GC-ECD	8081A	Technical Chlordane
GC-ECD	8081A	Toxaphene
GC-ECD	8082	PCB-1016
GC-ECD	8082	PCB-1221
GC-ECD	8082	PCB-1232

Solid and Chemical Materials		
Technology	**Method**	**Analyte**
GC-ECD	8082	PCB-1242
GC-ECD	8082	PCB-1248
GC-ECD	8082	PCB-1254
GC-ECD	8082	PCB-1260
GC-IT/MS	8151A mod.	2,4,5-T
GC-IT/MS	8151A mod.	2,4-D
GC-IT/MS	8151A mod.	2,4-DB
GC-IT/MS	8151A mod.	4-Nitrophenol
GC-IT/MS	8151A mod.	Dalapon
GC-IT/MS	8151A mod.	Dicamba
GC-IT/MS	8151A mod.	Dichlorprop
GC-IT/MS	8151A mod.	Dinoseb
GC-IT/MS	8151A mod.	MCPA
GC-IT/MS	8151A mod.	Mecoprop MCPP
GC-IT/MS	8151A mod.	Pentachlorophenol
GC-IT/MS	8151A mod.	Silvex (2,4,5-TP)
GC-FID	8015B/AK101/ NWTPH-Gx/NWVPH	Gasoline and Volatile Petroleum Hydrocarbons
GC-FID	8015B/AK102/ NWTPH-Dx/NWEPH	Diesel and Extractable Petroleum Hydrocarbons
GC-FID	8015B/AK102/ NWTPH-Dx/NWEPH	Motor Oil and Extractable Petroleum Hydrocarbons
Colorimetric/RFA	9012A	Total Cyanides
Ion Chromatography	300.0/9056A	Fluoride
Ion Chromatography	300.0/9056A	Chloride
Ion Chromatography	300.0/9056A	Fluoride
Ion Chromatography	300.0/9056A	Sulfate
Ion Chromatography	300.0/9056A	Nitrate
Ion Chromatography	300.0/9056A	Nitrite
TOC Analyzer (IR)	9060	TOC
Probe	9040/9045	pH/Corrosivity
Conductivity meter	9050	Specific Conductance
Pensky-Martens closed-cup tester/ Setaflash	1010/1020	Ignitability/Flashpoint
Preparation	**Method**	**Type**
Separatory Funnel Liquid-Liquid Extraction	3510C	Semivolatile and Nonvolatile Organics
Continuous Liquid-Liquid Extraction	3520	Semivolatile and Nonvolatile Organics
Ultrasonic Extraction	3550C	Semivolatile and Nonvolatile Organics
Solvent Dilution	3580	Semivolatile and Nonvolatile Organics

LABORATORY ACCREDITATION BUREAU

Certificate # L2236

Solid and Chemical Materials		
Preparation	**Method**	**Type**
Waste Dilution	3585	Volatile Organic Compounds
Purge and Trap	5030	Volatile Organic Compounds
Purge and Trap	5035	Volatile Organic Compounds
Acid Digestion (Aqueous)	3005/3010	Inorganics
Acid Digestion (Sediments, Sludges, and Soils)	3050	Inorganics
TCLP Extraction	1311	Toxicity Characteristic Leaching Procedure
Florisil Cleanup	3620B	Cleanup of pesticide residues and other chlorinated hydrocarbons
Silica Gel Cleanup	3630C	Column Cleanup
Gel Permeation Cleanup	3640A	Separation of Synthetic Macromolecules
Sulfur Cleanup	3660B	Sulfur Cleanup Reagent
Sulfuric Acid Cleanup	3665A	Cleanup for Quantitation of PCBs

Notes:

1) This laboratory offers commercial testing service.

Approved By: ______________________ Date: January 19, 2010

R. Douglas Leonard
Chief Technical Officer

Issued: 01/19/10

THE STATE OF ALASKA

Department of Environmental Conservation
Laboratory Certification Program

Certificate of Approval for Contaminated Sites Analysis

TestAmerica-Tacoma

5755 8th Street East
Tacoma, WA 98424

UST-022

has complied with the provisions set forth in 18 AAC 78 and is hereby recognized by The Department of Environmental Conservation as **Approved** for the analytical parameter listed on the accompanying Scope of Accreditation. This certificate is effective **3/4/11**, and expires **3/4/12**.

THE SEAL OF THE STATE OF ALASKA

Patryce D. McKinney
State of Alaska Certification Authority

Lance W. Morris
Laboratory Chemistry Certification Officer

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Approval Program

Scope of Approval **Expiration: 03/04/2012**

TestAmerica-Seattle, WA **UST-022**
5755 8th Street East
Tacoma, WA 98424

is approved by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 78, to perform analysis for the parameters listed below using the analytical methods indicated. Approval for all parameters is final. Approval is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. AK refers to Alaska Methods 101, 102 and 103 for the determination of gasoline, diesel and residual range organics in soil and water. ASTM refers to the American Society for Testing and Materials.

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6010B	EPA	Total Arsenic	Soil	Approved
6010B	EPA	Total Barium	Soil	Approved
6010B	EPA	Total Cadmium	Soil	Approved
6010B	EPA	Total Chromium	Soil	Approved
6010B	EPA	Total Lead	Soil	Approved
6010B	EPA	Total Nickel	Soil	Approved
6010B	EPA	Total Vanadium	Soil	Approved
6010B	EPA	Total Arsenic	Water	Approved
6010B	EPA	Total Barium	Water	Approved
6010B	EPA	Total Cadmium	Water	Approved
6010B	EPA	Total Chromium	Water	Approved
6010B	EPA	Total Lead	Water	Approved
6010B	EPA	Total Nickel	Water	Approved
6010B	EPA	Total Vanadium	Water	Approved
6020	EPA	Total Arsenic	Soil	Approved
6020	EPA	Total Barium	Soil	Approved
6020	EPA	Total Cadmium	Soil	Approved
6020	EPA	Total Chromium	Soil	Approved
6020	EPA	Total Lead	Soil	Approved

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6020	EPA	Total Nickel	Soil	Approved
6020	EPA	Total Vanadium	Soil	Approved
6020	EPA	Total Arsenic	Water	Approved
6020	EPA	Total Barium	Water	Approved
6020	EPA	Total Cadmium	Water	Approved
6020	EPA	Total Chromium	Water	Approved
6020	EPA	Total Lead	Water	Approved
6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8082	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK102-SV	AK	Diesel Range Organics-small volume	Water	Approved
AK103	AK	Residual Range Organics	Soil	Approved

THE STATE OF ALASKA

Department of Environmental Conservation
Laboratory Certification Program

Certificate of Approval for Contaminated Sites Analysis

TestAmerica-Denver, CO

4955 Yarrow Street
Arvada, CO 80002

UST-030

has complied with the provisions set forth in 18 AAC 78 and is hereby recognized by The Department of Environmental Conservation as **Approved** for the analytical parameter listed on the accompanying Scope of Accreditation. This certificate is effective **4/5/11**, and expires **4/5/12**.

Patryce D. McKinney	Lance W. Morris
State of Alaska Certification Authority	Laboratory Chemistry Certification Officer

THE STATE OF ALASKA
Department of Environmental Conservation
Laboratory Approval Program

Scope of Approval **Expiration: 04/05/2012**

TestAmerica-Denver, CO **UST-030**
4955 Yarrow Street
Arvada, CO 80002

is approved by the State of Alaska Department of Environmental Conservation, pursuant to 18 AAC 78, to perform analysis for the parameters listed below using the analytical methods indicated. Approval for all parameters is final. Approval is for the latest version of a method unless specified otherwise in a note. EPA refers to the U.S. Environmental Protection Agency. AK refers to Alaska Methods 101, 102 and 103 for the determination of gasoline, diesel and residual range organics in soil and water. ASTM refers to the American Society for Testing and Materials.

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6010B	EPA	Total Arsenic	Soil	Approved
6010B	EPA	Total Barium	Soil	Approved
6010B	EPA	Total Cadmium	Soil	Approved
6010B	EPA	Total Chromium	Soil	Approved
6010B	EPA	Total Lead	Soil	Approved
6010B	EPA	Total Nickel	Soil	Approved
6010B	EPA	Total Vanadium	Soil	Approved
6010B	EPA	Total Arsenic	Water	Approved
6010B	EPA	Total Barium	Water	Approved
6010B	EPA	Total Cadmium	Water	Approved
6010B	EPA	Total Chromium	Water	Approved
6010B	EPA	Total Lead	Water	Approved
6010B	EPA	Total Nickel	Water	Approved
6010B	EPA	Total Vanadium	Water	Approved
6020	EPA	Total Arsenic	Soil	Approved
6020	EPA	Total Barium	Soil	Approved
6020	EPA	Total Cadmium	Soil	Approved
6020	EPA	Total Chromium	Soil	Approved
6020	EPA	Total Lead	Soil	Approved

Contaminated Sites

Method/Test Name	Reference	Analyte	Matrix	Status
6020	EPA	Total Nickel	Soil	Approved
6020	EPA	Total Vanadium	Soil	Approved
6020	EPA	Total Arsenic	Water	Approved
6020	EPA	Total Barium	Water	Approved
6020	EPA	Total Cadmium	Water	Approved
6020	EPA	Total Chromium	Water	Approved
6020	EPA	Total Lead	Water	Approved
6020	EPA	Total Nickel	Water	Approved
6020	EPA	Total Vanadium	Water	Approved
8021B	EPA	BTEX	Water	Approved
8021B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8082	EPA	Polychlorinated Biphenyls-PCB	Soil	Approved
8082	EPA	Polychlorinated Biphenyls-PCB	Water	Approved
8260B	EPA	BTEX	Soil	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Soil	Approved
8260B	EPA	BTEX	Water	Approved
8260B	EPA	Total Volatile Chlorinated Solvents	Water	Approved
8270C	EPA	PAH	Soil	Approved
8270C	EPA	PAH	Water	Approved
8270D	EPA	PAH	Soil	Approved
8270D	EPA	PAH	Water	Approved
8310	EPA	PAH	Soil	Approved
8310	EPA	PAH	Water	Approved
AK101	AK	Gasoline Range Organics	Soil	Approved
AK101	AK	Gasoline Range Organics	Water	Approved
AK101/8021B	EPA	BTEX-methanol preserved	Soil	Approved
AK102	AK	Diesel Range Organics	Soil	Approved
AK102	AK	Diesel Range Organics	Water	Approved
AK103	AK	Residual Range Organics	Soil	Approved

The American Association for Laboratory Accreditation

World Class Accreditation

Accredited DoD ELAP Laboratory

A2LA has accredited

TESTAMERICA DENVER

Arvada, CO

for technical competence in the field of

Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2003 NELAC Chapter 5 Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in the DoD Quality Systems Manual for Environmental Laboratories (QSM v4.1); accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 30th day of November 2009.

President & CEO
For the Accreditation Council
Certificate Number 2907.01
Valid to October 31, 2011

AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION
CORPORATE SEAL 1978
DISTRICT OF COLUMBIA
A2LA

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.

American Association for Laboratory Accreditation

World Class Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TESTAMERICA DENVER
4955 Yarrow Street
Arvada, CO 80002
Karen Kuoppala Phone: 303-736-1203
www.testamericainc.com

ENVIRONMENTAL

Valid To: October 31, 2011 Certificate Number: 2907.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005, the 2003 NELAC Chapter 5 Standard, and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in the DoD Quality Systems Manual for Environmental Laboratories (DoD QSM v4.1)) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Atomic Absorption/ICP-AES Spectrometry, ICP/MS, Gas Chromatography, Gas Chromatography/Mass Spectrometry, Gravimetry, High Performance Liquid Chromatography, Ion Chromatography, Misc.- Electronic Probes (pH, O_2), Oxygen Demand, Hazardous Waste Characteristics Tests, Spectrophotometry (Visible), Spectrophotometry (Automated), IR Spectrometry, Titrimetry, Total Organic Carbon, Total Organic Halide

Parameter/Analyte	Solid Hazardous Waste
Metals	
Aluminum	EPA 6010B/6010C
Antimony	EPA 6010B/6010C/6020/6020A
Arsenic	EPA 6010B/6010C/6020/6020A
Barium	EPA 6010B/6010C/6020/6020A
Beryllium	EPA 6010B/6010C/6020/6020A
Boron	EPA 6010B/6010C
Cadmium	EPA 6010B/6010C/6020/6020A
Calcium	EPA 6010B/6010C
Chromium	EPA 6010B/6010C/6020/6020A
Cobalt	EPA 6010B/6010C/6020/6020A
Copper	EPA 6010B/6010C/6020/6020A
Iron	EPA 6010B/6010C
Lead	EPA 6010B/6010C/6020/6020A
Lithium	EPA 6010B/6010C
Magnesium	EPA 6010B/6010C
Manganese	EPA 6010B/6010C/6020/6020A
Mercury	EPA 7470A/7471A/7471B

5301 Buckeystown Pike, Suite 350 | Frederick, Maryland 21704-8373 | Phone: 301 644 3248 | Fax: 301 662 2974 | www.A2LA.org

Parameter/Analyte	Solid Hazardous Waste
Molybdenum	EPA 6010B/6010C/6020/6020A
Nickel	EPA 6010B/6010C/6020/6020A
Potassium	EPA 6010B/6010C
Selenium	EPA 6010B/6010C/6020/6020A
Silica	EPA 6010B/6010C
Silicon	EPA 6010B/6010C
Silver	EPA 6010B/6010C/6020/6020A
Sodium	EPA 6010B/6010C
Strontium	EPA 6010B/6010C
Thallium	EPA 6010B/6010C/6020/6020A
Tin	EPA 6010B/6010C
Titanium	EPA 6010B/6010C
Vanadium	EPA 6010B/6010C/6020/6020A
Zinc	EPA 6010B/6010C/6020/6020A
Nutrients	
Nitrate (as N)	EPA 9056/9056A
Nitrate-nitrite (as N)	EPA 9056/9056A
Nitrite (as N)	EPA 9056/9056A
Orthophosphate (as P)	EPA 9056/9056A
Total phosphorus	EPA 6010B/6010C
Demands	
Total organic carbon	EPA 9060
Total organic halides	EPA 9020B/9023
Wet Chemistry	
Bromide	EPA 9056/9056A
Total organic carbon	EPA 9060
Chloride	EPA 9056/9056A
Conductivity	EPA 9050
Cyanide	EPA 9010B/9012
Extractable organic halides (EOX)	EPA 9023
Fluoride	EPA 9056/9056A
pH	EPA 9040B/9045C
Oil and Grease	EPA 1664A/9071B
Percent moisture	ASTM D2216
Perchlorate	EPA 6860
Phenols	EPA 9066
Sulfate	EPA 9038/9056/9056A
Sulfide, Total	EPA 9034
Sulfide	EPA 9030
Purgeable Organics (volatiles)	
Acetone	EPA 8260B
Acetonitrile	EPA 8260B
Acrolein	EPA 8260B
Acrylonitrile	EPA 8260B
Allyl Chloride	EPA 8260B
Benzene	EPA 8260B/8021B
Benzy chloride	EPA 8260B
Bromobenzene	EPA 8260B/8021B(water only)

Parameter/Analyte	Solid Hazardous Waste
Bromochloromethane	EPA 8260B
Bromodichloromethane	EPA 8260B/8021B(water only)
Bromoform	EPA 8260B/8021B(water only)
Bromomethane	EPA 8260B
2-Butanone	EPA 8260B
n-Butyl alcohol	EPA 8260B/8015B/8015C
n-Buytlbenzene	EPA 8260B
Sec-Butylbenzene	EPA 8260B
Tert-Butylbenzene	EPA 8260B
Carbon disulfide	EPA 8260B
Carbon tetrachloride	EPA 8260B
Chlorobenzene	EPA 8260B / 8021B
2-Chloro-1,3-butadiene	EPA 8260B
Chloroethane	EPA 8260B
2-Chloroethyl vinyl ether	EPA 8260B/8021B(water only)
Chloroform	EPA 8260B/8021B(water only)
1-Chlorohexane	EPA 8260B
Chloromethane	EPA 8260B/8021B(water only)
Chloroprene	EPA 8260B
3-Chloroprene	EPA 8260B
4-Chlorotoluene	EPA 8260B
2-Chlorotoluene	EPA 8260B
Cyclohexane	EPA 8260B
Cyclohexanone	EPA 8260B
Dibromochloromethane	EPA 8260B
1,2-Dibromo-3-chloropropane (DBCP)	EPA 8260B/8011/8021B(water only)
Dibromochloromethane	EPA 8260B/8021B(water only)
Dichlorodifluoromethane	EPA 8260B
Dibromomethane	EPA 8260B/8021B(water only)
1,2 Dibromomethane (EDB)	EPA 8260B/8011/8021B(water only)
1,4-Dichloro-2-butane	EPA 8260B
1,2-Dichlorobenzene	EPA 8260B/8021B
1,3-Dichlorobenzene	EPA 8260B/8021B
1,4-Dichlorobenzene	EPA 8260B/8021B
cis-1,4-Dichloro-2-butene	EPA 8260B/8021B(water only)
trans-1,4-Dichloro-2-butene	EPA 8260B
Dichlorodifluoromethane	EPA 8260B
1,1-Dichloroethane	EPA 8260B/8021B(water only)
1,2-Dichloroethane	EPA 8260B/8021B(water only)
1,1-Dichloroethene	EPA 8260B/8021B(water only)
1,2-Dichloroethene	EPA 8260B
cis-1,2-Dichloroethene	EPA 8260B/8021B(water only)
trans-1,2-Dichloroethene	EPA 8260B/8021B(water only)
Dichlorofluoromethane	EPA 8260B
1,2-Dichloropropane	EPA 8260B/8021B(water only)
1,3-Dichloropropane	EPA 8260B
2,2-Dichloropropane	EPA 8260B/8021B(water only)
1,1-Dichloropropene	EPA 8260B/8021B(water only)
1,3-Dichloropropene	EPA 8260B
cis-1,3-Dichloropropene	EPA 8260B/8021B(water only)
trans-1,3-Dichloropropene	EPA 8260B/8021B(water only)
1,2-Dichlorotetrafluoroethane	EPA 8260B

Parameter/Analyte	Solid Hazardous Waste
1,2-Dichloro-1,1,2-Trifluoroethane	EPA 8260B
Diethyl ether	EPA 8260B
Di-isopropylether	EPA 8260B
1,4-Dioxane	EPA 8260B
p-Dioxane	EPA 8260B
Ethanol	EPA 8260B/8015B/8015C
Ethyl acetate	EPA 8260B
Ethyl benzene	EPA 8260B/8021B
Ethyl methacrylate	EPA 8260B
Ethylene oxide	EPA 8260B
Gas Range Organics (GRO)	EPA 8015B/8015C
Hexane	EPA 8260B
2-Hexanone	EPA 8260B
Hexachlorobutadiene	EPA 8260B
Isobutyl alcohol (2-Methyl-1-propanol)	EPA 8260B/8015B/8015C
Isopropanol	EPA 8260B
Isopropyl alcohol	EPA 8260B
Isopropylbenzene	EPA 8260B
1,4-Isopropyltoluene	EPA 8260B
Iodomethane	EPA 8260B
Methacrylonitrile	EPA 8260B
Methanol	EPA 8015B/8015C
Methyl acetate	EPA 8260B
Methyl cyclohexane	EPA 8260B
Methylene chloride	EPA 8260B
Methyl ethyle ketone (MEK)	EPA 8260B
Methyl isobutyl ketone	EPA 8260B
Methyl methacrylate	EPA 8260B
Methyl tert-butyl ether (MtBE)	EPA 8260B/8021B
4-Methyl-2-pentanone	EPA 8260B
Naphthalene	EPA 8260B/8021B(water only)
2-Nitropropane	EPA 8260B
2-Pentanone	EPA 8260B
2-Propanol	EPA 8260B
Propionitrile	EPA 8260B
n-Propylbenzene	EPA 8260B
Styrene	EPA 8260B
Tert-amyl-methylether	EPA 8260B
Tert-butyl ethyl ether	EPA 8260B
1,1,1,2-Tetrachloroethane	EPA 8260B/8021B(water only)
1,1,2,2-Tetrachloroethane	EPA 8260B/8021B(water only)
Tetrachloroethene	EPA 8260B/8021B(water only)
Tetrahydrofuran	EPA 8260B
Tetrahydrothiophene	EPA 8260B
Toluene	EPA 8260B / 8021B
Total Petroleum Hydrocarbons (TPH)	EPA 1664A
1,2,3-Trichlorobenzene	EPA 8260B/8021B(water only)
1,1,1-Trichloroethane	EPA 8260B
1,1,2-Trichloroethane	EPA 8260B
Trichloroethene	EPA 8260B/8021B(water only)
Trichlorofluoromethane	EPA 8260B/8021B(water only)
1,2,3-Trichlorobenzene	EPA 8260B

Parameter/Analyte	Solid Hazardous Waste
1,2,4-Trichlorobenzene	EPA 8260B/8021B(water only)
1,2,3-Trichloropropane	EPA 8260B/8021B(water only)
1,1,2-Trichloro-1,2,2-trifluoroethane	EPA 8260B
1,1,1-Trifluoro-2,2-dichloroethane	EPA 8260B
1,2,3-Trimethylbenzene	EPA 8260B
1,2,4-Trimethylbenzene	EPA 8260B/8021B(water only)
1,3,5-Trimethylbenzene	EPA 8260B
Trihalomethanes	EPA 8260B
Vinyl acetate	EPA 8260B
Vinyl chloride	EPA 8260B/8021B(water only)
Xylenes, total	EPA 8260B/8021B
1,2-Xylene	EPA 8260B/8021B
1,3-Xylene	EPA 8260B/8021B
1,4-Xylene	EPA 8260B/8021B
Extractable Organics (semivolatiles)	
Acenaphthene	EPA 8270C/8270D/8310/9270SIM
Acenaphthylene	EPA 8270C/8270D/8310/8270SIM
Acetophenone	EPA 8270C/8270D
2-Acetylaminofluorene	EPA 8270C/8270D
Alachlor	EPA 8270C/8270D
4-Aminobiphenyl	EPA 8270C/8270D
Aniline	EPA 8270C/8270D
Anthracene	EPA 8270C/8270D/8310/8270SIM
Aramite	EPA 8270C/8270D
Atrazine	EPA 8270C/8270D
Azobenzene	EPA 8270C/8270D
Benzal chloride	EPA 8270C/8270D
Benzaldehyde	EPA 8270C/8270D
Benzidine	EPA 8270C/8270D
Benzoic acid	EPA 8270C/8270D
Benzo (a) anthracene	EPA 8270C/8270D/8310/8270SIM
Benzo (b) fluoranthene	EPA 8270C/8270D/8310/8270SIM
Benzo (k) fluoranthene	EPA 8270C/8270D/8310/8270SIM
Benzo (ghi) perylene	EPA 8270C/8270D/8310/8270SIM
Benzo (a) pyrene	EPA 8270C/8270D/8310/8270SIM
Benzyl alcohol	EPA 8270C/8270D
Biphenyl	EPA 8270C/8270D
Bis (2-chloroethoxy) methane	EPA 8270C/8270D
Bis (2-chloroethyl) ether	EPA 8270C/8270D
Bis (2-chloroisopropyl) ether (2,2'Oxybis(1-chloropropane)	EPA 8270C/8270D
Bis (2-ethylhexyl) phthalate	EPA 8270C/8270D
4-Bromophenyl phenyl ether	EPA 8270C/8270D
Butyl benzyl phthalate	EPA 8270C/8270D
2-sec-Butyl-4,6-dinitrophenol	EPA 8270C/8270D
Caprolactam	EPA 8270C/8270D
Carbazole	EPA 8270C/8270D
Carbofuran phenol	EPA 8270C/8270D
4-Chloroanilene	EPA 8270C/8270D
Chlorobenzilate	EPA 8270C/8270D
4-Chloro-3-methylphenol	EPA 8270C/8270D

Parameter/Analyte	Solid Hazardous Waste
1-Chloronaphthalene	EPA 8270C/8270D
2-Chloronaphthalene	EPA 8270C/8270D
2-Chlorophenol	EPA 8270C/8270D
4-Chlorophenyl phenyl ether	EPA 8270C/8270D
Chrysene	EPA 8270C/8270D/8310/8270SIM
Cresols	EPA 8270C/8270D
Diallate	EPA 8270C/8270D
Dibenzo (a,h) acridine	EPA 8270C/8270D
Dibenzo (a,j) acridine	EPA 8270C/8270D
Dibenzo (a,h) anthracene	EPA 8270C/8270D/8310/8270SIM
Dibenzofuran	EPA 8270C/8270D
Dibenzo (a,e) pyrene	EPA 8270C/8270D
2,3-Dichloroaniline	EPA 8270C/8270D
1,2-Dichlorobenzene	EPA 8270C/8270D
1,3-Dichlorobenzene	EPA 8270C/8270D
1,4-Dichlorobenzene	EPA 8270C/8270D
3,3'-Dichlorobenzidine	EPA 8270C/8270D
2,4-Dichlorophenol	EPA 8270C/8270D
2,6-Dichlorophenol	EPA 8270C/8270D
Diethyl phthalate	EPA 8270C/8270D
Dimethoate	EPA 8270C/8270D
3,3-Dimethylbenzidine	EPA 8270C/8270D
p-Dimethylaminoazobenzene	EPA 8270C/8270D
7,12-Dimethylbenz(a)anthracene	EPA 8270C/8270D
Dimethylformamide	EPA 8270C/8270D
Alpha-,alpha-Dimethylphenethylamine	EPA 8270C/8270D
2,4-Dimethylphenol	EPA 8270C/8270D
Dimethyl phthalate	EPA 8270C/8270D
Di-n-butyl phthalate	EPA 8270C/8270D
Di-n-octyl phthalate	EPA 8270C/8270D
1,3-Dinitrobenzene	EPA 8270C/8270D
1,4-Dinitrobenzene	EPA 8270C/8270D
2,4-Dinitrophenol	EPA 8270C/8270D
2,4-Dinitrotoluene	EPA 8270C/8270D
2,6-Dinitrotoluene	EPA 8270C/8270D
Dinoseb	EPA 8270C/8270D
Diphenylamine	EPA 8270C/8270D
1,2-Diphenylhydrazine	EPA 8270C/8270D
Disulfoton	EPA 8270C/8270D
DRO	EPA 8015B/8015C
Ethyl methanesulfonate	EPA 8270C/8270D
Famphur	EPA 8270C/8270D
Fluoroanthene	EPA 8270C/8270D/8310/8270SIM
Fluorene	EPA 8270C/8270D/8310/8270SIM
Hexachlorobenzene	EPA 8270C/8270D
Hexachlorobutadiene	EPA 8270C/8270D
Hexachlorocyclopentadiene	EPA 8270C/8270D
Hexachloroethane	EPA 8270C/8270D
Hexachlorophene	EPA 8270C/8270D
Hexachloropropene	EPA 8270C/8270D
Indeno (1,2,3-cd) pyrene	EPA 8270C/8270D/8310/8270SIM
Isodrin	EPA 8270C/8270D

Parameter/Analyte	Solid Hazardous Waste
Isophorone	EPA 8270C/8270D
Isosafrole	EPA 8270C/8270D
Methapyrilene	EPA 8270C/8270D
3-Methylcholanthrene	EPA 8270C/8270D
2-Methyl-4,6-Dinitrophenol	EPA 8270C/8270D
4,4-Methylenebis(2-chloroaniline)	EPA 8270C/8270D
Methyl methane sulfonate	EPA 8270C/8270D
2-Methylcholanthrene	EPA 8270C/8270D
1-Methylnaphthalene	EPA 8270C/8270D/8270SIM
2-Methylnaphthalene	EPA 8270C/8270D/8270SIM
2-Methylphenol	EPA 8270C/8270D
3-Methylphenol	EPA 8270C/8270D
4-Methylphenol	EPA 8270C/8270D
Naphthalene	EPA 8270C/8270D/8310/8270SIM
1,4-Naphthoquinone	EPA 8270C/8270D
1-Naphthylamine	EPA 8270C/8270D
2-Naphthylamine	EPA 8270C/8270D
2-Nitroaniline	EPA 8270C/8270D
3-Nitroaniline	EPA 8270C/8270D
4-Nitroaniline	EPA 8270C/8270D
Nitrobenzene	EPA 8270C/8270D
2-Nitrophenol	EPA 8270C/8270D
4-Nitrophenol	EPA 8270C/8270D
Nitroquinoline-1-oxide	EPA 8270C/8270D
N-Nitrosodiethylamine	EPA 8270C/8270D/8070A
N-Nitrosodimethylamine	EPA 8270C/8270D/8070A
N-Nitrosodi-n-butylamine	EPA 8270C/8270D
N-Nitrosodi-n-propylamine	EPA 8270C/8270D
N-Nitrosodiphenylamine	EPA 8270C/8270D/8070A
N-Nitrosomethylethylamine	EPA 8270C/8270D
N-Nitrosomorpholine	EPA 8270C/8270D
N-Nitrosopiperidine	EPA 8270C/8270D
N-Nitrosopyrrolidine	EPA 8270C/8270D
5-Nitro-o-toluidine	EPA 8270C/8270D
2,2-oxybis(1-chloropropane)	EPA 8270C/8270D
Parathion, methyl	EPA 8270C/8270D
Parathion, ethyl	EPA 8270C/8270D
Pentachlorobenzene	EPA 8270C/8270D
Pentachloroethane	EPA 8270C/8270D
Pentachloronitobenzene	EPA 8270C/8270D
Pentachlorophenol	EPA 8270C/8270D
Phenacetin	EPA 8270C/8270D
Phenanthrene	EPA 8270C/8270D/8310/8270SIM
Phenol	EPA 8270C/8270D
1,4-Phenylenediamine	EPA 8270C/8270D
Phorate	EPA 8270C/8270D
Phthalic anhydride	EPA 8270C/8270D
2-Picoline	EPA 8270C/8270D
Pronamide	EPA 8270C/8270D
Pyrene	EPA 8270C/8270D/8310/8270SIM
Pyridine	EPA 8270C/8270D
Quinoline	EPA 8270C/8270D

Parameter/Analyte	Solid Hazardous Waste
Safrole	EPA 8270C/8270D
Sulfotepp	EPA 8270C/8270D
1,2,4,5-Tetrachlorobenzene	EPA 8270C/8270D
2,3,4,6-Tetrachlorophenol	EPA 8270C/8270D
Thionazin	EPA 8270C/8270D
Thiophenol	EPA 8270C/8270D
Toluene diamine	EPA 8270C/8270D
o-Toluidine	EPA 8270C/8270D
1,2,4-Trichlorobenzene	EPA 8270C/8270D
2,4,5-Trichlorophenol	EPA 8270C/8270D
2,4,6-Trichlorophenol	EPA 8270C/8270D
Triethyl amine	EPA 8270C/8270D
Triethyl phosphate	EPA 8270C/8270D
o,o,o-Triethyl phosphorothioate	EPA 8270C/8270D
1,3,5-Trinitrobenzene	EPA 8270C/8270D
Tris(2,3-Dibromopropyl) phosphate	EPA 8270C/8270D
Pesticides/Herbicides/PCBs	
Aldicarb	EPA 8321A
Aldrin	EPA 8081A/8081B
Anilazine	EPA 8141A/8141B
Atrazine	EPA 8141A/8141B
Azinophos ethyl	EPA 8141A/8141B
Azinophos methyl	EPA 8141A/8141B
alpha-BHC	EPA 8081A/8081B
Beta-BHC	EPA 8081A/8081B
delta-BHC	EPA 8081A/8081B
Gamma-BHC	EPA 8081A/8081B
Bolstar	EPA 8141A/8141B
Carbaryl	EPA 8321A
Carbofuran	EPA 8321A
Carbophenothion	EPA 8141A/8141B
Alpha-Chlordane	EPA 8081A/8081B
Gamma-Chlordane	EPA 8081A/8081B
Chlordane (technical)	EPA 8081A/8081B
Chlorobenzilate	EPA 8081A/8081B
Chloropyrifos	EPA 8081A/8081B/8141A/8141B
Coumaphos	EPA 8141A/8141B
2,4-D	EPA 8151A/8321A
Dalapon	EPA 8151A/8321A
2,4-DB	EPA 8151A/8321A
2,4'-DDD	EPA 8081A/8081B
4,4'-DDD	EPA 8081A/8081B
2,4'-DDE	EPA 8081A/8081B
4,4'-DDE	EPA 8081A/8081B
2,4',-DDT	EPA 8081A/8081B
4,4',-DDT	EPA 8081A/8081B
Demeton-O	EPA 8141A/8141B
Demeton-S	EPA 8141A/8141B
Demeton, total	EPA 8141A/8141B
Diallate	EPA 8081A/8081B
Diazinon	EPA 8141A/8141B

Parameter/Analyte	Solid Hazardous Waste
Dicamba	EPA 8151A/8321A
Dichlorovos	EPA 8141A/8141B
Dichloroprop	EPA 8151A/8321A
Dicofol	EPA 8081A/8081B
Dieldrin	EPA 8081A/8081B
Dimethoate	EPA 8141A/8141B
Dinoseb	EPA 8151A/8321A
Disulfoton	EPA 8141A/8141B
Diuron	EPA 8321A
Endosulfan I	EPA 8081A/8081B
Endosulfan II	EPA 8081A/8081B
Endonsulfan sulfate	EPA 8081A/8081B
Endrin	EPA 8081A/8081B
Endrin aldehyde	EPA 8081A/8081B
Endrin ketone	EPA 8081A/8081B
EPN	EPA 8141A/8141B
Ethoprop	EPA 8141A/8141B
Ethyl parathion	EPA 8141A/8141B
Famphur	EPA 8141A/8141B
Fensulfothion	EPA 8141A/8141B
Fenthion	EPA 8141A/8141B
Heptachlor	EPA 8081A/8081B
Heptachlor epoxide	EPA 8081A/8081B
Hexachlorobenzene	EPA 8081A/8081B
Isodrin	EPA 8081A/8081B
Kepone	EPA 8081A/8081B
Malathion	EPA 8141A/8141B
MCPA	EPA 8151A/8321A
MCPP	EPA 8151A/8321A
Merphos	EPA 8141A/8141B
Methiocarb	EPA 8321A
Methoxychlor	EPA 8081A/8081B
Methyl Cabophenothion	EPA 8141A/8141B
Methyl parathion	EPA 8141A/8141B
Mevinphos	EPA 8141A/8141B
Mirex	EPA 8081A/8081B
Naled	EPA 8141A/8141B
Oxamyl	EPA 8321A
PCB-1016 (Arochlor)	EPA 8082/8082A
PCB-1221	EPA 8082/8082A
PCB-1232	EPA 8082/8082A
PCB-1242	EPA 8082/8082A
PCB-1248	EPA 8082/8082A
PCB-1254	EPA 8082/8082A
PCB-1260	EPA 8082/8082A
PCB-1262	EPA 8082/8082A
PCB-1268	EPA 8082/8082A
Phorate	EPA 8141A/8141B
Phosmet	EPA 8141A/8141B
Propazine	EPA 8141A/8141B
Propham	EPA 8321A
Propoxur	EPA 8321A

Parameter/Analyte	Solid Hazardous Waste
Ronnel	EPA 8141A/8141B
Simazine	EPA 8081A/8081B/8141A/8141B
Stirophos	EPA 8141A/8141B
Strychnine	EPA 8321A
Sulfotepp	EPA 8141A/8141B
2,4,5-T	EPA 8151A/8321A
Thionazin	EPA 8141A/8141B
Tokuthion	EPA 8141A/8141B
2,4,5-TP	EPA 8151A/8321A
Toxaphene	EPA 8081A/8081B
Trichloronate	EPA 8141A/8141B
o,o,o-triethylphos phorothioate	EPA 8141A/8141B
tris(2,3-Dibromopropyl)phosphate	EPA 8081A/8081B
Hazardous Waste Characteristics	
Conductivity	EPA 9050A
Corrosivity	EPA 9040B/9045C
Explosives	
1,3,5-Trinitrobenzene	EPA 8330A/8330B/8321A/8321B
1,3-Dinitrobenzene	EPA 8330A/8330B/8321A/8321B
2,4,6-Trinitrotoluene	EPA 8330A/8330B/8321A/8321B
2,4-Dinitrotoluene	EPA 8330A/8330B/8321A/8321B
2,6-Dinitroltoluene	EPA 8330A/8330B/8321A/8321B
2-Amino-4,6-dinitrotoluene	EPA 8330A/8330B/8321A/8321B
2-Nitrotoluene	EPA 8330A/8330B/8321A/8321B
3-Nitrotoluene	EPA 8330A/8330B/8321A/8321B
4-Amino-2,6-dinitrotoluene	EPA 8330A/8330B/8321A/8321B
4-Nitrotoluene	EPA 8330A/8330B/8321A/8321B
Nitrobenzene	EPA 8330A/8330B/8321A/8321B
Nitroglycerin	EPA 8330A/8330B/8321A/8321B
Octahydro-1,3,5,7-tetrabitro-1,3,5,7-tetrazocine (HMX)	EPA 8330A/8330B/8321A/8321B
Pentaerythritoltetranitrate (PETN)	EPA 8330A/8330B/8321A/8321B
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)	EPA 8330A/8330B/8321A/8321B
Tetryl (methyl2,4,6-trinitrophenylnitramine	EPA 8330A/8330B/8321A/8321B
Ignitibility	EPA 1010
Paint Filter Liquids Test	EPA 9095A
Synthetic Precipitation Leaching Procedure (SPLP)	EPA 1312
ToxicityCharacteristic Leaching Procedure	EPA 1311
Synthetic Precipitation Leaching Procedure	EPA 1312
Organic Prep Methods	
Separatory Funnel Liquid-Liquid Extraction	EPA 3510C
Continuous Liquid-Liquid Extraction	EPA 3520C
Soxhlet Extraction	EPA 3540C
Microwave Extraction	EPA 3546
Ultrasonic Extraction	EPA 3550B
Ultrasonic Extraction	EPA 3550C
Waste Dilution	EPA 3580A
Solid Phase Extraction Volatiles Purge and trap Volatiles purge and trap for soils	EPA 3535A EPA 5030B EPA 5035

Parameter/Analyte	Solid Hazardous Waste
Organic Cleanup Procedures	
Florisil Cleanup	EPA 3620B
Florisil Cleanup	EPA 3620C
Sulfur Cleanup	EPA 3660B
Sulfuric Acid/Permanganate Cleanup	EPA 3665A
Metals Digestion	
Acid Digestion Total Recoverable or Dissolved Metals	EPA 3005A
Acid Digestion for Total Metals	EPA 3010A
Acid Digestion for Total Metals	EPA 3020A
Acid Digestion of Sediments, Sludges and Soils	EPA 3050B

APPENDIX E

Analytical Results Tables

Table 1 Reference Limits and Evaluation Criteria for Soil

Analyte	Analytical Group	Units	NOAA SQuiRT Sediment Screening Criteria		Site-Specific Cleanup Criteria		Achievable Laboratory Limits		
			SEDIMENT-TEL[3]	SEDIMENT-PEL[3]	SEDIMENT	SOIL	DL	LOD	LOQ
Petroleum, Oil, and Lubricants (POL)									
Gasoline Range Organics (GRO) - C_6 to C_{10}	FUELS	mg/Kg	NS	NS	NS	300[2]	0.46	1	4
Diesel Range Organics (DRO) - C_{10} to C_{25}	FUELS	mg/Kg	NS	NS	3500[1]	9200[1]	2.3	6.17	20
Residual Range Organics (RRO) - C_{25} to C_{36}	FUELS	mg/Kg	NS	NS	3500[1]	9200[1]	10	31.7	50
Volatile Organic Compounds (VOCs)									
Benzene	VOC	µg/kg	NS	NS	NS	2000[1]	4	10.0	16.0
Ethylbenzene	VOC	µg/kg	NS	NS	NS	6900[2]	10.00	30.0	40.0
Toluene	VOC	µg/kg	NS	NS	NS	6500[2]	10.00	30.0	40.0
m-Xylene & p-Xylene	VOC	µg/kg	NS	NS	NS	NS	10.0	30.0	40
o-Xylene	VOC	µg/kg	NS	NS	NS	NS	10.00	30.0	40.0
Xylenes, total	VOC	µg/kg	NS	NS	NS	63000[2]	10.00	30.0	40.0
Polynuclear Aromatic Hydrocarbons (PAHs)									
Acenaphthene	PAH	µg/kg	6.71	88.9	500[1]	180000[2]	1.5	2.5	5.0
Acenaphthylene	PAH	µg/kg	5.87	128	NS	180000[2]	1.5	2.5	5.0
Anthracene	PAH	µg/kg	46.9	245	NS	3000000[2]	1.5	2.5	5.0
Benzo(a)anthracene	PAH	µg/kg	31.7	385	NS	3600[2]	1.5	2.5	5.0
Benzo(b)fluoranthene	PAH	µg/kg	NS	NS	NS	12000[2]	1.5	2.5	5.0
Benzo(k)fluoranthene	PAH	µg/kg	NS	NS	NS	120000[2]	1.5	2.5	5.0
Benzo(a)pyrene	PAH	µg/kg	370	782	NS	2100[2]	1.5	2.5	5.0
Benzo(g,h,i)perylene	PAH	µg/kg	170	NS	1.7[1]	38700000[2]	1.5	2.5	5.0
Chrysene	PAH	µg/kg	57.1	862	NS	360000[2]	1.5	5.0	5.0
Dibenz(a,h)anthracene	PAH	µg/kg	6.22	135	NS	4000[2]	1.5	2.5	5.0
Fluoranthene	PAH	µg/kg	111	2355	2000[1]	1400000[2]	1.5	2.5	5.0
Fluorene	PAH	µg/kg	21.2	144	800[1]	220000[2]	1.5	2.5	5.0
Indeno(1,2,3-cd)pyrene	PAH	µg/kg	NS	NS	3200[1]	41000[2]	1.5	2.5	5.0
2-Methylnaphthalene	PAH	µg/kg	NS	NS	600[1]	6100[2]	2.0	5.0	5.0
Phenanthrene	PAH	µg/kg	41.9	515	4800[1]	3000000[2]	1.5	2.5	5.0
Pyrene	PAH	µg/kg	53	875	NS	1000000[2]	1.5	2.5	5.0
Polychlorinated Biphenyls (PCBs)									
PCB-1221	PCB	mg/kg	NS	NS	0.7[1]	1[1]	0.0032	0.008	0.010
PCB-1016	PCB	mg/kg	NS	NS	0.7[1]	1[1]	0.0080	0.010	0.010
PCB-1232	PCB	mg/kg	NS	NS	0.7[1]	1[1]	0.0070	0.010	0.010
PCB-1242	PCB	mg/kg	NS	NS	0.7[1]	1[1]	0.0021	0.006	0.010
PCB-1248	PCB	mg/kg	NS	NS	0.7[1]	1[1]	0.0013	0.003	0.010
PCB-1254	PCB	mg/kg	.06	.34	0.7[1]	1[1]	0.0021	0.006	0.010
PCB-1260	PCB	mg/kg	NS	NS	0.7[1]	1[1]	0.0030	0.008	0.010
PCBs (sum)	PCB	mg/kg	0.034	0.277	0.7[1]	1[1]	NS	NS	NS
Total Metals									
Arsenic	Metals	mg/kg	5900	17000	93[1]	11[1]	0.368	1	0.50
Barium	Metals	mg/kg	NS	NS	NS	3.9[2]	0.012	0.03	0.20
Cadmium	Metals	mg/kg	596	3530	NS	5.0[2]	0.008	0.02	0.20
Chromium	Metals	mg/kg	37300	90000	270[1]	25[2]	0.072	0.2	0.20
Lead	Metals	mg/kg	35000	91300	530[1]	400[2]	0.007	0.020	0.20
Mercury	Metals	mg/kg	174	486	NS	1.4[2]	0.0063	0.01	0.20
Nickel	Metals	mg/kg	18000	36000	NS	86[2]	0.02	0.05	0.20
Selenium	Metals	mg/kg	NS	NS	NS	3.4[2]	0.6	1.6	0.70
Silver	Metals	mg/kg	NS	NS	NS	11.2[2]	0.007	0.02	0.20
Vanadium	Metals	mg/kg	NS	NS	NS	3400[2]	0.223	0.6	0.50
Zinc	Metals	mg/kg	123000	315000	960[1]	4100[2]	0.201	0.28	0.70

Notes:

[1]Site-Specific Cleanup Values Established in 2009 Decision Document

[2]Cleanup Levels from 18AAC75 Section 341, Tables B1 and B2, migration to groundwater

[3]Screening Values from NOAA SQuiRT Tables, Freshwater Sediment 2009

µg/kg = micrograms per kilogram
AAC = Alaska Administrative Code
DL= detection limit
LOD = limit of detection
LOQ = limit of quantitation

mg/kg = milligrams per kilogram
NOAA = National Oceanic and Atmospheric Administration
NS = not specified
SQuiRT = Screening Quick Reference Tables

Table 2 Reference Limits and Evaluation Criteria for Water

Analyte	Analytical Group	Analytical Method	CASRN	Prep Method	Units	Site-Specific Cleanup Levels	Achievable Laboratory Limits		
						ADEC Cleanup Levels[1]	DL	LOD	LOQ
Petroleum, Oil, and Lubricants (POL)									
Gasoline Range Organics (GRO) - C_6 to C_{10}	TPH	AK101	NS	SW5030B	mg/L	1.3 [2]	0.015	0.044	0.05
Diesel Range Organics (DRO) - C_{10} to C_{25}	TPH	AK102	NS	SW3510C	mg/L	1.5	0.022	0.06	0.1
Residual Range Organics (RRO) - C_{25} to C_{36}	TPH	AK103	NS	SW3510C	mg/L	1.1	0.027	0.06	0.1
Volatile Organic Compounds (VOCs)									
Benzene	VOC	SW8260B	71-43-2	SW5030B	µg/L	5.0	0.15	0.45	1.0
Ethylbenzene	VOC	SW8260B	100-41-4	SW5030B	µg/L	700	0.15	0.45	1.0
Toluene	VOC	SW8260B	108-88-3	SW5030B	µg/L	1,000	0.15	0.45	1.0
m-Xylene & p-Xylene	VOC	SW8260B	1330-20-7	SW5030B	µg/L	NS	0.30	0.9	2.0
o-Xylene	VOC	SW8260B	95-47-6	SW5030B	µg/L	NS	0.15	0.45	1.0
Xylenes, total	VOC	SW8260B	1330-20-7	SW5030B	µg/L	10,000	0.45	1.35	3.0
Polynuclear Aromatic Hydrocarbons (PAHs)									
Acenaphthene	PAH	SW8270C-SIM	83-32-9	SW3510C	µg/L	2,200	0.03	0.075	0.13
Acenaphthylene	PAH	SW8270C-SIM	208-96-8	SW3510C	µg/L	2,200	0.03	0.075	0.10
Anthracene	PAH	SW8270C-SIM	120-12-7	SW3510C	µg/L	11,000	0.03	0.075	0.10
Benzo(a)anthracene	PAH	SW8270C-SIM	56-55-3	SW3510C	µg/L	1.2	0.03	0.075	0.10
Benzo(b)fluoranthene	PAH	SW8270C-SIM	205-99-2	SW3510C	µg/L	1.2	0.03	0.075	0.10
Benzo(k)fluoranthene	PAH	SW8270C-SIM	207-08-9	SW3510C	µg/L	12	0.03	0.075	0.10
Benzo(a)pyrene	PAH	SW8270C-SIM	50-32-8	SW3510C	µg/L	0.2	0.03	0.075	0.20
Benzo(g,h,i)perylene	PAH	SW8270C-SIM	191-24-2	SW3510C	µg/L	1,100	0.03	0.075	0.10
Chrysene	PAH	SW8270C-SIM	218-01-9	SW3510C	µg/L	120	0.03	0.075	0.10
Dibenz(a,h)anthracene	PAH	SW8270C-SIM	53-70-3	SW3510C	µg/L	0.12	0.03	0.075	0.10
Fluoranthene	PAH	SW8270C-SIM	206-44-0	SW3510C	µg/L	1,500	0.03	0.075	0.10
Fluorene	PAH	SW8270C-SIM	86-73-7	SW3510C	µg/L	1,500	0.03	0.075	0.10
Indeno(1,2,3-cd)pyrene	PAH	SW8270C-SIM	193-39-5	SW3510C	µg/L	1.2	0.03	0.08	0.10
1-Methylnaphthalene	PAH	SW8270C-SIM	90-12-0	SW3510C	µg/L	150	0.03	0.075	0.10
2-Methylnaphthalene	PAH	SW8270C-SIM	91-57-6	SW3510C	µg/L	150	0.03	0.075	0.10
Naphthalene	PAH	SW8270C-SIM	91-20-3	SW3510C	µg/L	730	0.04	0.075	0.10
Phenanthrene	PAH	SW8270C-SIM	94-09-7	SW3510C	µg/L	11,000	0.03	0.075	0.10
Pyrene	PAH	SW8270C-SIM	129-00-0	SW3510C	µg/L	1,100	0.03	0.075	0.10
Metals									
Arsenic (total)	Metals	SW6020A	7440-38-2	SW3005A	µg/L	NS	0.24	0.4	2.0
Arsenic (dissolved)	Metals	SW6020A	7440-38-2	SW3005A	µg/L	10	0.24	0.4	2.0
Barium (total)	Metals	SW6010C	7440-39-3	SW3005A	µg/L	NS	0.27	0.4	6
Barium (dissolved)	Metals	SW6010C	7440-39-3	SW3005A	µg/L	2,000	0.27	0.4	6
Cadmium (total)	Metals	SW6020A	7440-43-9	SW3005A	µg/L	NS	0.140	0.4	2.0
Cadmium (dissolved)	Metals	SW6020A	7440-43-9	SW3005A	µg/L	5	0.140	0.4	2.0
Chromium (total)	Metals	SW6010C	7440-70-2	SW3005A	µg/L	NS	0.37	0.4	2
Chromium (dissolved) (includes Cr+3 and Cr+6)	Metals	SW6010C	7440-47-3	SW3005A	µg/L	100	0.37	0.4	2
Lead (total)	Metals	SW6010C	7439-89-6	SW3005A	µg/L	NS	0.17	0.4	2
Lead (dissolved)	Metals	SW6020A	7439-92-1	SW3005A	µg/L	15	0.17	0.4	2.0
Mercury (total)	Metals	SW6020A	7439-96-5	SW3005A	µg/L	NS	0.04	0.1	0.2
Mercury (dissolved)	Metals	SW7470A	7439-97-6	SW7470A	µg/L	2	0.490	1.000	4.00
Molybdenum (total)	Metals	SW7470A	7439-97-6	SW7470A	µg/L	NS	0.490	1.000	4.00
Molybdenum (dissolved)	Metals	SW6010C	7439-98-7	SW3005A	µg/L	NS	0.5	1.0	4
Nickel (total)	Metals	SW6010C	7439-98-7	SW3005A	µg/L	NS	0.2	0.4	2
Nickel (dissolved)	Metals	SW6010C	7440-02-0	SW3005A	µg/L	100	0.2	0.4	2
Selenium (total)	Metals	SW6010C	7440-09-7	SW3005A	µg/L	NS	0.34	0.4	2
Selenium (dissolved)	Metals	SW6020A	7782-49-2	SW3005A	µg/L	50	0.34	0.4	2.0
Silver (total)	Metals	SW6020A	7782-49-2	SW3005A	µg/L	NS	0.15	0.4	2.0
Silver (dissolved)	Metals	SW6020A	7440-22-4	SW3005A	µg/L	100	0.150	0.4	2.0
Vanadium (total)	Metals	SW6020A	7440-31-5	SW3005A	µg/L	NS	0.23	0.4	10
Vanadium (dissolved)	Metals	SW6020A	7440-31-5	SW3005A	µg/L	260	0.23	0.4	10
Zinc (total)	Metals	SW6010C	7440-62-2	SW3005A	µg/L	NS	2.0	5.0	7
Zinc (dissolved)	Metals	SW6020A	7440-66-6	SW3005A	µg/L	5,000	2.0	5	7
Polychlorinated biphenyls (PCBs)									
PCB-1221	PCB	SW8082A	11104-28-2	SW3520C	µg/L	0.005	0.045	0.08	0.5
PCB-1016	PCB	SW8082A	12674-11-2	SW3520C	µg/L	0.005	0.062	0.06	0.5
PCB-1232	PCB	SW8082A	11141-16-5	SW3520C	µg/L	0.005	0.041	0.05	0.5
PCB-1242	PCB	SW8082A	53469-21-9	SW3520C	µg/L	0.005	0.041	0.06	0.5
PCB-1248	PCB	SW8082A	12672-29-6	SW3520C	µg/L	0.005	0.071	0.06	0.5
PCB-1254	PCB	SW8082A	11097-69-1	SW3520C	µg/L	0.005	0.044	0.06	0.5
PCB-1260	PCB	SW8082A	11096-82-5	SW3520C	µg/L	0.005	0.039	0.08	0.5

Notes:

[1]Cleanup Levels Stated in 18AAC75 Section 345, Table C, Groundwater Cleanup Levels

[2]Site-Specific Cleanup Values Established in 2009 Decision Document

µg/L = micrograms per liter
AAC = Alaska Administrative Code
ADEC = Alaska Department of Environmental Conservation
AK = Alaska Test Method
CASRN = Chemical Abstracts Service Registry Number
DL= detection limit
EPA = U.S. Environmental Protection Agency
LOD = limit of detection
LOQ = limit of quantitation
mg/L= milligrams per liter
NS = not specified
SIM = selective ion monitoring
SW = EPA Solid Waste Test Method

Table 3 MOC Well MNA Parameters

2011 MNA Results

	Well ID (Sample ID)		MW10-1 (WA01)	26MW1 (WA02)	22MW2 (WA03)	20MW1 (WA04)	17MW1 (WA05)	MW88-5 (WA06)	MW88-5 (WA07-DUP)	MW88-4 (WA08)	MW 88-1 (WA09)	88-10 (WA10)
	Collection Date		7/15/11	7/16/11	7/16/11	7/17/11	7/17/11	7/17/11	7/17/11	7/17/11	7/18/11	7/18/11
Analyte	Units	Method detection limit										
Ferrous Iron	mg/L	0.01	0.09	0.05	<0.01	<0.01	0.06	3.30	3.30	3.30	0.04	0.02
Manganese	mg/L	0.2	0.10	0.20	<0.2	<0.2	0.10	0.30	0.70	0.40	0.30	0.40
Sulfate	mg/L	2	4.00	10.00	7.00	24.00	15.00	46.00	42.00	1.00	8.00	8.00
Nitrate	mg/L	0.4	0.40	1.30	1.00	1.30	0.70	0.90	0.50	0.20	1.50	0.90
Alkalinity	mg/L	0	40	40	40	80	40	180	180	180	40	40
Temp	°C	NA	6.03	3.47	6.40	2.33	2.73	2.59	2.59	1.16	2.30	4.43
Spec Cond	µS/cm	NA	56	61	60	82	67	241	241	173	60	61
pH	NA	NA	5.45	5.74	5.63	5.89	5.78	6.64	6.64	6.80	5.75	5.78
ORP	mV	NA	85.50	202.80	53.70	125.80	237.10	-100.30	-100.30	-86.20	70.90	47.7
DO	mg/L	NA	4.74	12.63	10.99	10.78	4.47	0.58	0.58	0.27	2.09	1.55
Methane	µg/L	NA	0.29 J	ND (0.29)	ND (0.29)	ND (0.29)	ND (0.29)	630	620	2100	0.44 J	1.8

2010 MNA Results

	Well ID (Sample ID)		MW10-1 (10WA01)	26MW1 (26WA01)	22M2 (22WA01)	20MW1 (20WA01)	17MW1 (17WA01)	MW 88-5 (27WA03)	88-4 (27WA01)	88-4 (27WA02 Dup)	88-1 (19WA01)	88-10 (19WA02)
	Date		8/14/10	8/16/10	8/14/10	8/4/10	8/4/10	8/15/10	8/3/10	8/3/10	8/4/10	8/15/10
Analyte	Units	Method detection limit										
Ferrous Iron	mg/L	0.01	<0.01	<0.01	<0.01	NR	0.01	45.50	21.40	20.00	<0.01	<0.01
Manganese	mg/L	0.2	<0.2	<0.2	<0.2	NR	<0.2	<0.2	0.3	0.5	0.3	1.0
Sulfate	mg/L	2	3.0	6.0	12.0	NR	16	6	4	1	7	6.0
Nitrate	mg/L	0.4	0.3	0.3	0.6	NR	0.2	0.3	2.0	<0.4	0.3	0.1
Alkalinity	mg/L	0	0.0	0.0	0.0	NR	0	80	120	120	40	40.0
Temp	°C	NA	6.6	3.0	3.9	3.6	3.09	2.21	3.28	3.28	2.85	2.9
Spec Cond	µS/cm	NA	63.0	47.0	65.0	63.0	68	221	190	190	68	65.0
pH	NA	NA	5.6	6.8	6.1	6.3	5.76	8.25	6.93	6.93	5.59	7.6
ORP	mV	NA	202.5	202.1	234.2	101.4	160.8	-69.3	-72.1	-72.1	190.1	146.0
DO	mg/L	NA	5.6	11.5	10.1	4.0	7.32	0.81	0.68	0.68	1.26	0.8
Methane	µg/L	NA	0.5	0.4	0.8	ND (0.19)	ND (0.19)	99	1900	2100	0.34	0.4

Notes:

< = less than
°C = degrees Celsius
µg/L = micrograms per liter
µS/cm = microsiemens per centimeter
DO = dissolved oxygen
Dup = Sample is a duplicate of the previous sample
J = Result is an estimate
mg/L = milligrams per liter
MNA = monitored natural attenuation
MOC = Main Operations Complex
mV = millivolts
NA = not applicable
ND = non-detect; limit of detection in parentheses
NR = not reported
ORP = oxidation-reduction potential
pH = potential hydrogen
Spec Cond = specific conductance

Table 4 MOC Groundwater Well Results

Sample ID		11NCMOCWA01	11NCMOCWA02	11NCMOCWA03	11NCMOCWA04	11NCMOCWA05	11NCMOCWA06	11NCMOCWA07-DUP	11NCMOCWA08	11NCMOCWA09	11NCMOCWA10
Laboratory ID		580-27518-1	580-27518-2	580-27518-3	580-27518-4	580-27518-5	580-27518-6	580-27518-7	580-27518-8	580-27518-9	580-27518-10
Location ID		MW-10-1	26MW1	22MW2	20MW1	17MW1	MW88-5	MW88-5	MW88-4	MW-88-1	MW88-10
Date Collected		7/15/2011	7/16/2011	7/16/2011	7/17/2011	7/17/2011	7/17/2011	7/17/2011	7/17/2011	7/18/2011	7/18/2011
Analyte	ADEC Cleanup Levels										
Dissolved Metals by EPA 6020 (mg/L)											
Arsenic	0.01	ND (0.0038)	ND (0.0038)	ND (0.0038)	ND (0.0038)	ND (0.0038)	0.0052	0.0049 J	**0.011**	ND (0.0038)	ND (0.0038)
Barium	2	0.029	0.0058 J	0.0093	0.021	0.017	0.055	0.054	0.028	0.0083	0.012
Cadmium	0.005	ND (0.0003)	ND (0.0003)	ND (0.0003)	0.00021 J	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	0.00018 J	0.00053 J
Chromium	0.1	0.0021	0.0015 J	0.0027	0.0024 J	0.0019 J	0.0029 J	0.0026 J	0.0023	0.0017 J	0.0073
Lead	0.015	0.00038 J	ND (0.00035)	0.00017 J	ND (0.00035)	0.0003 J	0.00049 J	0.00046 J	0.00032 J	0.00021 J	0.00035 J
Nickel	0.1	0.0034 J	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.013 J	0.012 J	ND (0.002)	ND (0.002)	0.0078 J
Selenium	0.05	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)
Silver	0.1	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)
Vanadium	0.26	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.0079 J	0.0087 J	ND (0.01)	ND (0.01)	ND (0.01)
Dissolved Mercury by EPA 7470A (mg/L)											
Mercury	0.002	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Total Recoverable Metals by EPA 6020 (mg/L)											
Arsenic	NS	ND (0.0038)	ND (0.0038)	ND (0.0038)	ND (0.0038)	ND (0.0038)	0.0057	0.0058	0.01	ND (0.0038)	ND (0.0038)
Barium	NS	0.018 D	0.0067	0.01	0.024	0.018	0.062	0.064	0.03	0.01	0.013
Cadmium	NS	ND (0.0003)	ND (0.0003)	ND (0.0003)	0.0002 J	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	0.00022 J	0.00055 J
Chromium	NS	0.0029 QN	0.0023 QN	0.0038 QN	0.0028 QN	0.0029 QN	0.0041 QN	0.004 QN	0.0026 QN	0.0032 QN	0.021 QN
Lead	NS	0.00086 J	0.0006 J	0.0003 J	0.00045 J	0.00019 J	0.0019 J	0.0019 J	0.0013 J	0.0016 J	0.00083 J
Nickel	NS	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.014 J	0.014 J	0.0023 J	0.0058 J	0.013 J
Selenium	NS	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)	ND (0.0036)
Silver	NS	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)
Vanadium	NS	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	0.0051 J	0.0069 J	ND (0.010)	ND (0.010)	ND (0.010)
Total Recoverable Mercury by EPA 7470A (mg/L)											
Mercury	NS	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)
PCBs by EPA 8082A (µg/L)											
PCBs-ALL	0.5	ND (0.077)	ND (0.077)	ND (0.077)	ND (0.077)	ND (0.077)	ND (0.075) QL	ND (0.077)	ND (0.078)	ND (0.076)	ND (0.076)
BTEX by EPA 8260 (µg/L)											
Benzene	5	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	**20**	**16**	**9.4**	ND (0.45)	ND (0.45)
Toluene	1,000	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	2.1	1.9	2.2	ND (0.45)	ND (0.45)
Ethylbenzene	700	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	3.3	3.2	29	ND (0.45)	ND (0.45)
m-Xylene & p-Xylene	NS	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	6.0	6.1	33	ND (0.90)	ND (0.90)
o-Xylene	NS	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	4.1	3.9	9.4	ND (0.45)	ND (0.45)
Xylenes (Total)	10,000	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	10.1	10	42.4	ND (0.45)	ND (0.45)
PAHs by EPA 8270-SIM (µg/L)											
1-Methylnaphthalene	150	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	25	ND (0.072)	ND (0.074)
2-Methylnaphthalene	150	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	27	ND (0.072)	ND (0.074)
Acenaphthene	2,200	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	0.12	0.16	0.52	0.029 J	ND (0.074)
Acenaphthylene	2,200	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	0.17	ND (0.072)	ND (0.074)
Anthracene	11,000	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	0.064 J	ND (0.071)	ND (0.072)	ND (0.074)
Benzo(a)anthracene	1.2	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Benzo(a)pyrene	0.2	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Benzo(b)fluoranthene	1.2	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Benzo(g,h,i)perylene	1,100	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Benzo(k)fluoranthene	12	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Chrysene	120	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Dibenz(a,h)anthracene	0.12	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Fluoranthene	1,500	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Fluorene	1,500	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	0.048 J	0.73	0.048	ND (0.074)
Indeno(1,2,3-cd)pyrene	1.2	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Naphthalene	730	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	0.78	0.84	75	ND (0.072)	ND (0.074)
Phenanthrene	11,000	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	0.19	ND (0.072)	ND (0.074)
Pyrene	1,100	ND (0.071)	ND (0.073)	ND (0.073)	ND (0.072)	ND (0.072)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.072)	ND (0.074)
Gasoline Range Organics (GRO) by AK101 (mg/L)											
GRO	1.3	0.017 J	ND (0.044)	0.021	0.017 J B	0.015 J B	0.24	0.23	0.4	ND (0.044)	ND (0.044)
Diesel Range Organics (DRO) by AK102 (mg/L)											
DRO	1.5	0.46	0.083	0.023	0.036 J	0.037 J	**7.2**	**7.5**	**2.3**	0.74	0.54
Residual Range Organics (RRO) by AK103 (mg/L)											
RRO	1.1	0.59	0.073 J	0.052 J	0.081 J	0.056 J	**1.8**	**2.0**	0.55	0.26	0.15
Methane	NS	0.29 QH	ND (0.29)	ND (0.29)	ND (0.29)	ND (0.29)	630	620	2100	0.44 J	1.8

Notes:

Bold indicates results above cleanup levels

µg/L = micrograms per Liter

ADEC = Alaska Department of Environmental Conservation

B = Analyte was detected in the method blank at a concentration less than 10 times the sample result.

BTEX = benzene, toluene, ethylbenzene, and xylenes

D = sample was analyzed at a dilution

EPA = U.S. Environmental Protection Agency

J = result is an estimate

mg/L = milligrams per Liter

ND = non-detect, limit of detection in parentheses

NS = not stated

PAH = polynuclear aromatic hydrocarbons

PCB = polychlorinated biphenyls

QH = Result considered estimated biased high due to a high LCS recovery.

QL = Surrogate recovery was below acceptance limit. Results are considered estimates with low bias.

QN = Result considered estimated with uncertain bias.

SIM = selective ion monitoring

Table 5 Site 8 Monitored Natural Attenuation Parameters 2010

	Sample Location	UDU B10	UDU C09	UDU A08	UDU C07	UDU A06	UDU D05	UDU D04	UDU A08	UDU C02	UDU C02	MDU D09	MDU D08	MDU D04	MDU D04	MDU A03
	Date Collected	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/27/2010	7/26/2010	7/26/2010	7/26/2010	7/26/2010	7/26/2010
	Sample ID	19	20	21	22	23	24	25	26 (Field Dup)	27	27 (Lab Dup)	10	11	12	13 (Field Dup)	14
Analyte	**Units**															
Manganese	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ferrous Iron	mg/L	0.04	0.10	<0.01	0.04	0.02	<0.01	0.03	0.03	0.03	0.03	0.05	0.02	0.01	0.01	0.01
Sulfate	mg/L	5	2	<2	<2	<2	7	<2	<2	2	3	<2	<2	<2	<2	<2
Nitrate	mg/L	0.5	0.4	0.2	0.5	0.7	0.3	0.4	0.2	0.4	0.3	0.5	0.5	0.9	0.9	0.3
Alkalinity	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Temp	°C	7.91	8.37	7.23	7.68	6.39	8.3	8.37	7.23	8.01	8.01	11	11.01	11.09	11.09	10.31
Spec Cond	mS/cm	0.076	0.105	0.078	0.072	0.059	0.066	0.067	0.078	0.076	0.076	0.078*	0.084*	0.073*	0.073*	0.073*
pH	NA	5.35	5.78	5.76	5.58	5.23	5.71	5.8	5.76	5.48	5.48	5.7	6.08	5.4	5.4	5.43
ORP	mV	177	46.3	115.1	102	194.9	116.7	128.4	115.1	51.2	51.2	38.9	-19.5	-31	-31	42
DO	mg/L	5.9	4.46	6.1	7.82	8.9	5.97	5.43	6.1	8.28	8.28	4.323	4.477	2.86	2.86	3.3966
Methane	µg/L	ND(0.19)	ND(0.19)	5.9	ND(0.19)	0.48	2.9	3.8	1.6	0.52	ND(0.19)	0.25	ND(0.19)	1.9	2	0.24

Table 5 Site 8 Monitored Natural Attenuation Parameters 2010 (continued)

	Sample Location	MDU C02	MDU C01	MDU B08	MDU D06	MDU D06	LDU A09	LDU B05	LDU B06	LDU C03	LDU C03	LDU C08	LDU C10	LDU C10Dup	LDU D04	LDU D07
	Date Collected	7/26/2010	7/26/2010	7/26/2010	7/26/2010	7/26/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010	7/28/2010
	Sample ID	15	16	17	18	18 (Lab Dup)	2	6	5	8	9 (Field Dup)	3	1	1 (Lab Dup)	7	4
Analyte	**Units**															
Manganese	mg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Ferrous Iron	mg/L	0.01	0.02	0.09	0.11	0.11	0.08	0.01	0.04	0.05	0.02	0.04	<0.01	0.02	0.02	0.07
Sulfate	mg/L	<2	<2	<2	<2	<2	80	<2	<2	1	<2	<2	6	16	<2	<2
Nitrate	mg/L	1.1	0.2	0.3	0.3	0.4	0.0	0.3	0.2	0.2	0.2	0.6	0.1	0.1	0.2	0.1
Alkalinity	mg/L	0	0	0	0	0	80	0	0	0	0	0	180	180	0	0
Temp	°C	11	10.13	11.31	10.95	10.95	9.09	12.79	12.48	10.04	10.04	9.5	11.04	11.04	11.14	11.42
Spec Cond	mS/cm	0.077*	0.073*	0.0311*	0.092*	0.092*	0.185	0.074	0.145	0.183	0.183	0.215	0.869	0.869	0.166	0.176
pH	NA	5.46	5.55	5.56	5.64	5.64	6.37	5.96	5.8	6.28	6.28	5.8	8.86	8.86	5.99	5.3
ORP	mV	36	-8.6	42.8	5.8	5.8	-42.6	-48.8	39.8	-44.6	-44.6	-21.3	-203.5	-204	-28	38.9
DO	mg/L	3.322	1.8645	2.7032	4.697	4.697	1	2.53	3.27	2.55	2.55	3.23	0.72	0.72	1.34	2.63
Methane	µg/L	ND(0.19)	ND(0.19)	96	ND(0.19)	ND(0.19)	0.55	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)	1.1	ND(0.19)	ND(0.19)	ND(0.19)	ND(0.19)

Notes:
*conductance in mS/cm
LDU = Lower Decision Unit
MDU = Middle Decision Unit
UDU = Upper Decision Unit
ND = non-detect, limit of detection in parentheses

< = less than
°C = Degrees celsius
µg/L = micrograms per liter
DO = dissolved oxygen
Dup = duplicate sample
mg/L = milligram per liter
mS/cm = millisiemens per centimeter
mV = millivolts
NA = not applicable
ORP = oxidation-reduction potential
pH = potential hydrogen
Spec Cond = specific conductance
Temp = temperature

Table 6 Site 8 Monitored Natural Attenuation Parameters 2011

	Grid	D9	C8	C7	C5	A3	B3	B3*	C2	D1	A2
	DU	LDU	LDU	LDU	LDU	LDU	LDU	LDU	LDU	LDU	MDU
	Sample ID (methane)	11NC08WA001	11NC08WA002	11NC08WA003	11NC08WA004	11NC08WA005	11NC08WA006	11NC08WA009*	11NC08WA007	11NC08WA008	11NC08WA010
	Lab Sample ID (methane)	580-27899-27	580-27899-28	580-27899-29	580-27899-30	580-27899-31	580-27899-32	580-27899-35	580-27899-33	580-27899-34	580-27899-36
	Collection Date	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011
Analyte	Units										
Methane	µg/L	350	130	25	25	91	14	21	6.9	13	7.7
Manganese	mg/L	0.2	0	0	0	0	0	0	0.2	0	0
Ferrous Iron	mg/L	0.07	0.07	0.02	0.03	0.05	0.06	0.05	0.02	0.03	0.07
Sulfate	mg/L	1	0	0	0	0	0	0	0	0	0
Alkalinity	Alkalinity	40	40	40	40	40	40	40	40	40	40
Nitrate	mg/L	0.6	0.6	0.4	0.5	0.6	0.3	0.5	0.9	0.8	0.4
Turbidity	NTU	15.6	8.56	6.44	3.13	18.9	8.8	NA	6.31	2.28	6.79
Temp	°C	7.79	8.04	8.33	8.65	7.27	7.44	NA	7.13	7.49	6.8
pH	NA	6.04	5.7	5.64	5.73	5.04	5.38	NA	5.71	5.77	5.14
Spec Cond	µs/cm	135	51	49	48	158	103	NA	43	45	31
DO	mg/L	3.53	5.49	5.54	6.68	7.09	7.57	NA	7.36	7.18	7.27
ORP	mV	-41.1	-5.7	20.3	10.4	67.7	14	NA	-9.9	-23.8	13.7

Table 6 Site 8 Monitored Natural Attenuation Parameters 2011 (continued)

	Grid	B3	A3	A4	C5	C5*	B6	B7	D10	A1
	DU	MDU	MDU	MDU	MDU	MDU	MDU	MDU	MDU	UDU
	Sample ID (methane)	11NC08WA011	11NC08WA012	11NC08WA013	11NC08WA014	11NC08WA018*	11NC08WA015	11NC08WA016	11NC08WA017	11NC08WA019
	Lab Sample ID (methane)	580-27899-37	580-27899-38	580-27899-39	580-27899-40	580-27899-44	580-27899-41	580-27899-42	580-27899-43	580-27899-45
	Collection Date	8/4/2011	8/4/2011	8/4/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011
Analyte	Units									
Methane	µg/L	14	36	170	8.0	8.8	28	48	11	2.8 J
Manganese	mg/L	0	0	0	0	0	0	0	0	0
Ferrous Iron	mg/L	0.03	0.06	0.04	0.04	NA	0.01	0.02	0.01	0.03
Sulfate	mg/L	0	0	0	0	0	0	0	0	0
Alkalinity	Alkalinity	40	40	40	40	40	40	40	40	40
Nitrate	mg/L	0.6	0.9	0.3	0.3	NA	0.2	0.2	0.3	0.4
Turbidity	NTU	5.15	2.23	5.14	2.92	NA	2.43	9.59	2.75	2.49
Temp	°C	7	6.74	7.05	7.35	NA	7.26	7.09	7.65	7.47
pH	NA	5.35	5.32	5.46	5.49	NA	5.59	5.52	5.88	5.32
Spec Cond	µs/cm	36	37	54	38	NA	35	50		43
DO	mg/L	2.76	5.64	5.07	6.34	NA	5.63	3.72	8.03	45
ORP	mV	-1.1	-2.4	-30	4.1	NA	-5.8	16.9	-13.5	-6

Table 6 Site 8 Monitored Natural Attenuation Parameters 2011 (continued)

	Grid	D1	C2	A3	C3	D5	D8	B9	B9*	Method Detection Limit
	DU	UDU	UDU	UDU	UDU	UDU	UDU	UDU	UDU	
	Sample ID (methane)	11NC08WA020	11NC08WA021	11NC08WA022	11NC08WA023	11NC08WA024	11NC08WA025	11NC08WA026	11NC08WA027*	
	Lab Sample ID (methane)	580-27899-46	580-27899-47	580-27899-48	580-27899-49	580-27899-50	580-27899-51	580-27899-52	580-27899-53	
	Collection Date	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	8/5/2011	
Analyte	**Units**									
Methane	**µg/L**	170	10	1.1 J	0.73 J	43	15	20	30	0.22 (DL)
Manganese	**mg/L**	0.2	0	0	0	0	0	0	0	0.2
Ferrous Iron	**mg/L**	0.01	0.12	0.02	0	0.04	0.01	0.05	NA	0.01
Sulfate	**mg/L**	15	0	0	3	0	0	0	0	2
Alkalinity	**Alkalinity**	40	40	40	40	40	40	40	40	0
Nitrate	**mg/L**	0.6	0.3	0.3	0.3	0.4	0.3	0.3	NA	0.4
Turbidity	**NTU**	27.6	3.96	3.42	0.38	3.62	4.11	10.3	NA	NA
Temp	**°C**	7.35	8.05	6.64	8.17	8.42	7.63	9.33	NA	
pH	**NA**	5.82	5.46	5.12	5.36	5.81	5.69	5.94	NA	
Spec Cond	**µs/cm**	97	37	35	43	40	50	47	NA	
DO	**mg/L**	26.6 #	61.1 #	62.3 #	78.4 #	56.4 #	39.7 #	67.1 #	NA	
ORP	**mV**	-45	-19.6	-3.9	-44.4	-77.6	-51.3	-45.1	NA	

Notes:
LDU = Lower Decision Unit
MDU = Middle Decision Unit
UDU = Upper Decision Unit
*Sample is a duplicate
# = high probability of false results. The DO concentrations greatly exceed dissolved oxygen saturation levels.
J = result is an estimation

°C = degrees Celsius
µg/L = micrograms per liter
µs/cm = microsiemens per centimeter
DO = dissolved oxygen
DU = Decision Unit
mg/L = milligrams per liter
mV = millivolts
NA = not applicable
NTU = nephelometric turbidity units
ORP = oxidation-reduction potential
pH = potential hydrogen
Spec Cond = specific conductivity

Table 7 Site 8 Surface Water Results

Analysis Method	Analyte	Units	ADEC Cleanup Level	Field Sample ID	11NC08WA01	11NC08WA02	11NC08WA03
				Lab Sample ID	580-27633-11	580-27633-12	580-27633-13
				Location ID	8-01	8-02	8-02
				Date Collected	7/23/2011	7/23/2011	7/23/2011
8270C SIM/DoD	1-Methylnaphthalene	µg/L	Total Aqueous Hydrocarbons (TaqH) 15 µg/L		ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	2-Methylnaphthalene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Acenaphthene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Acenaphthylene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Anthracene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Benzo(a)anthracene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Benzo(a)pyrene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Benzo(b)fluoranthene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Benzo(g,h,i)perylene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Benzo(k)fluoranthene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Chrysene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Dibenz(a,h)anthracene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Fluoranthene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Fluorene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Indeno(1,2,3)pyrene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Naphthalene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Phenanthrene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
8270C SIM/DoD	Pyrene	µg/L			ND (0.075)	ND (0.073)	ND (0.073)
AK102	DRO	mg/L			0.061 J	0.19 QD	0.28 QD
AK103	RRO	mg/L			0.058J	0.28 QD	0.44 QD

Notes:

J = result is an estimate

ND = Non-detect, limit of detection in parentheses

QD = Result is an estimate due to high RPD in field duplicates

µg/L = micrograms per Liter

AK = Alaska Test Method

DoD = U.S. Department of Defense

DRO = diesel range organics

mg/L = milligrams per liter

RPD = relative percent difference

RRO = residual range organics

SIM = selective ion monitoring

Table 8 2011 Site 8 Soil Composite Results

			Field Sample ID	11NC08SS001	11NC08SS002	11NC08SS003	11NC08SS004-DUP
			Lab Sample ID	580-27899-54	580-27899-55	580-27899-56	580-27899-57
			Location ID	UDU-1	MDU-1	LDU-1	LDU-1
			Date Collected	8/5/2011	8/5/2011	8/5/2011	8/5/2011
Analysis Method	**Analyte**	**Units**	**Site-Specific Cleanup Level**				
8270C SIM/DoD	Acenaphthene	µg/kg	180,000	ND (3.4)	ND (4.2)	20	ND (4.2)
8270C SIM/DoD	Acenaphthylene	µg/kg	180,000	ND (3.4)	ND (4.2)	8.9 J	ND (4.2)
8270C SIM/DoD	Anthracene	µg/kg	3,000,000	ND (3.4)	5.2 J	ND (4.7)	6.0 J
8270C SIM/DoD	Benzo(a)anthracene	µg/kg	3,600	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Benzo(a)pyrene	µg/kg	2,100	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Benzo(b)fluoranthene	µg/kg	12,000	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Benzo(g,h,i)perylene	µg/kg	38,700,000	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Benzo(k)fluoranthene	µg/kg	120,000	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Chrysene	µg/kg	360,000	ND (3.4)	11	ND (4.7)	9.7
8270C SIM/DoD	Dibenz(a,h)anthracene	µg/kg	4,000	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Fluoranthene	µg/kg	1,400,000	ND (3.4)	12	ND (4.7)	9
8270C SIM/DoD	Fluorene	µg/kg	220,000	6.1 J	48	53	47
8270C SIM/DoD	Indeno(1,2,3-cd)pyrene	µg/kg	41,000	ND (3.4)	ND (4.2)	ND (4.7)	ND (4.2)
8270C SIM/DoD	Naphthalene	µg/kg	120,000*	ND (3.4)	46	240 QD	42 QD
8270C SIM/DoD	Phenanthrene	µg/kg	3,000,000	3.5 J	45	42	39
8270C SIM/DoD	Pyrene	µg/kg	1,000,000	3.2 J B	13 B	4.3 J B QD	11 B QD
8270C SIM/DoD	1-Methylnaphthalene	µg/kg	NS	2.3 J	300	300 QD	130 QD
8270C SIM/DoD	2-Methylnaphthalene	µg/kg	6,100	3.5 J	150	210 QD	92 QD
9060	Total Organic Carbon	mg/kg	NS	81000 J	110000	140000	97000
AK102	DRO (nC10-<nC25)	mg/kg	9,200*	58	1800	550 QD	1500 QD
AK103	RRO (nC25-nC36)	mg/kg	9,200*	380	1100	820	690
AK102 with SG	DRO (nC10-<nC25)	mg/kg	9,200*	36	1800	550 QD	1600 QD
AK103 with SG	RRO (nC25-nC36)	mg/kg	9,200*	320 J	1800	1300	1200

Notes:

*Site-specific cleanup level
LDU = Lower Decision Unit
MDU = Middle Decision Unit
UDU = Upper Decision Unit
B = Analyte also detected in method blank
J = Result is an estimate

µg/kg = micrograms per kilogram
AK = Alaska Test Method
DoD = U.S. Department of Defense
DRO = diesel range organics
DUP = Sample is a field duplicate of the previous sample

mg/kg = milligrams per kilogram
NS = not specified
RPD = relative percent difference
RRO = residual range organics
SG = extract was filtered through silica gel prior to analysis

Table 9 2010 Site 8 Soil Composite Results

Matrix	Analysis Method	Analyte	Field Sample ID		10NC08SB01	10NC08SB02	10NC08SB03[D]	10NC08SB04
			Lab Sample ID		20762-28	20762-29	20762-30	20762-31
			Location ID		08-LDU	08-MDU	08-MDU	08-UDU
			Date Collected		7/25/2010	7/26/2010	7/26/2010	7/27/2010
			Cleanup Level	Unit				
Soil	8270C SIM/DoD	1-Methylnaphthalene	6,200	µg/kg	1200	5000	5100	4 J
Soil	8270C SIM/DoD	2-Methylnaphthalene	6,100	µg/kg	1200	**7500**	**7600**	6.8 J
Soil	8270C SIM/DoD	Acenaphthene	180,000	µg/kg	72	220	240	ND (1.7)
Soil	8270C SIM/DoD	Acenaphthylene	180,000	µg/kg	56 J	ND (1.9) J	100 J	3.4 J
Soil	8270C SIM/DoD	Anthracene	3,000,000	µg/kg	ND (1.7) J	180 J	ND (0.82) J	ND (0.68) J
Soil	8270C SIM/DoD	Benzo(a)anthracene	3,600	µg/kg	ND (4.3)	5.5 J	7.1 J	2.4 J
Soil	8270C SIM/DoD	Benzo(a)pyrene	2,100	µg/kg	ND (1.7) J	6.6 J	ND (0.82) J	ND (0.68) J
Soil	8270C SIM/DoD	Benzo(b)fluoranthene	12,000	µg/kg	ND (4.3)	9.3 J	13	ND (1.7)
Soil	8270C SIM/DoD	Benzo(g,h,i)perylene	38,700,000	µg/kg	ND (4.3)	ND (1.9)	ND (2)	ND (1.7)
Soil	8270C SIM/DoD	Benzo[k]fluoranthene	120,000	µg/kg	ND (4.3)	5.4 J	14	ND (1.7)
Soil	8270C SIM/DoD	Chrysene	360,000	µg/kg	ND (4.3)	26	24	6.4 J
Soil	8270C SIM/DoD	Dibenz(a,h)anthracene	4,000	µg/kg	ND (4.3)	ND (1.9)	ND (2)	ND (1.7)
Soil	8270C SIM/DoD	Fluoranthene	1,400,000	µg/kg	11 J	37	37	3.2 J
Soil	8270C SIM/DoD	Fluorene	220,000	µg/kg	200	630	820	13
Soil	8270C SIM/DoD	Indeno(1,2,3-cd)pyrene	41,000	µg/kg	ND (4.3)	2.8 J	2.9 J	1.8 J
Soil	8270C SIM/DoD	Naphthalene	20,000	µg/kg	340	1600	1600	ND (8.5)
Soil	8270C SIM/DoD	Phenanthrene	3,000,000	µg/kg	120	520	460	ND (1.7)
Soil	8270C SIM/DoD	Pyrene	1,000,000	µg/kg	19 J	26	42	3.9 J
Soil	EPA 9060	Total Organic Carbon - Quad	NS	mg/kg	130000	100000	100000	100000
Soil	AK102	DRO (nC10-<nC25)	9,200	mg/kg	2800	7100	**9300**	660
Soil	AK103	RRO (nC25-nC36)	9,200	mg/kg	1600	3300	5300 QH	6300 QH
Soil	AK102-SG	DRO with Silica Gel	9,200	mg/kg	3100 HL	6700 HL	8500 HL	310 HL
Soil	AK103-SG	RRO with Silica Gel	9,200	mg/kg	1000 HL	1300 HL	2100 HL	3000 QH, HL

Notes:

BOLD indicates sample concentration exceeded site-specific cleanup levels

[D] Indicates duplicate of previous sample

LDU = Lower Decision Unit

MDU = Middle Decision Unit

UDU = Upper Decision Unit

HL = Sample result is an estimate due to analytical holding time exceedance; the result may have a low bias

J = The analyte was positively identified; the quantitation is an estimation

QH = Estimated with a high bias

ND = non-detect, limit of detection in parentheses

µg/kg = micrograms per kilogram

AK = Alaska Test Method

DRO = diesel range organics

EPA = U.S. Environmental Protection Agency

mg/kg = milligrams per kilogram

NS = not specified

RRO = residual range organics

SG = extract was filtered through silica gel prior to analysis

SIM/DoD = Selective Ion Monitoring/U.S. Department of Defense

Table 10 MOC J1A DRO and RRO Soil Excavation Results

	Sample ID	11NCMOCSS001	11NCMOCSS002	11NCMOCSS003	11NCMOCSS004	11NCMOCSS005	11NCMOCSS006	11NCMOCSS007	11NCMOCSS008	11NCMOCSS009
	Laboratory ID	580-27882-1	580-27882-2	580-27882-3	580-27882-4	580-27882-5	580-27882-6	580-27882-7	580-27882-8	580-27882-9
	Location ID	MOCJ1A001	MOCJ1A002	MOCJ1A003	MOCJ1A004	MOCJ1A005	MOCJ1A006	MOCJ1A007	MOCJ1A008	MOCJ1A009
	Date Collected	08/02/11	08/02/11	08/02/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11
Analyte	**Site-Specific Cleanup Level**									
DRO by AK102 (mg/kg)	**9,200**	43	22	11	1300	4500	6600	640	11000	16000
RRO by AK103 (mg/kg)	**9,200**	ND (12)	ND (12)	ND (11)	ND (45)	ND (100)	ND (230)	ND (11)	ND (240)	ND (280)

Table 10 MOC J1A DRO and RRO Soil Excavation Results (continued)

	Sample ID	11NCMOCSS010	11NCMOCSS011	11NCMOCSS012	11NCMOCSS020	11NCMOCSS013-DUP	11NCMOCSS021	11NCMOCSS014-DUP	11NCMOCSS015	11NCMOCSS016
	Laboratory ID	580-27882-10	580-27882-11	580-27882-12	580-27882-20	580-27882-13	580-27882-21	580-27882-14	580-27882-15	580-27882-16
	Location ID	MOCJ1A010	MOCJ1A011	MOCJ1A012	MOCJ1A013	MOCJ1A013	MOCJ1A014	MOCJ1A014	MOCJ1A015	MOCJ1A016
	Date Collected	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11
Analyte	**Site-Specific Cleanup Level**									
DRO by AK102 (mg/kg)	**9,200**	4900 J	3300	10000	4600	5800	11000	14000	11000	9200
RRO by AK103 (mg/kg)	**9,200**	ND (120)	ND (110)	ND (250)	ND (230)	ND (120)	ND (480)	ND (610)	ND (450)	ND (430)

Table 10 MOC J1A DRO and RRO Soil Excavation Results (continued)

	Sample ID	11NCMOCSS017	11NCMOCSS018	11NCMOCSS019	11NCMOCSS022	11NCMOCSS023	11NCMOCSS025-DUP	11NCMOCSS024	11NCMOCSS061	11NCMOCSS062
	Laboratory ID	580-27882-17	580-27882-18	580-27882-19	580-28199-1	580-28199-2	580-28199-4	580-28199-3	580-28786-1	580-28786-2
	Location ID	MOCJ1A017	MOCJ1A018	MOCJ1A019	MOCJ1A022	MOCJ1A023	MOCJ1A023	MOCJ1A024	MOCJ1A061	MOCJ1A062
	Date Collected	08/03/11	08/03/11	08/03/11	08/20/11	08/20/11	08/20/11	08/20/11	09/16/11	09/16/11
Analyte	**Site-Specific Cleanup Level**									
DRO by AK102 (mg/kg)	**9,200**	29000	3400	140	22 B	460	310	24 B	2.4 J	330
RRO by AK103 (mg/kg)	**9,200**	ND (710)	ND (110)	ND (11)	23 J	20 J	13 J	12 J	ND (36)	ND (35)

Table 10 MOC J1A DRO and RRO Soil Excavation Results (continued)

	Sample ID	11NCMOCSS063	11NCMOCSS064	11NCMOCSS065	11NCMOCSS073-DUP	11NCMOCSS066	11NCMOCSS067	11NCMOCSS072-DUP
	Laboratory ID	580-28786-3	580-28786-4	580-28786-5	580-28786-13	580-28786-6	580-28786-7	580-28786-12
	Location ID	MOCJ1A063	MOCJ1A064	MOCJ1A065	MOCJ1A065	MOCJ1A066	MOCJ1A067	MOCJ1A067
	Date Collected	09/19/11	09/19/11	09/19/11	09/19/11	09/19/11	09/19/11	09/19/11
Analyte	**Site-Specific Cleanup Level**							
DRO by AK102 (mg/kg)	**9,200**	5200	130	6900	5100	3400	330	330
RRO by AK103 (mg/kg)	**9,200**	800	150	340 QN	750 QN	23 J	54 J	64 J

Notes
Red highlight = result is above site-specific cleanup level
B = Analyte was detected in the method blank at a concentration less than 10 times the sample result
J = Result is an estimate
ND = Non-detect; the limit of detection is in parentheses
QN = Result is an estimate due to a quality control failure; bias is unknown

AK = Alaska Test Method
DRO = diesel range organics
DUP = Field duplicate of previous sample
LOD = limit of detection
mg/kg = milligrams per kilogram
RRO = residual range organics

Table 11 MOC A1 DRO and RRO Soil Excavation Results

Sample ID	11NCMOCSS026	11NCMOCSS027	11NCMOCSS028	11NCMOCSS029	11NCMOCSS030	11NCMOCSS031	11NCMOCSS032	11NCMOCSS035	11NCMOCSS036	11NCMOCSS051-DUP	11NCMOCSS037	11NCMOCSS040
Laboratory ID	580-28350-1	580-28350-2	580-28350-3	580-28350-4	580-28350-5	580-28350-6	580-28350-7	580-28350-8	580-28350-9	580-28350-24	580-28350-10	580-28350-13
Location ID	MOCA1001	MOCA1002	MOCA1003	MOCA1004	MOCA1005	MOCA1006	MOCA1007	MOCA1010	MOCA1011	MOCA1011	MOCA1012	MOCA1015
Date Collected	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11
DRO by AK102 (mg/kg)	690	7100	4500	14000	5300	9600	4600	3100	2200	3500	2800	6200
RRO by AK103 (mg/kg)	310	78	30 J	67	ND (34)	270	38 J	ND (34)	43 J	ND (35)	90	240

Table 11 MOC A1 DRO and RRO Soil Excavation Results (continued)

Sample ID	11NCMOCSS041	11NCMOCSS042	11NCMOCSS043	11NCMOCSS044	11NCMOCSS045	11NCMOCSS046	11NCMOCSS047	11NCMOCSS048	11NCMOCSS049	11NCMOCSS050	11NCMOCSS052	11NCMOCSS053
Laboratory ID	580-28350-14	580-28350-15	580-28350-16	580-28350-17	580-28350-18	580-28350-19	580-28350-20	580-28350-21	580-28350-22	580-28350-23	580-28350-25	280-20411-1
Location ID	MOCA1016	MOCA1017	MOCA1018	MOCA1019	MOCA1020	MOCA1021	MOCA1022	MOCA1023	MOCA1024	MOCA1008	MOCA1009	MOCA1053
Date Collected	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/24/11	8/26/11	09/15/11
DRO by AK102 (mg/kg)	22 B	1900	8600	2400	30000	22 B	330 ML	5100	3600	2200	2400	58
RRO by AK103 (mg/kg)	28 J	98	160	240	2400	54	1700 ML	31 J	34 J	28 J	88	150

Table 11 MOC A1 DRO and RRO Soil Excavation Results (continued)

Sample ID	11NCMOCSS055-DUP	11NCMOCSS054	11NCMOCSS056-DUP	11NCMOCSS057	11NCMOCSS058	11NCMOCSS059	11NCMOCSS060	11NCMOCSS068	11NCMOCSS069	11NCMOCSS070	11NCMOCSS071	Site-Specific Cleanup Levels (mg/kg)
Laboratory ID	280-20411-3	280-20411-2	280-20411-4	280-20411-5	280-20411-6	280-20411-7	280-20411-8	580-28786-8	580-28786-9	580-28786-10	580-28786-11	
Location ID	MOCA1053	MOCA1054	MOCA1054	MOCA1057	MOCA1058	MOCA1059	MOCA1060	MOCA1068	MOCA1069	MOCA1070	MOCA1071	
Date Collected	09/15/11	09/15/11	09/15/11	09/16/11	09/16/11	09/16/11	09/16/11	09/19/11	09/19/11	09/19/11	09/19/11	
DRO by AK102 (mg/kg)	51	1600 QN	5800 D QN	330 QN	2900	3800	1300	12000 J	2700	5400	1200	9,200
RRO by AK103 (mg/kg)	130	79 J	260 J	9.7 J	99 J	100 J	55 J	580	210	68	220	9,200

Notes:
Red highlight = results are above cleanup level
B = Analyte was detected in the method blank at a concentration less than 10 times the result
D = Sample was analyzed at a dilution
J = Result is an estimate
ML = estimated bias low due to matrix effects.
MOC = Main Operations Complex
ND (LOD) = Non-detect limit of detection in parentheses
QN = Result considered estimated with uncertain bias.

AK = Alaska Test Method
DRO = diesel range organics
DUP = Field duplicate of previous sample
mg/kg = milligrams per kilogram
RRO = residual range organics

Table 12 MOC Impoundment Water Results

		Field Sample ID	11NCMOCWA011	11NCMOCWA012-DUP	11NCMOCWA013	11NCMOCWA014
		Lab Sample ID	580-28349-1	580-28349-2	580-20500-1	580-20500-2
		Location ID	11NCMOC-026	11NCMOC-026	Pad 98 Sump	Pad 98 Sump
Analyte	Cleanup Level	Date Collected	8/28/2011	8/28/2011	9/18/2011	9/18/2011
BTEX by EPA SW 8260B (µg/L)						
Benzene	Total Aromatic Hydrocarbons (BTEX) less than 10 µg/L		ND (0.45)	ND (0.45)	ND (0.2) ML	ND (0.2) ML
Ethylbenzene			ND (0.45)	ND (0.45)	ND (0.2) ML	ND (0.2) ML
m-Xylene & p-Xylene			ND (0.90)	ND (0.90)	ND (0.8) ML	ND (0.8) ML
o-Xylene			ND (0.45)	ND (0.45)	ND (0.4) ML	ND (0.4) ML
Toluene			ND (0.45)	ND (0.45)	ND (0.4) ML	ND (0.4) ML
PAHs by EPA SW8270C SIM (µg/L)						
1-Methylnaphthalene	Total Aqueous Hydrocarbons (BTEX plus PAHs) less than 15 µg/L		0.065 J QL	0.078 J QL	ND (0.0099)	0.0055 J
2-Methylnaphthalene			ND (0.075) QL	0.039 J QL	ND (0.0099)	0.0059 J
Acenaphthene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.019)
Acenaphthylene			ND (0.075) QL	ND (0.075) QL	ND (0.02)	ND (0.0097)
Anthracene			ND (0.075) QL	ND (0.075) QL	ND (0.02)	ND (0.0097)
Benzo(a)anthracene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Benzo(a)pyrene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Benzo(b)fluoranthene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Benzo(g,h,i)perylene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Benzo(k)fluoranthene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Chrysene			ND (0.075) QL	ND (0.075) QL	0.0037 J	0.0034 J
Dibenz(a,h)anthracene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Fluoranthene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Fluorene			ND (0.075) QL	ND (0.075) QL	ND (0.02)	ND (0.0097)
Indeno(1,2,3-cd)pyrene			ND (0.075) QL	ND (0.075) QL	ND (0.02)	ND (0.0097)
Naphthalene			0.097 J QL	0.095 J QL	0.011 J	0.011 J
Phenanthrene			ND (0.075) QL	ND (0.075) QL	ND (0.0099)	ND (0.0097)
Pyrene			ND (0.075) QL	ND (0.075) QL	0.0088 J	ND (0.0097)

Notes:
J = Result is an estimate
ND = Non-detect; limit of detection in parentheses
QL = Surrogate recovery was below acceptance limit; results are considered estimates with low bias
ML = Result is an estimate due to MS/MSD recoveries outside of acceptance limits

µg/L = micrograms per liter
BTEX = benzene, toluene, ethylbenzene, and xylenes
DUP = Sample is a field duplicate of the previous sample
EPA = U.S. Environmental Protection Agency
LOD = limit of detection

MOC = Main Operations Complex
MS/MSD = matrix spike/matrix spike duplicate
PAH = polynuclear aromatic hydrocarbons
SW = EPA Solid Waste Test Method
SIM = selective ion monitoring

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg)

	Sample ID	11NC13SS001	11NC13SS003	11NC13SS004	11NC13SS006	11NC13SS007	11NC13SS009	11NC13SS138-DUP	11NC13SS010	11NC13SS139-DUP	11NC13SS011	11NC13SS140-DUP	11NC13SS012	11NC13SS013	11NC13SS014
	Laboratory Sample ID	280-20054-1	280-20054-3	280-20054-4	280-20054-6	280-20054-7	280-20054-9	280-20054-138	280-20054-10	280-20054-139	280-20054-11	280-20054-140	280-20054-12	280-20054-13	280-20054-14
	Location ID	013-01	013-03	013-04	013-06	013-07	013-09	013-09	013-10	013-10	013-11	013-11	013-12	013-13	013-14
Analyte	**Date Collected**	9/3/11	9/3/11	9/3/11	9/4/11	9/3/11	9/3/11*	9/4/11*	9/3/11*	9/4/11*	9/3/11*	9/4/2011 *	9/3/11	9/3/11	9/3/11
Aroclor 1016 (µg/kg)		ND (22)	ND (21)	ND (11)	ND (81)	ND (43)	ND (41)	ND (42)	ND (110)	ND (54)	ND (41)	ND (53)	ND (9.9)	ND (11)	ND (20)
Aroclor 1221 (µg/kg)		ND (44)	ND (42)	ND (22)	ND (40)	ND (86)	ND (81)	ND (84)	ND (210)	ND (110)	ND (83)	ND (110)	ND (20)	ND (22)	ND (40)
Aroclor 1232 (µg/kg)		ND (22)	ND (21)	ND (11)	ND (40)	ND (43)	ND (41)	ND (42)	ND (110)	ND (54)	ND (41)	ND (53)	ND (9.9)	ND (11)	ND (20)
Aroclor 1242 (µg/kg)		ND (22)	ND (21)	ND (11)	ND (40)	ND (43)	ND (41)	ND (42)	ND (110)	ND (54)	ND (41)	ND (53)	ND (9.9)	ND (11)	ND (20)
Aroclor 1248 (µg/kg)		ND (22)	ND (21)	ND (11)	ND (40)	ND (43)	ND (41)	ND (42)	ND (110)	ND (54)	ND (41)	ND (53)	ND (9.9)	ND (11)	ND (20)
Aroclor 1254 (µg/kg)		ND (22)	ND (21)	ND (11)	ND (40)	ND (43)	ND (41)	ND (42)	ND (110)	ND (54)	ND (41)	420 MN	ND (9.9)	ND (11)	ND (20)
Aroclor 1260 (µg/kg)		450 QN	340 QN	250 QN	870 QN	540 QN	340 QN	340 QN	1600 D QN	790 QN	890 QN	1100 MN	160 QN	120 QN	360 QH
PCBs Total (µg/kg)		450 QN	340 QN	250 QN	870 QN	540 QN	341 QN	341 QN	1601 D QN	790 D QN	890 QN	1520 MN	160 QN	120 QN	360 QH

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS015	11NC13SS016	11NC13SS022	11NC13SS024	11NC13SS025	11NC13SS026	11NC13SS027	11NC13SS030	11NC13SS145-DUP	11NC13SS031	11NC13SS036	11NC13SS037	11NC13SS039	11NC13SS042
	Laboratory Sample ID	280-20054-15	280-20054-16	280-20054-22	280-20054-24	280-20054-25	280-20054-26	280-20054-27	280-20054-30	280-20054-145	280-20054-31	280-20054-36	280-20054-37	280-20054-39	280-20054-42
	Location ID	013-15	013-16	013-22	013-24	013-25	013-26	013-27	013-30	013-30	013-31	013-36	013-37	013-39	013-42
Analyte	Date Collected	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11
Aroclor 1016 (µg/kg)		ND (30)	ND (11)	ND (50)	ND (11)	ND (11)	ND (11)	ND (51)	ND (40)	ND (41)	ND (51)	ND (1100)	ND (22)	ND (11)	ND (31)
Aroclor 1221 (µg/kg)		ND (60)	ND (21)	ND (99)	ND (21)	ND (22)	ND (22)	ND (100)	ND (81)	ND (83)	ND (100)	ND (2200)	ND (44)	ND (22)	ND (62)
Aroclor 1232 (µg/kg)		ND (30)	ND (11)	ND (50)	ND (11)	ND (11)	ND (11)	ND (51)	ND (40)	ND (41)	ND (51)	ND (1100)	ND (22)	ND (11)	ND (31)
Aroclor 1242 (µg/kg)		ND (30)	ND (11)	ND (50)	ND (11)	ND (11)	ND (11)	ND (51)	ND (40)	ND (41)	ND (51)	ND (1100)	ND (22)	ND (11)	ND (31)
Aroclor 1248 (µg/kg)		ND (30)	ND (11)	ND (50)	ND (11)	ND (11)	ND (11)	ND (51)	ND (40)	ND (41)	ND (51)	ND (1100)	ND (22)	ND (11)	ND (31)
Aroclor 1254 (µg/kg)		ND (30)	ND (11)	ND (50)	ND (11)	ND (11)	ND (11)	ND (51)	ND (40)	ND (41)	ND (51)	ND (1100)	ND (22)	ND (11)	ND (31)
Aroclor 1260 (µg/kg)		570 QH	270 QN	800 QN	240 QN	240 QN	61 QN	690 QN	530 QN	440 QN	640 D QN	31000 QN	420 QN	210 QN	480 QN
PCBs Total (µg/kg)		570 QH	270 QN	800 QN	240 QN	240 QN	61 QN	690 QN	530 QN	440 QN	640 D QN	31000 QN	420 QN	210 QN	480 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS043	11NC13SS046	11NC13SS047	11NC13SS048	11NC13SS049	11NC13SS050	11NC13SS051	11NC13SS052	11NC13SS053	11NC13SS054	11NC13SS055	11NC13SS056	11NC13SS057	11NC13SS058
	Laboratory Sample ID	280-20054-43	280-20054-46	280-20054-47	280-20054-48	280-20054-49	280-20054-50	280-20054-51	280-20054-52	280-20054-53	280-20054-54	280-20054-55	280-20054-56	280-20054-57	280-20054-58
	Location ID	013-43	013-46	013-47	013-48	013-49	013-50	013-51	013-52	013-53	013-54	013-55	013-56	013-57	013-58
Analyte	**Date Collected**	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11
Aroclor 1016 (µg/kg)		ND (49)	ND (11)	ND (11)	ND (52)	ND (11)	ND (11)	ND (110)	ND (53)	ND (110)	ND (10)	ND (12)	ND (52)	ND (100)	ND (31)
Aroclor 1221 (µg/kg)		ND (99)	ND (22)	ND (22)	ND (100)	ND (21)	ND (21)	ND (220)	ND (110)	ND (220)	ND (20)	ND (23)	ND (100)	ND (210)	ND (63)
Aroclor 1232 (µg/kg)		ND (49)	ND (11)	ND (11)	ND (52)	ND (11)	ND (11)	ND (110)	ND (53)	ND (110)	ND (10)	ND (12)	ND (52)	ND (100)	ND (31)
Aroclor 1242 (µg/kg)		ND (49)	ND (11)	ND (11)	ND (52)	ND (11)	ND (11)	ND (110)	ND (53)	ND (110)	ND (10)	ND (12)	ND (52)	ND (100)	ND (31)
Aroclor 1248 (µg/kg)		ND (49)	ND (11)	ND (11)	ND (52)	ND (11)	ND (11)	ND (110)	ND (53)	ND (110)	ND (10)	ND (12)	ND (52)	ND (100)	ND (31)
Aroclor 1254 (µg/kg)		ND (49)	ND (11)	ND (11)	ND (52)	ND (11)	ND (11)	320 MN	740 MN	2200 MN	ND (10)	ND (12)	700 MN	570 MN	ND (31)
Aroclor 1260 (µg/kg)		1100 QN	110 QN	97 QN	480 QN	240 QN	200 QN	1300 MN	970 MN	2500 MN	260 QN	160 QN	1400 MN	2300 MN	580 QN
PCBs Total (µg/kg)		1100 QN	110 QN	97 QN	480 QN	240 QN	200 QN	1620 MN	1710 MN	4700 MN	260 QN	160 QN	2100 MN	2870 MN	580 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS059	11NC13SS060	11NC13SS061	11NC13SS062	11NC13SS070	11NC13SS079	11NC13SS080	11NC13SS081	11NC13SS082	11NC13SS083	11NC13SS084	11NC13SS085	11NC13SS086	11NC13SS087
	Laboratory Sample ID	280-20054-59	280-20054-60	280-20054-61	280-20054-62	280-20054-70	280-20054-79	280-20054-80	280-20054-81	280-20054-82	280-20054-83	280-20054-84	280-20054-85	280-20054-86	280-20054-87
	Location ID	013-59	013-60	013-61	013-62	013-70	013-79	013-80	013-81	013-82	013-83	013-84	013-85	013-86	013-87
Analyte	Date Collected	9/4/11	9/3/11	9/3/11	9//2011	9/3/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11
Aroclor 1016 (µg/kg)		ND (59)	ND (10)	ND (110)	ND (10)	ND (55)	ND (11)	ND (100)	ND (51)	ND (11)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)
Aroclor 1221 (µg/kg)		ND (120)	ND (21)	ND (210)	ND (20)	ND (110)	ND (23)	ND (200)	ND (100)	ND (23)	ND (220)	ND (22)	ND (22)	ND (21)	ND (22)
Aroclor 1232 (µg/kg)		ND (59)	ND (10)	ND (110)	ND (10)	ND (55)	ND (11)	ND (100)	ND (51)	ND (11)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)
Aroclor 1242 (µg/kg)		ND (59)	ND (10)	ND (110)	ND (10)	ND (55)	ND (11)	ND (100)	ND (51)	ND (11)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)
Aroclor 1248 (µg/kg)		ND (59)	ND (10)	ND (110)	ND (10)	ND (55)	ND (11)	ND (100)	ND (51)	ND (11)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)
Aroclor 1254 (µg/kg)		ND (59)	ND (10)	ND (110)	ND (10)	ND (55)	ND (11)	1300 QN	ND (51)	ND (11)	ND (110)	ND (11)	36 MN	99 MN	ND (11)
Aroclor 1260 (µg/kg)		930 QN	250 QN	1100 QN	37 QN	260 QN	180 QN	1700 QN	760 QN	110 QN	1800 QN	ND (11)	130 MN	240 MN	150 QN
PCBs Total (µg/kg)		930 QN	250 QN	1100 QN	37 QN	260 QN	180 QN	3000 QN	760 QN	110 QN	1800 QN	ND (22)	166 MN	339 MN	150 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS088	11NC13SS089	11NC13SS096	11NC13SS097	11NC13SS105	11NC13SS108	11NC13SS111	11NC13SS114	11NC13SS123	11NC13SS124	11NC13SS125	11NC13SS126	11NC13SS127
	Laboratory Sample ID	280-20054-88	280-20054-89	280-20054-96	280-20054-97	280-20054-105	280-20054-108	280-20054-111	280-20054-114	280-20054-123	280-20054-124	280-20054-125	280-20054-126	280-20054-127
	Location ID	013-88	013-89	013-96	013-97	013-105	013-108	013-111	013-114	013-123	013-124	013-125	013-126	013-127
Analyte	Date Collected	9/4/11	9/4/11	9/4/11	9/3/11	9/3/11	9/3/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11
Aroclor 1016 (µg/kg)		ND (11)	ND (55)	ND (11)	ND (52)	ND (11)	ND (10)	ND (10)	ND (53)	ND (10)	ND (11)	ND (210)	ND (10)	ND (53)
Aroclor 1221 (µg/kg)		ND (21)	ND (110)	ND (22)	ND (100)	ND (22)	ND (21)	ND (21)	ND (110)	ND (20)	ND (23)	ND (410)	ND (21)	ND (110)
Aroclor 1232 (µg/kg)		ND (11)	ND (55)	ND (11)	ND (52)	ND (11)	ND (10)	ND (10)	ND (53)	ND (10)	ND (11)	ND (210)	ND (10)	ND (53)
Aroclor 1242 (µg/kg)		ND (11)	ND (55)	ND (11)	ND (52)	ND (11)	ND (10)	ND (10)	ND (53)	ND (10)	ND (11)	ND (210)	ND (10)	ND (53)
Aroclor 1248 (µg/kg)		ND (11)	ND (55)	ND (11)	ND (52)	ND (11)	ND (10)	ND (10)	ND (53)	ND (10)	ND (11)	ND (210)	ND (10)	ND (53)
Aroclor 1254 (µg/kg)		ND (11)	710 MN	ND (11)	ND (52)	ND (11)	ND (10)	ND (10)	ND (53)	ND (10)	36 J MN.	ND (210)	230 MN	1200 MN
Aroclor 1260 (µg/kg)		ND (11)	910 MN	ND (11)	820 MN	ND (11)	ND (10)	56 QN	1200 QN	ND (10)	110 MN	4300 QN	300 MN	960 MN
PCBs Total (µg/kg)		ND (21)	1620 MN	ND (22)	820 MN	ND (22)	ND (21)	56 QN	1200 QN	ND (20)	146 J MN	4300 QN	530 MN	2160 MN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS128	11NC13SS129	11NC13SS130	11NC13SS131	11NC13SS141	11NC13SS142	11NC13SS143	11NC13SS144	11NC13SS Composite 1	11NC13SS Composite 2	11NC13SS Composite 3	11NC13SS Composite 4
	Laboratory Sample ID	280-20054-128	280-20054-129	280-20054-130	280-20054-131	280-20054-141	280-20054-142	280-20054-143	280-20054-144	280-20054-146	280-20054-147	280-20054-148	280-20054-149
	Location ID	013-128	013-129	013-130	013-131	013-12	013-13	013-36	013-37				
Analyte	Date Collected	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11
Aroclor 1016 (µg/kg)		ND (51)	ND (53)	ND (10)	ND (11)	ND (110)	ND (11)	ND (11)	ND (1100)	ND (220)	ND (100)	ND (51)	ND (11)
Aroclor 1221 (µg/kg)		ND (100)	ND (110)	ND (21)	ND (22)	ND (220)	ND (23)	ND (22)	ND (2100)	ND (430)	ND (210)	ND (100)	ND (22)
Aroclor 1232 (µg/kg)		ND (51)	ND (53)	ND (10)	ND (11)	ND (110)	ND (11)	ND (11)	ND (1100)	ND (220)	ND (100)	ND (51)	ND (11)
Aroclor 1242 (µg/kg)		ND (51)	ND (53)	ND (10)	ND (11)	ND (110)	ND (11)	ND (11)	ND (1100)	ND (220)	ND (100)	ND (51)	ND (11)
Aroclor 1248 (µg/kg)		ND (51)	ND (53)	ND (10)	ND (11)	ND (110)	ND (11)	ND (11)	ND (1100)	ND (220)	ND (100)	ND (51)	ND (11)
Aroclor 1254 (µg/kg)		280 MN	680 MN	ND (10)	ND (11)	ND (110)	ND (11)	ND (11)	ND (1100)	ND (220)	910 MN	380 MN	ND (11)
Aroclor 1260 (µg/kg)		640 MN	1400 MN	4 J QN	39 QN	1500 QN	270 QN	190 QN	11000 QN	3200 QN	980 MN	400 MN	11 J QN
PCBs Total (µg/kg)		920 MN	2080 MN	4 J QN	39 QN	1500 QN	270 QN	190 QN	11000 QN	3200 QN	1890 MN	780 MN	11 J QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 5	11NC13SS Composite 6	11NC13SS Composite 7	11NC13SS Composite 8	11NC13SS Composite 9	11NC13SS Composite 10	11NC13SS Composite 11	11NC13SS Composite 12	11NC13SS Composite 13	11NC13SS Composite 14	11NC13SS Composite 15	11NC13SS Composite 16	11NC13SS Composite 17
	Laboratory Sample ID	280-20054-150	280-20054-151	280-20054-152	280-20054-153	280-20054-154	280-20054-155	280-20054-156	280-20054-157	280-20054-158	280-20054-159	280-20054-160	280-20054-161	280-20054-162
	Location ID													
Analyte	Date Collected	9/4/11	9/4/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/4/11	9/3/11	9/3/11	9/3/11	9/3/11
Aroclor 1016 (µg/kg)		ND (11)	ND (210)	ND (210)	ND (11)	ND (57)	ND (11)	ND (42)	ND (11)	ND (52)	ND (9.9)	ND (11)	ND (21)	ND (9.8)
Aroclor 1221 (µg/kg)		ND (22)	ND (410)	ND (430)	ND (22)	ND (110)	ND (22)	ND (84)	ND (22)	ND (100)	ND (20)	ND (22)	ND (41)	ND (20)
Aroclor 1232 (µg/kg)		ND (11)	ND (210)	ND (210)	ND (11)	ND (57)	ND (11)	ND (42)	ND (11)	ND (52)	ND (9.9)	ND (11)	ND (21)	ND (9.8)
Aroclor 1242 (µg/kg)		ND (11)	ND (210)	ND (210)	ND (11)	ND (57)	ND (11)	ND (42)	ND (11)	ND (52)	ND (9.9)	ND (11)	ND (21)	ND (9.8)
Aroclor 1248 (µg/kg)		ND (11)	ND (210)	ND (210)	ND (11)	ND (57)	ND (11)	ND (42)	ND (11)	ND (52)	ND (9.9)	ND (11)	ND (21)	ND (9.8)
Aroclor 1254 (µg/kg)		ND (11)	3000 MN	ND (210)	ND (11)	ND (57)	ND (11)	ND (42)	ND (11)	ND (52)	ND (9.9)	ND (11)	ND (21)	ND (9.8)
Aroclor 1260 (µg/kg)		63 QN	3400 MN	3700 QN	ND (11)	620 QN	44 QN	420 QN	290 QN	450 QN	110 QN	290 QN	270 QN	94 QN
PCBs Total (µg/kg)		63 QN	6400 MN	3700 QN	ND (22)	620 QN	44 QN	420 QN	290 QN	450 QN	110 QN	290 QN	270 QN	94 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 18	11NC13SS Composite 19	11NC13SS Composite 20	11NC13SS Composite 21	11NC13SS Composite 22	11NC13SS Composite 23	11NC13SS Composite 24	11NC13SS Composite 25	11NC13SS Composite 26	11NC13SS Composite 27	11NC13SS Composite 28	11NC13SS Composite 29	11NC13SS Composite 30
	Laboratory Sample ID	280-20054-163	280-20054-164	280-20054-165	280-20054-166	280-20054-167	280-20054-168	280-20054-169	280-20054-170	280-20054-171	280-20054-172	280-20054-173	280-20054-174	280-20054-175
	Location ID													
Analyte	Date Collected	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11	9/3/11
Aroclor 1016 (µg/kg)		ND (11)	ND (20)	ND (10)	ND (50)	ND (11)	ND (10)	ND (11)	ND (42)	ND (12)	ND (11)	ND (11)	ND (11)	ND (43)
Aroclor 1221 (µg/kg)		ND (22)	ND (40)	ND (21)	ND (99)	ND (22)	ND (21)	ND (21)	ND (85)	ND (23)	ND (22)	ND (22)	ND (22)	ND (86)
Aroclor 1232 (µg/kg)		ND (11)	ND (20)	ND (10)	ND (50)	ND (11)	ND (10)	ND (11)	ND (42)	ND (12)	ND (11)	ND (11)	ND (11)	ND (43)
Aroclor 1242 (µg/kg)		ND (11)	ND (20)	ND (10)	ND (50)	ND (11)	ND (10)	ND (11)	ND (42)	ND (12)	ND (11)	ND (11)	ND (11)	ND (43)
Aroclor 1248 (µg/kg)		ND (11)	ND (20)	ND (10)	ND (50)	ND (11)	ND (10)	ND (11)	ND (42)	ND (12)	ND (11)	ND (11)	ND (11)	ND (43)
Aroclor 1254 (µg/kg)		ND (11)	ND (20)	ND (10)	ND (50)	ND (11)	ND (10)	ND (11)	ND (42)	ND (12)	ND (11)	ND (11)	ND (11)	ND (43)
Aroclor 1260 (µg/kg)		62 QN	330 QN	270 QN	570 QN	64 QN	11 J QN	240 QN	440 QN	ND (12)	45 QN	46 QN	21 J QN	560 QN
PCBs Total (µg/kg)		62 QN	330 QN	270 QN	570 QN	64 QN	11 J QN	240 QN	440 QN	ND (12)	45 QN	46 QN	21 J QN	560 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 31	11NC13SS Composite 32	11NC13SS Composite 33	11NC13SS Composite 34	11NC13SS Composite 35	11NC13SS Composite 36	11NC13SS146	11NC13SS149	11NC13SS150	11NC13SS151	11NC13SS152	11NC13SS Composite 1	11NC13SS Composite 2
	Laboratory Sample ID	280-20054-176	280-20054-177	280-20054-178	280-20054-179	280-20054-180	280-20054-181	280-20410-1	280-20410-4	280-20410-5	280-20410-6	280-20410-7	280-20410-32	280-20410-33
	Location ID							013-146	013-149	013-150	013-151	013-152		
Analyte	Date Collected	9/3/11	9/4/11	9/4/11	9/4/11	9/4/11	9/4/11	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11
Aroclor 1016 (µg/kg)		ND (11)	ND (330)	ND (22)	ND (10)	ND (54)	ND (210)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (110)	ND (11)	ND (12)
Aroclor 1221 (µg/kg)		ND (23)	ND (660)	ND (45)	ND (21)	ND (110)	ND (420)	ND (22)	ND (23)	ND (22) QL	ND (21)	ND (220)	ND (23)	ND (24)
Aroclor 1232 (µg/kg)		ND (11)	ND (330)	ND (22)	ND (10)	ND (54)	ND (210)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (110)	ND (11)	ND (12)
Aroclor 1242 (µg/kg)		ND (11)	ND (330)	ND (22)	ND (10)	ND (54)	ND (210)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (110)	ND (11)	ND (12)
Aroclor 1248 (µg/kg)		ND (11)	ND (330)	ND (22)	ND (10)	ND (54)	ND (210)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (110)	ND (11)	ND (12)
Aroclor 1254 (µg/kg)		ND (11)	ND (330)	ND (22)	ND (10)	ND (54)	ND (210)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (110)	ND (11)	ND (12)
Aroclor 1260 (µg/kg)		88 QN	5800 QN	300 QN	150 QN	620 QN	4000 QN	300 QN	88 QN	330 QL	ND (11)	1700 QN	78 QN	ND (12)
PCBs Total (µg/kg)		88 QN	5800 QN	300 QN	150 QN	620 QN	4000 QN	300 QN	88 QN	330 QL	ND (21)	1700 QN	78 QN	ND (24)

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 3	11NC13SS Composite 4	11NC13SS Composite 5	11NC13SS Composite 6	11NC13SS Composite 7	11NC13SS Composite 8	11NC13SS Composite 9	11NC13SS177	11NC13SS178	11NC13SS181	11NC13SS182	11NC13SS183	11NC13SS184	11NC13SS195
	Laboratory Sample ID	280-20410-34	280-20410-35	280-20410-36	280-20410-37	280-20410-38	280-20410-39	280-20410-40	280-20698-1	280-20698-2	280-20698-5	280-20698-6	280-20698-7	280-20698-8	280-20698-19
	Location ID								013-177	013-178	013-181	013-182	013-183	013-184	013-195
Analyte	Date Collected	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	9/13/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/2011 *
Aroclor 1016 (µg/kg)		ND (13)	ND (11)	ND (10)	ND (10)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (11)	ND (11) QL	ND (10)	ND (10)	ND (11)	ND (44)
Aroclor 1221 (µg/kg)		ND (25)	ND (21)	ND (21)	ND (21)	ND (23)	ND (24)	ND (22) QL	ND (21)	ND (21)	ND (23) QL	ND (21)	ND (20)	ND (21)	ND (88)
Aroclor 1232 (µg/kg)		ND (13)	ND (11)	ND (10)	ND (10)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (11)	ND (11) QL	ND (10)	ND (10)	ND (11)	ND (44)
Aroclor 1242 (µg/kg)		ND (13)	ND (11)	ND (10)	ND (10)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (11)	ND (11) QL	ND (10)	ND (10)	ND (11)	ND (44)
Aroclor 1248 (µg/kg)		ND (13)	ND (11)	ND (10)	ND (10)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (11)	ND (11) QL	ND (10)	ND (10)	ND (11)	ND (44)
Aroclor 1254 (µg/kg)		ND (13)	ND (11)	ND (10)	ND (10)	ND (11)	ND (12)	ND (11) QL	ND (11)	ND (11)	ND (11) QL	ND (10)	ND (10)	ND (11)	ND (44)
Aroclor 1260 (µg/kg)		ND (13)	35 QN	39 QN	ND (10)	ND (11)	ND (12)	280 QL	170 QN	71 QN	70 QL	47 QL	110 QN	59 QN	730 QN
PCBs Total (µg/kg)		ND (25)	35 QN	39 QN	ND (21)	ND (23)	ND (24)	280 QL	170 QN	71 QN	70 QL	47 QL	110 QN	59 QN	730 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS419-DUP	11NC13SS191	11NC13SS210	11NC13SS211	11NC13SS214	11NC13SS223	11NC13SS216	11NC13SS420-DUP	11NC13SS225	11NC13SS226	11NC13SS421-DUP	11NC13SS227	11NC13SS230	11NC13SS231
	Laboratory Sample ID	280-20698-243	280-20698-15	280-20698-34	280-20698-35	280-20698-38	280-20698-47	280-20698-40	280-20698-244	280-20698-49	280-20698-50	280-20698-245	280-20698-51	280-20698-54	280-20698-55
	Location ID	013-195	13-191	13-210	013-211	013-214	013-223	013-216	013-216	013-225	013-226	013-226	013-227	013-230	013-231
Analyte	Date Collected	9/22/11*	9/21/11	9/21/11	9/13/11	9/13/11	9/13/11	9/21/11*	9/22/11*	9/21/11	9/21/11*	9/22/11*	9/21/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (11)	ND (10)	ND (420)	ND (11)	ND (51)	ND (11)	ND (44)	ND (22)	ND (43)	ND (11) QL	ND (11)	ND (21)	ND (12)	ND (52)
Aroclor 1221 (µg/kg)		ND (22)	ND (20)	ND (840)	ND (22)	ND (100)	ND (22)	ND (88)	ND (44)	ND (86)	ND (21) QL	ND (21)	ND (41)	ND (23)	ND (100)
Aroclor 1232 (µg/kg)		ND (11)	ND (10)	ND (420)	ND (11)	ND (51)	ND (11)	ND (44)	ND (22)	ND (43)	ND (11) QL	ND (11)	ND (21)	ND (12)	ND (52)
Aroclor 1242 (µg/kg)		ND (11)	ND (10)	ND (420)	ND (11)	ND (51)	ND (11)	ND (44)	ND (22)	ND (43)	ND (11) QL	ND (11)	ND (21)	ND (12)	ND (52)
Aroclor 1248 (µg/kg)		ND (11)	ND (10)	ND (420)	ND (11)	ND (51)	ND (11)	ND (44)	ND (22)	ND (43)	ND (11) QL	ND (11)	ND (21)	ND (12)	ND (52)
Aroclor 1254 (µg/kg)		ND (11)	ND (10)	ND (420)	ND (11)	ND (51)	ND (11)	ND (44)	ND (22)	ND (43)	ND (11) QL	ND (11)	ND (21)	ND (12)	ND (52)
Aroclor 1260 (µg/kg)		280 QN	13 J QN	9600 QN	29 J QN	890 QN	150 QN	660 QN	500 QN	780 QN	170 QL QN	95 QN	370 QN	ND (12)	1100 QN
PCBs Total (µg/kg)		280 QN	13 J QN	9600 QN	29 J QN	890 QN	150 QN	660 QN	500 QN	780 QN	170 QL QN	95 QN	370 QN	ND (23)	1100 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS236	11NC13SS237	11NC13SS422-DUP	11NC13SS238	11NC13SS241	11NC13SS242	11NC13SS243	11NC13SS244	11NC13SS245	11NC13SS246	11NC13SS247	11NC13SS248	11NC13SS249	11NC13SS250
	Laboratory Sample ID	280-20698-60	280-20698-61	280-20698-246	280-20698-62	280-20698-65	280-20698-66	280-20698-67	280-20698-68	280-20698-69	280-20698-70	280-20698-71	280-20698-72	280-20698-73	280-20698-74
	Location ID	013-236	013-237	013-237	013-238	013-241	013-242	013-243	013-244	013-245	013-246	013-247	013-248	013-249	013-250
Analyte	Date Collected	9/21/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (11)	ND (52)	ND (54)	ND (11)	ND (11)	ND (11)	ND (110)	ND (55)	ND (11)	ND (12)	ND (43)	ND (11) QL	ND (550)	ND (110)
Aroclor 1221 (µg/kg)		ND (22)	ND (100)	ND (110)	ND (21)	ND (23)	ND (23)	ND (220)	ND (110)	ND (22)	ND (23)	ND (86)	ND (22) QL	ND (1100)	ND (220)
Aroclor 1232 (µg/kg)		ND (11)	ND (52)	ND (54)	ND (11)	ND (11)	ND (11)	ND (110)	ND (55)	ND (11)	ND (12)	ND (43)	ND (11) QL	ND (550)	ND (110)
Aroclor 1242 (µg/kg)		ND (11)	ND (52)	ND (54)	ND (11)	ND (11)	ND (11)	ND (110)	ND (55)	ND (11)	ND (12)	ND (43)	ND (11) QL	ND (550)	ND (110)
Aroclor 1248 (µg/kg)		ND (11)	ND (52)	ND (54)	ND (11)	ND (11)	ND (11)	ND (110)	ND (55)	ND (11)	ND (12)	ND (43)	ND (11) QL	ND (550)	ND (110)
Aroclor 1254 (µg/kg)		ND (11)	ND (52)	ND (54)	ND (11)	ND (11)	ND (11)	ND (110)	ND (55)	ND (11)	ND (12)	ND (43)	ND (11) QL	ND (550)	ND (110)
Aroclor 1260 (µg/kg)		ND (11)	930 QN	1100 QN	39 QN	98 QN	240 QN	2300 QN	890 QN	110 QN	250 QN	520 QN	79 QL	9700 QN	2100 QN
PCBs Total (µg/kg)		ND (22)	930 QN	1100 QN	39 QN	98 QN	240 QN	2300 QN	890 QN	110 QN	250 QN	520 QN	79 QL	9700 QN	2100 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS251	11NC13SS252	11NC13SS255	11NC13SS256	11NC13SS257	11NC13SS258	11NC13SS259	11NC13SS260	11NC13SS261	11NC13SS262	11NC13SS265	11NC13SS266	11NC13SS267	11NC13SS268
	Laboratory Sample ID	280-20698-75	280-20698-76	280-20698-79	280-20698-80	280-20698-81	280-20698-82	280-20698-83	280-20698-83	280-20698-84	280-20698-86	280-20698-89	280-20698-90	280-20698-91	280-20698-92
	Location ID	013-251	013-252	013-255	013-256	013-257	013-258	013-259	013-260	013-261	013-262	013-265	013-266	013-267	013-291
Analyte	**Date Collected**	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (44)	ND (10)	ND (11)	ND (2100)	ND (220)	ND (110)	ND (10)	ND (10)	ND (10)	ND (220)
Aroclor 1221 (µg/kg)		ND (22)	ND (22)	ND (22)	ND (21)	ND (87)	ND (20)	ND (22)	ND (4300)	ND (440)	ND (220)	ND (20)	ND (21)	ND (21)	ND (450)
Aroclor 1232 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (44)	ND (10)	ND (11)	ND (2100)	ND (220)	ND (110)	ND (10)	ND (10)	ND (10)	ND (220)
Aroclor 1242 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (44)	ND (10)	ND (11)	ND (2100)	ND (220)	ND (110)	ND (10)	ND (10)	ND (10)	ND (220)
Aroclor 1248 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (44)	ND (10)	ND (11)	ND (2100)	ND (220)	ND (110)	ND (10)	ND (10)	ND (10)	ND (220)
Aroclor 1254 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (44)	ND (10)	ND (11)	ND (2100)	ND (220)	ND (110)	ND (10)	ND (10)	ND (10)	ND (220)
Aroclor 1260 (µg/kg)		ND (11)	300 QN	67 QN	ND (11)	290 QN	ND (10)	260 QN	33000 QN	3300 QN	2000 QN	120 QN	61 QN	260 QN	4600 QN
PCBs Total (µg/kg)		ND (22)	300 QN	67 QN	ND (21)	290 QN	ND (20)	260 QN	33000 QN	3300 QN	2000 QN	120 QN	61 QN	260 QN	4600 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS273	11NC13SS281	11NC13SS424-DUP	11NC13SS282	11NC13SS432-DUP	11NC13SS283	11NC13SS425-DUP	11NC13SS284	11NC13SS427	11NC13SS285	11NC13SS428-DUP	11NC13SS286	11NC13SS429-DUP
	Laboratory Sample ID	280-20698-97	280-20698-105	280-20698-248	280-20698-106	280-20698-256	280-20698-107	280-20698-249	280-20698-108	280-20698-251	280-20698-109	280-20698-252	280-20698-110	280-20698-253
	Location ID	013-273	013-281	013-281	013-282	013-282	013-283	013-283	013-284	013-284	013-285	013-285	013-286	013-286
Analyte	Date Collected	9/21/11	9/21/11	9/22/11	9/21/11	9/22/11	9/21/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (53)	ND (11)	ND (89)	ND (11)	ND (11)	ND (11)	ND (10)	ND (11)	ND (11)	ND (9.9)	ND (11)	ND (42)	ND (110)
Aroclor 1221 (µg/kg)		ND (110)	ND (22)	ND (180)	ND (22)	ND (23)	ND (22)	ND (20)	ND (21)	ND (23)	ND (20)	ND (22)	ND (84)	ND (220)
Aroclor 1232 (µg/kg)		ND (53)	ND (11)	ND (89)	ND (11)	ND (11)	ND (11)	ND (10)	ND (11)	ND (11)	ND (9.9)	ND (11)	ND (42)	ND (110)
Aroclor 1242 (µg/kg)		ND (53)	ND (11)	ND (89)	ND (11)	ND (11)	ND (11)	ND (10)	ND (11)	ND (11)	ND (9.9)	ND (11)	ND (42)	ND (110)
Aroclor 1248 (µg/kg)		ND (53)	ND (11)	ND (89)	ND (11)	ND (11)	ND (11)	ND (10)	ND (11)	ND (11)	ND (9.9)	ND (11)	ND (42)	ND (110)
Aroclor 1254 (µg/kg)		ND (53)	ND (11)	ND (89)	ND (11)	ND (11)	ND (11)	ND (10)	ND (11)	ND (11)	ND (9.9)	ND (11)	ND (42)	ND (110)
Aroclor 1260 (µg/kg)		900 QN	28 J QN	1600 QN	270 QN	38 QN	92 QN	36 QN	67 QN	49 QN	170 QN	16 J QN	430 QN	1200 QN
PCBs Total (µg/kg)		900 QN	28 J QN	1600 QN	270 QN	38 QN	92 QN	36 QN	67 QN	49 QN	170 QN	16 J QN	430 QN	1200 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS287	11NC13SS430-DUP	11NC13SS288	11NC13SS431-DUP	11NC13SS289	11NC13SS426-DUP	11NC13SS290	11NC13SS291	11NC13SS300	11NC13SS301	11NC13SS433-DUP	11NC13SS302	11NC13SS434-DUP
	Laboratory Sample ID	280-20698-111	280-20698-254	280-20698-112	280-20698-255	280-20698-113	280-20698-250	280-20698-114	280-20698-115	280-20698-124	280-20698-125	280-20698-257	280-20698-126	280-20698-258
	Location ID	013-287	013-287	013-288	013-288	013-289	013-289	013-290	013-291	013-300	013-301	013-301	013-302	013-302
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (9900)	ND (2000)	ND (110)	ND (220)	ND (53)	ND (1100)	ND (11)	ND (110)	ND (1100)	ND (110)	ND (54)	ND (220)	ND (210)
Aroclor 1221 (µg/kg)		ND (20000)	ND (4000)	ND (220)	ND (440)	ND (110)	ND (2100)	ND (21)	ND (220)	ND (2200)	ND (210)	ND (110)	ND (430)	ND (430)
Aroclor 1232 (µg/kg)		ND (9900)	ND (2000)	ND (110)	ND (220)	ND (53)	ND (1100)	ND (11)	ND (110)	ND (1100)	ND (110)	ND (54)	ND (220)	ND (210)
Aroclor 1242 (µg/kg)		ND (9900)	ND (2000)	ND (110)	ND (220)	ND (53)	ND (1100)	ND (11)	ND (110)	ND (1100)	ND (110)	ND (54)	ND (220)	ND (210)
Aroclor 1248 (µg/kg)		ND (9900)	ND (2000)	ND (110)	ND (220)	ND (53)	ND (1100)	ND (11)	ND (110)	ND (1100)	ND (110)	ND (54)	ND (220)	ND (210)
Aroclor 1254 (µg/kg)		ND (9900)	ND (2000)	ND (110)	ND (220)	ND (53)	ND (1100)	ND (11)	ND (110)	ND (1100)	ND (110)	ND (54)	ND (220)	ND (210)
Aroclor 1260 (µg/kg)		230000 QN	46000 QN	1400 QN	4700 QN	600 QN	30000 QN	220 QN	2000 QN	25000 QN	2100 QN	680 QN	3300 QN	4100 D
PCBs Total (µg/kg)		230000 QN	46000 QN	1400 QN	4700 QN	600 QN	30000 QN	220 QN	2000 QN	25000 QN	2100 QN	680 QN	3300 QN	4100 D

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS303	11NC13SS304	11NC13SS305	11NC13SS306	11NC13SS323	11NC13SS324	11NC13SS325	11NC13SS326	11NC13SS333	11NC13SS334	11NC13SS335	11NC13SS336	11NC13SS337
	Laboratory Sample ID	280-20698-127	280-20698-128	280-20698-129	280-20698-130	280-20698-147	280-20698-148	280-20698-149	280-20698-150	280-20698-157	280-20698-158	280-20698-159	280-20698-160	280-20698-161
	Location ID	013-303	013-304	013-305	013-306	013-323	013-324	013-325	013-326	013-333	013-334	013-335	013-336	013-337
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/21/11	9/21/11	9/21/11	9/21/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (11)	ND (11)	ND (10)	ND (11)	ND (54)	ND (11)	ND (110)	ND (5500)	ND (1100)	ND (11)	ND (50)	ND (11)	ND (1100)
Aroclor 1221 (µg/kg)		ND (22)	ND (22)	ND (20)	ND (22)	ND (110)	ND (22)	ND (220)	ND (11000)	ND (2300)	ND (22)	ND (99)	ND (22)	ND (2100)
Aroclor 1232 (µg/kg)		ND (11)	ND (11)	ND (10)	ND (11)	ND (54)	ND (11)	ND (110)	ND (5500)	ND (1100)	ND (11)	ND (50)	ND (11)	ND (1100)
Aroclor 1242 (µg/kg)		ND (11)	ND (11)	ND (10)	ND (11)	ND (54)	ND (11)	ND (110)	ND (5500)	ND (1100)	ND (11)	ND (50)	ND (11)	ND (1100)
Aroclor 1248 (µg/kg)		ND (11)	ND (11)	ND (10)	ND (11)	ND (54)	ND (11)	ND (110)	ND (5500)	ND (1100)	ND (11)	ND (50)	ND (11)	ND (1100)
Aroclor 1254 (µg/kg)		ND (11)	ND (11)	ND (10)	ND (11)	ND (54)	ND (11)	ND (110)	ND (5500)	ND (1100)	ND (11)	ND (50)	ND (11)	ND (1100)
Aroclor 1260 (µg/kg)		ND (11)	6.7 J QN	110 QN	3.1 J QN	760 QN	330 QN	2100 QN	81000 QN	15000 QN	350 QN	470 QN	160 QN	16000 QN D
PCBs Total (µg/kg)		ND (22)	6.7 J QN	110 QN	3.1 J QN	760 QN	330 QN	2100 QN	81000 QN	15000 QN	350 QN	470 QN	160 QN	16000 QN D

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS338	11NC13SS340	11NC13SS341	11NC13SS342	11NC13SS343	11NC13SS344	11NC13SS345	11NC13SS346	11NC13SS347	11NC13SS348	11NC13SS349	11NC13SS350	11NC13SS351
	Laboratory Sample ID	280-20698-162	280-20698-164	280-20698-165	280-20698-166	280-20698-167	280-20698-168	280-20698-169	280-20698-170	280-20698-171	280-20698-172	280-20698-173	280-20698-174	280-20698-175
	Location ID	013-338	013-340	013-341	013-342	013-343	013-344	013-345	013-346	013-347	013-348	013-349	013-350	013-351
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (10)	ND (11)	ND (11)	ND (10)	ND (84)	ND (11)	ND (50)	ND (11)	ND (450)	ND (420)	ND (41)	ND (10)	ND (12)
Aroclor 1221 (µg/kg)		ND (21)	ND (21)	ND (21)	ND (21)	ND (170)	ND (22)	ND (100)	ND (22)	ND (890)	ND (850)	ND (83)	ND (21)	ND (24)
Aroclor 1232 (µg/kg)		ND (10)	ND (11)	ND (11)	ND (10)	ND (84)	ND (11)	ND (50)	ND (11)	ND (450)	ND (420)	ND (41)	ND (10)	ND (12)
Aroclor 1242 (µg/kg)		ND (10)	ND (11)	ND (11)	ND (10)	ND (84)	ND (11)	ND (50)	ND (11)	ND (450)	ND (420)	ND (41)	ND (10)	ND (12)
Aroclor 1248 (µg/kg)		ND (10)	ND (11)	ND (11)	ND (10)	ND (84)	ND (11)	ND (50)	ND (11)	ND (450)	ND (420)	ND (41)	ND (10)	ND (12)
Aroclor 1254 (µg/kg)		ND (10)	ND (11)	ND (11)	ND (10)	ND (84)	ND (11)	ND (50)	ND (11)	ND (450)	ND (420)	ND (41)	ND (10)	ND (12)
Aroclor 1260 (µg/kg)		180 QN	71 QN	110 QN	5.5 J QN	1500 QN	69 QN	1200 QN	150 QN	12000 QN	7700 QN D	650 QN	ND (10)	24 J QN
PCBs Total (µg/kg)		180 QN	71 QN	110 QN	5.5 J QN	1500 QN	69 QN	1200 QN	150 QN	12000 QN	7700 QN D	650 QN	ND (21)	24 J QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS352	11NC13SS353	11NC13SS354	11NC13SS355	11NC13SS356	11NC13SS357	11NC13SS358	11NC13SS359	11NC13SS360	11NC13SS362	11NC13SS379	11NC13SS380	11NC13SS381
	Laboratory Sample ID	280-20698-176	280-20698-177	280-20698-178	280-20698-179	280-20698-180	280-20698-181	280-20698-182	280-20698-183	280-20698-184	280-20698-186	280-20698-203	280-20698-204	280-20698-205
	Location ID	013-352	013-353	013-354	013-355	013-356	013-357	013-358	013-359	013-360	013-362	013-379	013-380	013-381
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (44)	ND (43)	ND (100)	ND (540)	ND (530)	ND (540)	ND (1100)	ND (11)	ND (11)	ND (11)	ND (9.7)	ND (11)	ND (50)
Aroclor 1221 (µg/kg)		ND (88)	ND (86)	ND (210)	ND (1100)	ND (1100)	ND (1100)	ND (2200)	ND (21)	ND (22)	ND (22)	ND (19)	ND (21)	ND (100)
Aroclor 1232 (µg/kg)		ND (44)	ND (43)	ND (100)	ND (540)	ND (530)	ND (540)	ND (1100)	ND (11)	ND (11)	ND (11)	ND (9.7)	ND (11)	ND (50)
Aroclor 1242 (µg/kg)		ND (44)	ND (43)	ND (100)	ND (540)	ND (530)	ND (540)	ND (1100)	ND (11)	ND (11)	ND (11)	ND (9.7)	ND (11)	ND (50)
Aroclor 1248 (µg/kg)		ND (44)	ND (43)	ND (100)	ND (540)	ND (530)	ND (540)	ND (1100)	ND (11)	ND (11)	ND (11)	ND (9.7)	ND (11)	ND (50)
Aroclor 1254 (µg/kg)		ND (44)	ND (43)	ND (100)	ND (540)	ND (530)	ND (540)	ND (1100)	ND (11)	ND (11)	ND (11)	ND (9.7)	ND (11)	ND (50)
Aroclor 1260 (µg/kg)		550 QN	940 QN	2400 QN	14000 QN	10000 QN	12000 QN	17000 QN	200 QN	ND (11)	77 QN	88 QN	ND (11)	780 QN
PCBs Total (µg/kg)		550 QN	940 QN	2400 QN	14000 QN	10000 QN	12000 QN	17000 QN	200 QN	ND (22)	77 QN	88 QN	ND (21)	780 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS382	11NC13SS383	11NC13SS384	11NC13SS385	11NC13SS386	11NC13SS387	11NC13SS388	11NC13SS389	11NC13SS390	11NC13SS391	11NC13SS392	11NC13SS393	11NC13SS394
	Laboratory Sample ID	280-20698-206	280-20698-207	280-20698-208	280-20698-209	280-20698-210	280-20698-211	280-20698-212	280-20698-213	280-20698-214	280-20698-215	280-20698-216	280-20698-217	280-20698-218
	Location ID	013-382	013-383	013-384	013-385	013-386	013-387	013-388	013-389	013-390	013-391	013-392	013-393	013-394
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (110)	ND (51)	ND (10)	ND (11)	ND (11)	ND (570)	ND (21000)	ND (11)	ND (550)	ND (570)	ND (2200)	ND (10)	ND (9.9)
Aroclor 1221 (µg/kg)		ND (210)	ND (100)	ND (21)	ND (21)	ND (22)	ND (1100)	ND (41000)	ND (23)	ND (1100)	ND (1100)	ND (4400)	ND (21)	ND (20)
Aroclor 1232 (µg/kg)		ND (110)	ND (51)	ND (10)	ND (11)	ND (11)	ND (570)	ND (21000)	ND (11)	ND (550)	ND (570)	ND (2200)	ND (10)	ND (9.9)
Aroclor 1242 (µg/kg)		ND (110)	ND (51)	ND (10)	ND (11)	ND (11)	ND (570)	ND (21000)	ND (11)	ND (550)	ND (570)	ND (2200)	ND (10)	ND (9.9)
Aroclor 1248 (µg/kg)		ND (110)	ND (51)	ND (10)	ND (11)	ND (11)	ND (570)	ND (21000)	ND (11)	ND (550)	ND (570)	ND (2200)	ND (10)	ND (9.9)
Aroclor 1254 (µg/kg)		ND (110)	ND (51)	ND (10)	ND (11)	ND (11)	ND (570)	ND (21000)	ND (11)	ND (550)	ND (570)	ND (2200)	ND (10)	ND (9.9)
Aroclor 1260 (µg/kg)		1100 QN	750 QN	110 QN	320 QN	43 QN	11000 QN	270000 QN	13 J QN	9000 QN	11000 QN	35000 QN	8.1 J QN	20 J QN
PCBs Total (µg/kg)		1100 QN	750 QN	110 QN	320 QN	43 QN	11000 QN	270000 QN	13 J QN	9000 QN	11000 QN	35000 QN	8.1 J QN	20 J QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS395	11NC13SS396	11NC13SS397	11NC13SS398	11NC13SS399	11NC13SS400	11NC13SS401	11NC13SS402	11NC13SS403	11NC13SS404	11NC13SS405	11NC13SS406	11NC13SS407
	Laboratory Sample ID	280-20698-219	280-20698-220	280-20698-221	280-20698-222	280-20698-223	280-20698-224	280-20698-225	280-20698-226	280-20698-227	280-20698-228	280-20698-229	280-20698-230	280-20698-231
	Location ID	013-395	013-396	013-397	013-398	013-399	013-400	013-401	013-402	013-403	013-404	013-405	013-406	013-407
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (12)	ND (11)	ND (13)	ND (11)	ND (10)	ND (11)	ND (11)	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)
Aroclor 1221 (µg/kg)		ND (24)	ND (22)	ND (26)	ND (21)	ND (21)	ND (21)	ND (22)	ND (22)	ND (21)	ND (21)	ND (21)	ND (21)	ND (20)
Aroclor 1232 (µg/kg)		ND (12)	ND (11)	ND (13)	ND (11)	ND (10)	ND (11)	ND (11)	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)
Aroclor 1242 (µg/kg)		ND (12)	ND (11)	ND (13)	ND (11)	ND (10)	ND (11)	ND (11)	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)
Aroclor 1248 (µg/kg)		ND (12)	ND (11)	ND (13)	ND (11)	ND (10)	ND (11)	ND (11)	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)
Aroclor 1254 (µg/kg)		ND (12)	ND (11)	ND (13)	ND (11)	ND (10)	ND (11)	ND (11)	ND (11)	ND (11)	ND (10)	ND (10)	ND (11)	ND (10)
Aroclor 1260 (µg/kg)		ND (12)	ND (11)	ND (13)	160 QN	ND (10)	9.4 J QN	ND (11)	ND (11)	ND (11)	9.3 J QN	ND (10)	ND (11)	ND (10)
PCBs Total (µg/kg)		ND (24)	ND (22)	ND (26)	160 QN	ND (21)	9.4 J QN	ND (22)	ND (22)	ND (21)	9.3 J QN	ND (21)	ND (21)	ND (20)

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS408	11NC13SS435	11NC13SS436	11NC13SS437	11NC13SS438	11NC13SS439	11NC13SS440	11NC13SS441	11NC13SS442	11NC13SS443	11NC13SS444	11NC13SS445	11NC13SS446
	Laboratory Sample ID	280-20698-232	280-20698-259	280-20698-260	280-20698-261	280-20698-262	280-20698-263	280-20698-264	280-20698-265	280-20698-266	280-20698-267	280-20698-268	280-20698-269	280-20698-270
	Location ID	013-408	013-435	013-436	013-437	013-438	013-439	013-440	013-441	013-442	013-443	013-444	013-445	013-446
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (11)	ND (57)	ND (11)	ND (54)	ND (53)	ND (1100)	ND (11)	ND (11)	ND (110)	ND (11)	ND (10)	ND (10)	ND (10)
Aroclor 1221 (µg/kg)		ND (22)	ND (110)	ND (22)	ND (110)	ND (110)	ND (2200)	ND (21)	ND (22)	ND (220)	ND (22)	ND (21)	ND (21)	ND (21)
Aroclor 1232 (µg/kg)		ND (11)	ND (57)	ND (11)	ND (54)	ND (53)	ND (1100)	ND (11)	ND (11)	ND (110)	ND (11)	ND (10)	ND (10)	ND (10)
Aroclor 1242 (µg/kg)		ND (11)	ND (57)	ND (11)	ND (54)	ND (53)	ND (1100)	ND (11)	ND (11)	ND (110)	ND (11)	ND (10)	ND (10)	ND (10)
Aroclor 1248 (µg/kg)		ND (11)	ND (57)	ND (11)	ND (54)	ND (53)	ND (1100)	ND (11)	ND (11)	ND (110)	ND (11)	ND (10)	ND (10)	ND (10)
Aroclor 1254 (µg/kg)		ND (11)	ND (57)	ND (11)	ND (54)	ND (53)	ND (1100)	ND (11)	ND (11)	ND (110)	ND (11)	ND (10)	ND (10)	ND (10)
Aroclor 1260 (µg/kg)		ND (11)	890 QN	13 J QN	770 QN	850 QN	21000 QN	ND (11)	ND (11)	1400 QN	40 QN	170 QN	92 QN	36 QN
PCBs Total (µg/kg)		ND (22)	890 QN	13 J QN	770 QN	850 QN	21000 QN	ND (21)	ND (22)	1400 QN	40 QN	170 QN	92 QN	36 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS447	11NC13SS Composite 1	11NC13SS Composite 2	11NC13SS Composite 3	11NC13SS Composite 4	11NC13SS Composite 5	11NC13SS Composite 6	11NC13SS Composite 7	11NC13SS Composite 8	11NC13SS Composite 9	11NC13SS Composite 10	11NC13SS Composite 11	11NC13SS Composite 12
	Laboratory Sample ID	280-20698-271	280-20698-272	280-20698-273	280-20698-274	280-20698-275	280-20698-276	280-20698-277	280-20698-278	280-20698-279	280-20698-280	280-20698-281	280-20698-282	280-20698-283
	Location ID	013-447												
Analyte	Date Collected	9/22/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/22/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (10)	ND (220)	ND (11)	ND (11)	ND (21)	ND (10)	ND (11)	ND (10)	ND (11)	ND (9.7)	ND (50)	ND (11)	ND (11)
Aroclor 1221 (µg/kg)		ND (21)	ND (440)	ND (22)	ND (22)	ND (43)	ND (21)	ND (22)	ND (20)	ND (22)	ND (19)	ND (100)	ND (21)	ND (21)
Aroclor 1232 (µg/kg)		ND (10)	ND (220)	ND (11)	ND (11)	ND (21)	ND (10)	ND (11)	ND (10)	ND (11)	ND (9.7)	ND (50)	ND (11)	ND (11)
Aroclor 1242 (µg/kg)		ND (10)	ND (220)	ND (11)	ND (11)	ND (21)	ND (10)	ND (11)	ND (10)	ND (11)	ND (9.7)	ND (50)	ND (11)	ND (11)
Aroclor 1248 (µg/kg)		ND (10)	ND (220)	ND (11)	ND (11)	ND (21)	ND (10)	ND (11)	ND (10)	ND (11)	ND (9.7)	ND (50)	ND (11)	ND (11)
Aroclor 1254 (µg/kg)		ND (10)	ND (220)	ND (11)	ND (11)	ND (21)	ND (10)	ND (11)	ND (10)	ND (11)	ND (9.7)	ND (50)	ND (11)	ND (11)
Aroclor 1260 (µg/kg)		39 QN	3800 QN	160 QN	100 QN	320 QN	210 QN	280 QN	130 QN	50 QN	160 QN	830 QN	85 QN	200 QN
PCBs Total (µg/kg)		39 QN	3800 QN	160 QN	100 QN	320 QN	210 QN	280 QN	130 QN	50 QN	160 QN	830 QN	85 QN	200 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 13	11NC13SS Composite 14	11NC13SS Composite 15	11NC13SS Composite 16	11NC13SS Composite 17	11NC13SS Composite 18	11NC13SS Composite 19	11NC13SS Composite 20	11NC13SS Composite 21	11NC13SS Composite 22	11NC13SS Composite 23	11NC13SS Composite 24	11NC13SS Composite 25
	Laboratory Sample ID	280-20698-284	280-20698-285	280-20698-286	280-20698-287	280-20698-288	280-20698-289	280-20698-290	280-20698-291	280-20698-292	280-20698-293	280-20698-294	280-20698-295	280-20698-296
	Location ID													
Analyte	**Date Collected**	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (53)	ND (12)	ND (11)	ND (11)	ND (11)	ND (110)	ND (11)
Aroclor 1221 (µg/kg)		ND (21)	ND (22)	ND (23)	ND (22)	ND (21)	ND (22)	ND (110)	ND (23)	ND (21)	ND (21)	ND (22)	ND (220)	ND (22)
Aroclor 1232 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (53)	ND (12)	ND (11)	ND (11)	ND (11)	ND (110)	ND (11)
Aroclor 1242 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (53)	ND (12)	ND (11)	ND (11)	ND (11)	ND (110)	ND (11)
Aroclor 1248 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (53)	ND (12)	ND (11)	ND (11)	ND (11)	ND (110)	ND (11)
Aroclor 1254 (µg/kg)		ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (53)	ND (12)	ND (11)	ND (11)	ND (11)	ND (110)	ND (11)
Aroclor 1260 (µg/kg)		310 QN	200 QN	140 QN	100 QN	ND (11)	38 QN	820 QN	ND (12)	ND (11)	17 J QN	63 QN	1500 QN	59 QN
PCBs Total (µg/kg)		310 QN	200 QN	140 QN	100 QN	ND (21)	38 QN	820 QN	ND (23)	ND (21)	17 J QN	63 QN	1500 QN	59 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 26	11NC13SS Composite 27	11NC13SS Composite 28	11NC13SS Composite 29	11NC13SS Composite 30	11NC13SS Composite 31	11NC13SS Composite 32	11NC13SS Composite 33	11NC13SS Composite 34	11NC13SS Composite 35	11NC13SS Composite 36	11NC13SS Composite 37	11NC13SS Composite 38
	Laboratory Sample ID	280-20698-297	280-20698-298	280-20698-299	280-20698-300	280-20698-301	280-20698-302	280-20698-303	280-20698-304	280-20698-305	280-20698-306	280-20698-307	280-20698-308	280-20698-309
	Location ID													
Analyte	Date Collected	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (11)	ND (11)	ND (550)	ND (110)	ND (11)	ND (11)	ND (54)	ND (11)	ND (270)	ND (540)	ND (53)	ND (110)	ND (51)
Aroclor 1221 (µg/kg)		ND (22)	ND (21)	ND (1100)	ND (220)	ND (23)	ND (22)	ND (110)	ND (22)	ND (540)	ND (1100)	ND (110)	ND (210)	ND (100)
Aroclor 1232 (µg/kg)		ND (11)	ND (11)	ND (550)	ND (110)	ND (11)	ND (11)	ND (54)	ND (11)	ND (270)	ND (540)	ND (53)	ND (110)	ND (51)
Aroclor 1242 (µg/kg)		ND (11)	ND (11)	ND (550)	ND (110)	ND (11)	ND (11)	ND (54)	ND (11)	ND (270)	ND (540)	ND (53)	ND (110)	ND (51)
Aroclor 1248 (µg/kg)		ND (11)	ND (11)	ND (550)	ND (110)	ND (11)	ND (11)	ND (54)	ND (11)	ND (270)	ND (540)	ND (53)	ND (110)	ND (51)
Aroclor 1254 (µg/kg)		ND (11)	ND (11)	ND (550)	ND (110)	ND (11)	ND (11)	ND (54)	ND (11)	ND (270)	ND (540)	ND (53)	ND (110)	ND (51)
Aroclor 1260 (µg/kg)		17 J QN	64 QN	11000 QN	2000 QN	54 QN	150 QN	840 QN	75 QN	5500 QN	7100 QN	810 QN	1400 QN	560 QN
PCBs Total (µg/kg)		17 J QN	64 QN	11000 QN	2000 QN	54 QN	150 QN	840 QN	75 QN	5500 QN	7100 QN	810 QN	1400 QN	560 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS Composite 39	11NC13SS Composite 40	11NC13SS Composite 41	11NC13SS Composite 42	11NC13SS263	11NC13SS264	11NC13SS269	11NC13SS270	11NC13SS271	11NC13SS272	11NC13SS274	11NC13SS275	11NC13SS276
	Laboratory Sample ID	280-20698-310	280-20698-311	280-20698-312	280-20698-313	280-20698-87	280-20698-88	280-20698-93	280-20698-94	280-20698-95	280-20698-96	280-20698-98	280-20698-99	280-20698-100
	Location ID					013-263	013-264	013-269	013-270	013-271	013-272	013-274	013-275	013-276
Analyte	Date Collected	9/21/11	9/21/11	9/21/11	9/21/11	9/22/11	9/22/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (40)	ND (10)	ND (53)	ND (42)	ND (42)	ND (11)	ND (11)	ND (21)	ND (11)	ND (210)	ND (12)	ND (11)	ND (51)
Aroclor 1221 (µg/kg)		ND (80)	ND (21)	ND (110)	ND (85)	ND (83)	ND (21)	ND (21)	ND (42)	ND (22)	ND (430)	ND (23)	ND (22)	ND (100)
Aroclor 1232 (µg/kg)		ND (40)	ND (10)	ND (53)	ND (42)	ND (42)	ND (11)	ND (11)	ND (21)	ND (11)	ND (210)	ND (12)	ND (11)	ND (51)
Aroclor 1242 (µg/kg)		ND (40)	ND (10)	ND (53)	ND (42)	ND (42)	ND (11)	ND (11)	ND (21)	ND (11)	ND (210)	ND (12)	ND (11)	ND (51)
Aroclor 1248 (µg/kg)		ND (40)	ND (10)	ND (53)	ND (42)	ND (42)	ND (11)	ND (11)	ND (21)	ND (11)	ND (210)	ND (12)	ND (11)	ND (51)
Aroclor 1254 (µg/kg)		ND (40)	ND (10)	ND (53)	ND (42)	ND (42)	ND (11)	ND (11)	ND (21)	ND (11)	ND (210)	ND (12)	ND (11)	ND (51)
Aroclor 1260 (µg/kg)		520 QN	140 QN	710 QN	610 QN	720 QN	140 QN	110 QN	490 QN	230 QN	6000 QN	4.4 J QN	ND (11)	720 QN
PCBs Total (µg/kg)		520 QN	140 QN	710 QN	610 QN	720 QN	140 QN	110 QN	490 QN	230 QN	6000 QN	4.4 J QN	ND (22)	720 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS278	11NC13SS279	11NC13SS280	11NC13SS423-DUP	11NC13SS295	11NC13SS296	11NC13SS297	11NC13SS298	11NC13SS299	11NC13SS307	11NC13SS308	11NC13SS309	11NC13SS310
	Laboratory Sample ID	280-20698-102	280-20698-103	280-20698-104	20698-247	280-20698-119	280-20698-120	280-20698-121	280-20698-122	280-20698-123	280-20698-131	280-20698-132	280-20698-133	280-20698-134
	Location ID	013-278	013-279	013-280	013-280	013-295	013-296	013-297	013-298	013-299	013-307	013-308	013-309	013-310
Analyte	Date Collected	9/21/11	9/21/11	9/21/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11
Aroclor 1016 (µg/kg)		ND (9.9)	ND (54)	ND (11)	ND (11)	ND (98)	ND (10)	ND (210)	ND (11)	ND (44)	ND (100)	ND (11)	ND (11)	ND (53)
Aroclor 1221 (µg/kg)		ND (20)	ND (110)	ND (22)	ND (21)	ND (200)	ND (20)	ND (410)	ND (21)	ND (88)	ND (210)	ND (22)	ND (22)	ND (110)
Aroclor 1232 (µg/kg)		ND (9.9)	ND (54)	ND (11)	ND (11)	ND (98)	ND (10)	ND (210)	ND (11)	ND (44)	ND (100)	ND (11)	ND (11)	ND (53)
Aroclor 1242 (µg/kg)		ND (9.9)	ND (54)	ND (11)	ND (11)	ND (98)	ND (10)	ND (210)	ND (11)	ND (44)	ND (100)	ND (11)	ND (11)	ND (53)
Aroclor 1248 (µg/kg)		ND (9.9)	ND (54)	ND (11)	ND (11)	ND (98)	ND (10)	ND (210)	ND (11)	ND (44)	ND (100)	ND (11)	ND (11)	ND (53)
Aroclor 1254 (µg/kg)		ND (9.9)	ND (54)	ND (11)	ND (11)	ND (98)	ND (10)	ND (210)	ND (11)	ND (44)	ND (100)	ND (11)	ND (11)	ND (53)
Aroclor 1260 (µg/kg)		180 QN	960 QN	ND (11)	ND (11)	1700 QN	ND (10)	5300 QN	240 QN	620 QN	2200 QN	230 QN	220 QN	790 QN
PCBs Total (µg/kg)		180 QN	960 QN	ND (22)	ND (21)	1700 QN	ND (20)	5300 QN	240 QN	620 QN	2200 QN	230 QN	220 QN	790 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS311	11NC13SS312	11NC13SS313	11NC13SS314	11NC13SS315	11NC13SS316	11NC13SS317	11NC13SS318	11NC13SS321	11NC13SS322	11NC13SS327	11NC13SS330	11NC13SS331
	Laboratory Sample ID	280-20698-135	280-20698-136	280-20698-137	280-20698-138	280-20698-139	280-20698-140	280-20698-141	280-20698-142	280-20698-145	280-20698-146	280-20698-151	280-20698-154	280-20698-155
	Location ID	013-311	013-312	013-313	013-314	013-315	013-316	013-317	013-318	013-321	013-322	013-327	013-330	013-331
Analyte	Date Collected	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/22/11	9/21/11	9/21/11	9/21/11
Aroclor 1016 (µg/kg)		ND (100)	ND (21)	ND (100)	ND (10)	ND (11)	ND (1100)	ND (11)	ND (1100)	ND (11)	ND (21)	ND (11)	ND (110)	ND (530)
Aroclor 1221 (µg/kg)		ND (210)	ND (42)	ND (210)	ND (20)	ND (22)	ND (2200)	ND (22)	ND (2200)	ND (21)	ND (42)	ND (22)	ND (230)	ND (1100)
Aroclor 1232 (µg/kg)		ND (100)	ND (21)	ND (100)	ND (10)	ND (11)	ND (1100)	ND (11)	ND (1100)	ND (11)	ND (21)	ND (11)	ND (110)	ND (530)
Aroclor 1242 (µg/kg)		ND (100)	ND (21)	ND (100)	ND (10)	ND (11)	ND (1100)	ND (11)	ND (1100)	ND (11)	ND (21)	ND (11)	ND (110)	ND (530)
Aroclor 1248 (µg/kg)		ND (100)	ND (21)	ND (100)	ND (10)	ND (11)	ND (1100)	ND (11)	ND (1100)	ND (11)	ND (21)	ND (11)	ND (110)	ND (530)
Aroclor 1254 (µg/kg)		ND (100)	ND (21)	ND (100)	ND (10)	ND (11)	ND (1100)	ND (11)	ND (1100)	ND (11)	ND (21)	ND (11)	ND (110)	ND (530)
Aroclor 1260 (µg/kg)		2700 QN	470 QN	2700 QN	320 QN	7.9 J QN	22000 QN	120 QN	14000 QN	83 QN	340 QN	280 QN	2900 QN	12000 QN
PCBs Total (µg/kg)		2700 QN	470 QN	2700 QN	320 QN	7.9 J QN	22000 QN	120 QN	14000 QN	83 QN	340 QN	280 QN	2900 QN	12000 QN

Table 13 PCB Soil Results for Site 13 Analyzed by EPA Method 8082A (results are in µg/kg) (continued)

	Sample ID	11NC13SS332	11NC13SS339	11NC13SS363	11NC13SS368	11NC13SS373	Site Specific Cleanup Level (µg/Kg)
	Laboratory Sample ID	280-20698-156	280-20698-163	280-20698-187	280-20698-192	280-20698-197	
	Location ID	013-332	013-339	013-363	013-368	013-373	
Analyte	Date Collected	9/21/11	9/22/11	9/22/11	9/22/11	9/22/11	
Aroclor 1016 (µg/kg)		ND (270)	ND (53)	ND (11)	ND (10)	ND (11)	1000
Aroclor 1221 (µg/kg)		ND (540)	ND (110)	ND (23)	ND (21)	ND (22)	1000
Aroclor 1232 (µg/kg)		ND (270)	ND (53)	ND (11)	ND (10)	ND (11)	1000
Aroclor 1242 (µg/kg)		ND (270)	ND (53)	ND (11)	ND (10)	ND (11)	1000
Aroclor 1248 (µg/kg)		ND (270)	ND (53)	ND (11)	ND (10)	ND (11)	1000
Aroclor 1254 (µg/kg)		ND (270)	ND (53)	ND (11)	ND (10)	ND (11)	1000
Aroclor 1260 (µg/kg)		6300 QN	1200 QN	12 J QN	100 QN	48 QN	1000
PCBs Total (µg/kg)		6300 QN	1200 QN	12 J QN	100 QN	48 QN	1000

Notes

*Duplicate and sample have different dates to confuse the lab, actually taken on same date

Blue highlight indicates non-detect result is greater than the cleanup level

Green highlight indicates composite sample result failed the 1/n rule.

Red highlight indicates results are above the cleanup level

Purple highlight indicates the sample is a duplicate

J = Result is an estimate

MN = Result is an estimate due to sample matrix; bias is unknown

ND = results were non-detect, limit of letection in parentheses

Q = MS/MSD and surrogate recoveries were not reported due to high dilution in presence of high concentrations of target analyte. Unknown bias.

QH = Surrogate recovery exceeded acceptance limit; result may have high bias

QL = Surrogate recovery less than acceptance limit; result may have low bias

QN = Result is an estimate due to a quality control failure; bias is unknown

µg/kg = micrograms per kilogram

DUP = sample is a field duplicate of the previous sample

EPA = U.S. Environmental Protection Agency

MS = matrix spike

MSD = matrix spike duplicate

PCB = polychlorinated biphenyls

Table 14 Site 31 Soil Confirmation Results

Sample ID	11NC31SS Composite 1	11NC31SS Composite 2	11NC31SS Composite 3	11NC31SS Composite 4	11NC31SS Composite 5	11NC31SS Composite 6	11NC31SS Composite 7	11NC31SS Composite 8	11NC31SS Composite 9	11NC31SS Composite 10	11NC31SS Composite 11	11NC31SS Composite 12	11NC31SS Composite 13	11NC31SS Composite 14
Laboratory ID	280-20446-201	280-20446-202	280-20446-203	280-20446-204	280-20446-205	280-20446-206	280-20446-207	280-20446-208	280-20446-209	280-20446-210	280-20446-211	280-20446-212	280-20446-213	280-20446-214
Location ID	Comp 1	Comp 2	Comp 3	Comp 4	Comp 5	Comp 6	Comp 7	Comp 8	Comp 9	Comp 10	Comp 11	Comp 12	Comp 13	Comp 14
Date Collected	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (22)	ND (220)	ND (58)	ND (10)	ND (110)	ND (11)	ND (11)	ND (43)	ND (100)	ND (110)	ND (110)	ND (40)	ND (42)	ND (10)
Aroclor 1221 (µg/kg)	ND (44)	ND (440)	ND (120)	ND (21)	ND (210)	ND (22)	ND (22)	ND (87)	ND (210)	ND (230)	ND (220)	ND (80)	ND (85)	ND (20)
Aroclor 1232 (µg/kg)	ND (22)	ND (220)	ND (58)	ND (10)	ND (110)	ND (11)	ND (11)	ND (43)	ND (100)	ND (110)	ND (110)	ND (40)	ND (42)	ND (10)
Aroclor 1242 (µg/kg)	ND (22)	ND (220)	ND (58)	ND (10)	ND (110)	ND (11)	ND (11)	ND (43)	ND (100)	ND (110)	ND (110)	ND (40)	ND (42)	ND (10)
Aroclor 1248 (µg/kg)	ND (22)	ND (220)	ND (58)	ND (10)	ND (110)	ND (11)	ND (11)	ND (43)	ND (100)	ND (110)	ND (110)	ND (40)	ND (42)	ND (10)
Aroclor 1254 (µg/kg)	ND (22)	ND (220)	ND (58)	ND (10)	ND (110)	ND (11)	ND (11)	ND (43)	ND (100)	ND (110)	ND (110)	ND (40)	ND (42)	ND (10)
Aroclor 1260 (µg/kg)	430 QN	3700 QN	850 QN	250 QN	1600 QN	300 QN	240 QN	480 QN	1500 QN	2100 QN	2000 QN	490 QN	570 QN	210 QN
total PCBs (µg/kg)	430 QN	3700 QN	850 QN	250 QN	1600 QN	300 QN	240 QN	480 QN	1500 QN	2100 QN	2000 QN	490 QN	570 QN	210 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS Composite 15	11NC31SS Composite 16	11NC31SS Composite 17	11NC31SS Composite 18	11NC31SS Composite 19	11NC31SS Composite 20	11NC31SS Composite 21	11NC31SS Composite 22	11NC31SS Composite 23	11NC31SS Composite 24	11NC31SS Composite 25	11NC31SS Composite 26	11NC31SS Composite 27	11NC31SS Composite 28
Laboratory ID	280-20446-215	280-20446-216	280-20446-217	280-20446-218	280-20446-219	280-20446-220	280-20446-221	280-20446-222	280-20446-223	280-20446-224	280-20446-225	280-20446-226	280-20446-227	280-20446-228
Location ID	Comp 15	Comp 16	Comp 17	Comp 18	Comp 19	Comp 20	Comp 21	Comp 22	Comp 23	Comp 24	Comp 25	Comp 26	Comp 27	Comp 28
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (10)	ND (10)	ND (54)	ND (9.7)	ND (22)	ND (10)	ND (10)	ND (22)	ND (11)	ND (21)	ND (11)	ND (12)	ND (11)	ND (21)
Aroclor 1221 (µg/kg)	ND (20)	ND (20)	ND (110)	ND (19)	ND (44)	ND (21)	ND (21)	ND (45)	ND (23)	ND (43)	ND (22)	ND (23)	ND (23)	ND (42)
Aroclor 1232 (µg/kg)	ND (10)	ND (10)	ND (54)	ND (9.7)	ND (22)	ND (10)	ND (10)	ND (22)	ND (11)	ND (21)	ND (11)	ND (12)	ND (11)	ND (21)
Aroclor 1242 (µg/kg)	ND (10)	ND (10)	ND (54)	ND (9.7)	ND (22)	ND (10)	ND (10)	ND (22)	ND (11)	ND (21)	ND (11)	ND (12)	ND (11)	ND (21)
Aroclor 1248 (µg/kg)	ND (10)	ND (10)	ND (54)	ND (9.7)	ND (22)	ND (10)	ND (10)	ND (22)	ND (11)	ND (21)	ND (11)	ND (12)	ND (11)	ND (21)
Aroclor 1254 (µg/kg)	ND (10)	ND (10)	ND (54)	ND (9.7)	ND (22)	ND (10)	ND (10)	ND (22)	ND (11)	ND (21)	ND (11)	ND (12)	ND (11)	ND (21)
Aroclor 1260 (µg/kg)	280 QN	240 QN	1100 QN	230 QN	430 QN	300 QN	110 QN	420 QN	240 QN	420 QN	240 QN	9.9 J QN	300 QN	400 QN
total PCBs (µg/kg)	280 QN	240 QN	1100 QN	230 QN	430 QN	300 QN	110 QN	420 QN	240 QN	420 QN	240 QN	9.9 J QN	300 QN	400 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS Composite 29	11NC31SS Composite 30	11NC31SS Composite 31	11NC31SS Composite 32	11NC31SS Composite 33	11NC31SS Composite 34	11NC31SS Composite 35	11NC31SS Composite 36	11NC31SS Composite 37	11NC31SS Composite 38	11NC31SS Composite 39	11NC31SS Composite 40	11NC31SS Composite 41	11NC31SS Composite 42	11NC31SS Composite 43
Laboratory ID	280-20446-229	280-20446-230	280-20446-231	280-20446-232	280-20446-233	280-20446-234	280-20446-235	280-20446-236	280-20446-237	280-20446-238	280-20446-239	280-20446-240	280-20446-241	280-20446-242	280-20446-243
Location ID	Comp 29	Comp 30	Comp 31	Comp 32	Comp 33	Comp 34	Comp 35	Comp 36	Comp 37	Comp 38	Comp 39	Comp 40	Comp 41	Comp 42	Comp 43
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/18/11	9/17/11	9/17/11	9/18/11	9/18/11	9/18/11	9/17/11	9/17/11	9/18/11
Aroclor 1016 (µg/kg)	ND (220)	ND (10)	ND (44)	ND (11)	ND (54)	ND (44)	ND (10)	ND (210)	ND (11)	ND (11)	ND (530)	ND (11)	ND (52)	ND (110)	ND (11)
Aroclor 1221 (µg/kg)	ND (450)	ND (21)	ND (89)	ND (22)	ND (110)	ND (88)	ND (21)	ND (420)	ND (22)	ND (22)	ND (1100)	ND (22)	ND (100)	ND (220)	ND (23)
Aroclor 1232 (µg/kg)	ND (220)	ND (10)	ND (44)	ND (11)	ND (54)	ND (44)	ND (10)	ND (210)	ND (11)	ND (11)	ND (530)	ND (11)	ND (52)	ND (110)	ND (11)
Aroclor 1242 (µg/kg)	ND (220)	ND (10)	ND (44)	ND (11)	ND (54)	ND (44)	ND (10)	ND (210)	ND (11)	ND (11)	ND (530)	ND (11)	ND (52)	ND (110)	ND (11)
Aroclor 1248 (µg/kg)	ND (220)	ND (10)	ND (44)	ND (11)	ND (54)	ND (44)	ND (10)	ND (210)	ND (11)	ND (11)	ND (530)	ND (11)	ND (52)	ND (110)	ND (11)
Aroclor 1254 (µg/kg)	ND (220)	ND (10)	ND (44)	ND (11)	ND (54)	ND (44)	ND (10)	ND (210)	ND (11)	ND (11)	ND (530)	ND (11)	ND (52)	ND (110)	ND (11)
Aroclor 1260 (µg/kg)	3700 QN	240 QN	560 QN	180 QN	1100 QN	630 QN	86 QN	3600 QN	180 QN	51 QN	10000 QN	300 QN	960 QN	2100	310 QN
total PCBs (µg/kg)	3700 QN	240 QN	560 QN	180 QN	1100 QN	630 QN	86 QN	3600 QN	180 QN	51 QN	10000 QN	300 QN	960 QN	2100	310 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS Composite 44	11NC31SS Composite 45	11NC31SS Composite 46	11NC31SS Composite 47	11NC31SS Composite 48	11NC31SS001	11NC31SS002	11NC31SS182-DUP	11NC31SS003	11NC31SS004	11NC31SS183-DUP	11NC31SS005	11NC31SS007	11NC31SS008
Laboratory ID	280-20446-244	280-20446-245	280-20446-246	280-20446-247	280-20446-248	280-20446-1	280-20446-2	280-20446-182	280-20446-3	280-20446-4	280-20446-183	280-20446-5	280-20446-7	280-20446-8
Location ID	Comp 44	Comp 45	Comp 46	Comp 47	Comp 48	031-01	031-02	031-02	031-03	031-04	031-04	031-05	031-07	031-08
Date Collected	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/16/11	9/16/11	9/18/11*	9/16/11	9/16/11	9/18/11 *	9/16/11	9/16/11	9/16/11
Aroclor 1016 (µg/kg)	ND (11)	ND (9.8)	ND (44)	ND (11)	ND (11)	ND (11)	ND (210)	ND (21)	ND (220)	ND (10)	ND (110)	ND (21)	ND (11)	ND (11)
Aroclor 1221 (µg/kg)	ND (21)	ND (20)	ND (88)	ND (22)	ND (22)	ND (22)	ND (430)	ND (43)	ND (440)	ND (21)	ND (210)	ND (41)	ND (22)	ND (23)
Aroclor 1232 (µg/kg)	ND (11)	ND (9.8)	ND (44)	ND (11)	ND (11)	ND (11)	ND (210)	ND (21)	ND (220)	ND (10)	ND (110)	ND (21)	ND (11)	ND (11)
Aroclor 1242 (µg/kg)	ND (11)	ND (9.8)	ND (44)	ND (11)	ND (11)	ND (11)	ND (210)	ND (21)	ND (220)	ND (10)	ND (110)	ND (21)	ND (11)	ND (11)
Aroclor 1248 (µg/kg)	ND (11)	ND (9.8)	ND (44)	ND (11)	ND (11)	ND (11)	ND (210)	ND (21)	ND (220)	ND (10)	ND (110)	ND (21)	ND (11)	ND (11)
Aroclor 1254 (µg/kg)	ND (11)	ND (9.8)	ND (44)	ND (11)	ND (11)	ND (11)	ND (210)	ND (21)	ND (220)	ND (10)	ND (110)	ND (21)	ND (11)	ND (11)
Aroclor 1260 (µg/kg)	69 QN	24 J QN	560 QN	78 QN	140 QN	41 QN	3500 QN	380 QN	3500 QN	74 QN	1400 QN	210 QN	76 QN	42 QN
total PCBs (µg/kg)	69 QN	24 J QN	560 QN	78 QN	140 QN	41 QN	3500 QN	380 QN	3500 QN	74 QN	1400 QN	210 QN	76 QN	42 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS184-DUP	11NC31SS010	11NC31SS011	11NC31SS012	11NC31SS014	11NC31SS015	11NC31SS016	11NC31SS017	11NC31SS020	11NC31SS021	11NC31SS185-DUP	11NC31SS022	11NC31SS023	11NC31SS024
Laboratory ID	280-20446-184	280-20446-10	280-20446-11	280-20446-12	280-20446-14	280-20446-15	280-20446-16	280-20446-17	280-20446-20	280-20446-21	280-20446-185	280-20446-22	280-20446-23	280-20446-24
Location ID	031-8	031-10	031-11	031-12	031-14	031-15	031-16	031-17	031-20	031-21	031-21	031-22	031-23	031-24
Date Collected	9/18/11*	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/18/11*	9/16/11	9/16/11	9/16/11
Aroclor 1016 (µg/kg)	ND (11)	ND (110)	ND (560)	ND (44)	ND (11)	ND (10)	ND (57)	ND (110)	ND (22)	ND (52)	ND (30)	ND (9.8)	ND (31)	ND (21)
Aroclor 1221 (µg/kg)	ND (22)	ND (220)	ND (1100)	ND (88)	ND (23)	ND (21)	ND (110)	ND (220)	ND (43)	ND (100)	ND (60)	ND (20)	ND (62)	ND (42)
Aroclor 1232 (µg/kg)	ND (11)	ND (110)	ND (560)	ND (44)	ND (11)	ND (10)	ND (57)	ND (110)	ND (22)	ND (52)	ND (30)	ND (9.8)	ND (31)	ND (21)
Aroclor 1242 (µg/kg)	ND (11)	ND (110)	ND (560)	ND (44)	ND (11)	ND (10)	ND (57)	ND (110)	ND (22)	ND (52)	ND (30)	ND (9.8)	ND (31)	ND (21)
Aroclor 1248 (µg/kg)	ND (11)	ND (110)	ND (560)	ND (44)	ND (11)	ND (10)	ND (57)	ND (110)	ND (22)	ND (52)	ND (30)	ND (9.8)	ND (31)	ND (21)
Aroclor 1254 (µg/kg)	ND (11)	ND (110)	ND (560)	ND (44)	ND (11)	ND (10)	ND (57)	ND (110)	ND (22)	ND (52)	ND (30)	ND (9.8)	ND (31)	ND (21)
Aroclor 1260 (µg/kg)	120 QN	3200 QN	11000 QN	540 QN	ND (11)	230 QN	1100 QN	2300 QN	150 QN	1100 QN	490 QN	33 QN	540 QN	480 QN
total PCBs (µg/kg)	120 QN	3200 QN	11000 QN	540 QN	ND (11)	230 QN	1100 QN	2300 QN	150 QN	1100 QN	490 QN	33 QN	540 QN	480 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS025	11NC31SS026	11NC31SS027	11NC31SS028	11NC31SS029	11NC31SS030	11NC31SS031	11NC31SS032	11NC31SS033	11NC31SS034	11NC31SS186-DUP	11NC31SS035	11NC31SS036	11NC31SS187-DUP
Laboratory ID	280-20446-25	280-20446-26	280-20446-27	280-20446-28	280-20446-29	280-20446-30	280-20446-31	280-20446-32	280-20446-33	280-20446-34	280-20446-186	280-20446-35	280-20446-36	280-20446-187
Location ID	031-25	031-26	031-27	031-28	031-29	031-30	031-31	031-32	031-33	031-34	031-34	031-35	031-36	031-36
Date Collected	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/16/11	9/18/11*	9/16/11	9/17/2011 0	9/18/11*
Aroclor 1016 (µg/kg)	ND (21)	ND (22)	ND (53)	ND (54)	ND (110)	ND (110)	ND (57)	ND (330)	ND (11)	ND (21)	ND (100)	ND (10)	ND (32)	ND (110)
Aroclor 1221 (µg/kg)	ND (43)	ND (44)	ND (110)	ND (110)	ND (220)	ND (230)	ND (110)	ND (670)	ND (23)	ND (42)	ND (210)	ND (20)	ND (64)	ND (220)
Aroclor 1232 (µg/kg)	ND (21)	ND (22)	ND (53)	ND (54)	ND (110)	ND (110)	ND (57)	ND (330)	ND (11)	ND (21)	ND (100)	ND (10)	ND (32)	ND (110)
Aroclor 1242 (µg/kg)	ND (21)	ND (22)	ND (53)	ND (54)	ND (110)	ND (110)	ND (57)	ND (330)	ND (11)	ND (21)	ND (100)	ND (10)	ND (32)	ND (110)
Aroclor 1248 (µg/kg)	ND (21)	ND (22)	ND (53)	ND (54)	ND (110)	ND (110)	ND (57)	ND (330)	ND (11)	ND (21)	ND (100)	ND (10)	ND (32)	ND (110)
Aroclor 1254 (µg/kg)	ND (21)	ND (22)	ND (53)	ND (54)	ND (110)	ND (110)	ND (57)	ND (330)	ND (11)	ND (21)	ND (100)	ND (10)	ND (32)	ND (110)
Aroclor 1260 (µg/kg)	430 QN	340 QN	1300 QN	450 QN	2700 QN	3000 QN	570 QN	4100 QN	23 J QN	510 QN	640 QN	61 QN	610 QN	1400 QN
total PCBs (µg/kg)	430 QN	340 QN	1300 QN	450 QN	2700 QN	3000 QN	570 QN	4100 QN	23 J QN	510 QN	640 QN	61 QN	610 D QN	1400 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS039	11NC31SS040	11NC31SS044	11NC31SS047	11NC31SS048	11NC31SS049	11NC31SS050	11NC31SS051	11NC31SS052	11NC31SS053	11NC31SS054	11NC31SS063	11NC31SS067	11NC31SS068
Laboratory ID	280-20446-39	280-20446-40	280-20446-44	280-20446-47	280-20446-48	280-20446-49	280-20446-50	280-20446-51	280-20446-52	280-20446-53	280-20446-54	280-20446-63	280-20446-67	280-20446-68
Location ID	031-39	031-40	031-44	031-47	031-48	031-49	031-50	031-51	031-52	031-53	031-54	031-63	031-67	031-68
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (23)	ND (22)	ND (9.9)	ND (53)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (220)	ND (11)	ND (10)	ND (200)
Aroclor 1221 (µg/kg)	ND (45)	ND (44)	ND (20)	ND (110)	ND (220)	ND (22)	ND (22)	ND (22)	ND (22)	ND (24)	ND (430)	ND (23)	ND (21)	ND (410)
Aroclor 1232 (µg/kg)	ND (23)	ND (22)	ND (9.9)	ND (53)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (220)	ND (11)	ND (10)	ND (200)
Aroclor 1242 (µg/kg)	ND (23)	ND (22)	ND (9.9)	ND (53)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (220)	ND (11)	ND (10)	ND (200)
Aroclor 1248 (µg/kg)	ND (23)	ND (22)	ND (9.9)	ND (53)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (220)	ND (11)	ND (10)	ND (200)
Aroclor 1254 (µg/kg)	ND (23)	ND (22)	ND (9.9)	ND (53)	ND (110)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (220)	ND (11)	ND (10)	ND (200)
Aroclor 1260 (µg/kg)	560 QN	250 QN	190 QN	1200 QN	1800 QN	280 QN	66 QN	30 J QN	84 QN	7.5 J QN	3100 QN	39 J QN	150 QN	3200 QN
total PCBs (µg/kg)	560 QN	250 QN	190 QN	1200 QN	1800 QN	280 QN	66 QN	30 J QN	84 QN	7.5 J QN	3100 QN	39 J QN	150 QN	3200 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS071	11NC31SS072	11NC31SS073	11NC31SS074	11NC31SS075	11NC31SS076	11NC31SS077	11NC31SS078	11NC31SS079	11NC31SS080	11NC31SS081	11NC31SS082	11NC31SS083	11NC31SS084
Laboratory ID	280-20446-71	280-20446-72	280-20446-73	280-20446-74	280-20446-75	280-20446-76	280-20446-77	280-20446-78	280-20446-79	280-20446-80	280-20446-81	280-20446-82	280-20446-83	280-20446-84
Location ID	031-71	031-72	031-73	031-74	031-75	031-76	031-77	031-78	031-79	031-80	031-81	031-82	031-83	031-84
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (110)	ND (58)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (110)	ND (57)	ND (23)	ND (56) QL	ND (10)	ND (12)
Aroclor 1221 (µg/kg)	ND (220)	ND (120)	ND (22)	ND (22)	ND (23)	ND (23)	ND (23)	ND (22)	ND (210)	ND (110)	ND (47)	ND (110) QL	ND (21)	ND (23)
Aroclor 1232 (µg/kg)	ND (110)	ND (58)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (110)	ND (57)	ND (23)	ND (56) QL	ND (10)	ND (12)
Aroclor 1242 (µg/kg)	ND (110)	ND (58)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (110)	ND (57)	ND (23)	ND (56) QL	ND (10)	ND (12)
Aroclor 1248 (µg/kg)	ND (110)	ND (58)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (110)	ND (57)	ND (23)	ND (56) QL	ND (10)	ND (12)
Aroclor 1254 (µg/kg)	ND (110)	ND (58)	ND (11)	ND (11)	ND (11)	ND (11)	ND (12)	ND (11)	ND (110)	ND (57)	ND (23)	ND (56) QL	ND (10)	ND (12)
Aroclor 1260 (µg/kg)	1700 QN	840 QN	160 QN	24 J QN	ND (11)	44 QN	ND (12)	6.3 J QN	950 QN	660 QN	420 QN	820 QL	18 J QN	ND (12)
total PCBs (µg/kg)	1700 QN	840 QN	160 QN	24 J QN	ND (11)	44 QN	ND (12)	6.3 J QN	950 QN	660 QN	420 QN	820 QL	18 J QN	ND (12)

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS085	11NC31SS086	11NC31SS087	11NC31SS088	11NC31SS089	11NC31SS096	11NC31SS097	11NC31SS098	11NC31SS099	11NC31SS100	11NC31SS101	11NC31SS102	11NC31SS104	11NC31SS106
Laboratory ID	280-20446-85	280-20446-86	280-20446-87	280-20446-88	280-20446-89	280-20446-96	280-20446-97	280-20446-98	280-20446-99	280-20446-100	280-20446-101	280-20446-102	280-20446-104	280-20446-106
Location ID	031-85	031-86	031-87	031-88	031-89	031-96	031-97	031-97	031-99	031-100	031-101	031-102	031-104	031-106
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (110)	ND (55)	ND (55)	ND (11)	ND (57)	ND (12)	ND (11)	ND (110)	ND (10)	ND (1100)	ND (11)	ND (12)	ND (11)	ND (11)
Aroclor 1221 (µg/kg)	ND (220)	ND (110)	ND (110)	ND (23)	ND (110)	ND (23)	ND (23)	ND (230)	ND (20)	ND (2200)	ND (22)	ND (24)	ND (22)	ND (22)
Aroclor 1232 (µg/kg)	ND (110)	ND (55)	ND (55)	ND (11)	ND (57)	ND (12)	ND (11)	ND (110)	ND (10)	ND (1100)	ND (11)	ND (12)	ND (11)	ND (11)
Aroclor 1242 (µg/kg)	ND (110)	ND (55)	ND (55)	ND (11)	ND (57)	ND (12)	ND (11)	ND (110)	ND (10)	ND (1100)	ND (11)	ND (12)	ND (11)	ND (11)
Aroclor 1248 (µg/kg)	ND (110)	ND (55)	ND (55)	ND (11)	ND (57)	ND (12)	ND (11)	ND (110)	ND (10)	ND (1100)	ND (11)	ND (12)	ND (11)	ND (11)
Aroclor 1254 (µg/kg)	ND (110)	ND (55)	ND (55)	ND (11)	ND (57)	ND (12)	ND (11)	ND (110)	ND (10)	ND (1100)	ND (11)	ND (12)	ND (11)	ND (11)
Aroclor 1260 (µg/kg)	2900 QN	1000 QN	980 QN	ND (11)	810 QN	ND (12)	9.1 J QN	1800 QN	44 QN	22000 QN	190 QN	140 QN	71 QN	11 J QN
total PCBs (µg/kg)	2900 QN	1000 QN	980 QN	ND (11)	810 QN	ND (12)	9.1 J QN	1800 QN	44 QN	22000 QN	190 QN	140 QN	71 QN	11 J QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS107	11NC31SS108	11NC31SS109	11NC31SS110	11NC31SS113	11NC31SS114	11NC31SS115	11NC31SS116	11NC31SS117	11NC31SS118	11NC31SS119	11NC31SS124	11NC31SS125	11NC31SS126
Laboratory ID	280-20446-107	280-20446-108	280-20446-109	280-20446-110	280-20446-113	280-20446-114	280-20446-115	280-20446-116	280-20446-117	280-20446-118	280-20446-119	280-20446-124	280-20446-125	280-20446-126
Location ID	031-107	031-108	031-109	031-110	031-113	031-114	031-115	031-116	031-117	031-118	031-119	031-124	031-125	031-126
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (57)	ND (12)	ND (9800)	ND (22)	ND (35)	ND (220)	ND (12)	ND (12)	ND (11)	ND (88)	ND (23)	ND (220)	ND (220)	ND (110)
Aroclor 1221 (µg/kg)	ND (110)	ND (23)	ND (20000)	ND (44)	ND (70)	ND (430)	ND (24)	ND (25)	ND (21)	ND (180)	ND (45)	ND (430)	ND (440)	ND (230)
Aroclor 1232 (µg/kg)	ND (57)	ND (12)	ND (9800)	ND (22)	ND (35)	ND (220)	ND (12)	ND (12)	ND (11)	ND (88)	ND (23)	ND (220)	ND (220)	ND (110)
Aroclor 1242 (µg/kg)	ND (57)	ND (12)	ND (9800)	ND (22)	ND (35)	ND (220)	ND (12)	ND (12)	ND (11)	ND (88)	ND (23)	ND (220)	ND (220)	ND (110)
Aroclor 1248 (µg/kg)	ND (57)	ND (12)	ND (9800)	ND (22)	ND (35)	ND (220)	ND (12)	ND (12)	ND (11)	ND (88)	ND (23)	ND (220)	ND (220)	ND (110)
Aroclor 1254 (µg/kg)	ND (57)	ND (12)	ND (9800)	ND (22)	ND (35)	ND (220)	ND (12)	ND (12)	ND (11)	ND (88)	ND (23)	ND (220)	ND (220)	ND (110)
Aroclor 1260 (µg/kg)	1400 QN	25 J QN	250000 QN	450 QN	610 QN	5800 QN	ND (12)	ND (12)	92 QN	1300 QN	250 QN	6000 QN	6800 QN	3400 QN
total PCBs (µg/kg)	1400 QN	25 J QN	250000 QN	450 QN	610 QN	5800 QN	ND (12)	ND (12)	92 QN	1300 QN	250 QN	6000 QN	6800 QN	3400 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS127	11NC31SS128	11NC31SS129	11NC31SS130	11NC31SS132	11NC31SS133	11NC31SS134	11NC31SS135	11NC31SS139	11NC31SS140	11NC31SS141	11NC31SS142	11NC31SS143	11NC31SS144
Laboratory ID	280-20446-127	280-20446-128	280-20446-129	280-20446-130	280-20446-132	280-20446-133	280-20446-134	280-20446-135	280-20446-139	280-20446-140	280-20446-141	280-20446-142	280-20446-143	280-20446-144
Location ID	031-127	031-128	031-129	031-130	031-132	031-133	031-134	031-135	031-139	031-140	031-141	031-142	031-143	031-144
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11	9/17/11
Aroclor 1016 (µg/kg)	ND (21)	ND (220)	ND (22)	ND (11)	ND (540)	ND (110)	ND (57)	ND (110)	ND (110)	ND (11)	ND (110)	ND (110)	ND (11)	ND (11)
Aroclor 1221 (µg/kg)	ND (41)	ND (440)	ND (43)	ND (23)	ND (1100)	ND (220)	ND (110)	ND (210)	ND (220)	ND (22)	ND (220)	ND (210)	ND (22)	ND (22)
Aroclor 1232 (µg/kg)	ND (21)	ND (220)	ND (22)	ND (11)	ND (540)	ND (110)	ND (57)	ND (110)	ND (110)	ND (11)	ND (110)	ND (110)	ND (11)	ND (11)
Aroclor 1242 (µg/kg)	ND (21)	ND (220)	ND (22)	ND (11)	ND (540)	ND (110)	ND (57)	ND (110)	ND (110)	ND (11)	ND (110)	ND (110)	ND (11)	ND (11)
Aroclor 1248 (µg/kg)	ND (21)	ND (220)	ND (22)	ND (11)	ND (540)	ND (110)	ND (57)	ND (110)	ND (110)	ND (11)	ND (110)	ND (110)	ND (11)	ND (11)
Aroclor 1254 (µg/kg)	ND (21)	ND (220)	ND (22)	ND (11)	ND (540)	ND (110)	ND (57)	ND (110)	ND (110)	ND (11)	ND (110)	ND (110)	ND (11)	ND (11)
Aroclor 1260 (µg/kg)	180 QN	5100 QN	190 QN	86 QN	8700 QN	1500 QN	1200 QN	1600 QN	3200 QN	200 QN	2100 QN	2000 QN	260 QN	130 QN
total PCBs (µg/kg)	180 QN	5100 QN	190 QN	86 QN	8700 QN	1500 QN	1200 QN	1600 QN	3200 QN	200 QN	2100 QN	2000 QN	260 QN	130 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS145	11NC31SS146	11NC31SS147	11NC31SS148	11NC31SS150	11NC31SS151	11NC31SS153	11NC31SS154	11NC31SS158	11NC31SS159	11NC31SS160	11NC31SS165	11NC31SS166	11NC31SS173
Laboratory ID	280-20446-145	280-20446-146	280-20446-147	280-20446-148	280-20446-150	280-20446-151	280-20446-153	280-20446-154	280-20446-158	280-20446-159	280-20446-160	280-20446-165	280-20446-166	280-20446-173
Location ID	031-145	031-146	031-147	031-148	031-150	031-151	031-153	031-154	031-158	031-159	031-160	031-165	031-166	031-173
Date Collected	9/17/11	9/17/11	9/17/11	9/17/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11
Aroclor 1016 (µg/kg)	ND (57)	ND (210)	ND (110)	ND (110)	ND (12)	ND (11)	ND (10)	ND (10)	ND (10)	ND (12)	ND (11)	ND (11)	ND (100)	ND (11)
Aroclor 1221 (µg/kg)	ND (110)	ND (420)	ND (220)	ND (220)	ND (23)	ND (21)	ND (21)	ND (21)	ND (21)	ND (23)	ND (22)	ND (22)	ND (200)	ND (22)
Aroclor 1232 (µg/kg)	ND (57)	ND (210)	ND (110)	ND (110)	ND (12)	ND (11)	ND (10)	ND (10)	ND (10)	ND (12)	ND (11)	ND (11)	ND (100)	ND (11)
Aroclor 1242 (µg/kg)	ND (57)	ND (210)	ND (110)	ND (110)	ND (12)	ND (11)	ND (10)	ND (10)	ND (10)	ND (12)	ND (11)	ND (11)	ND (100)	ND (11)
Aroclor 1248 (µg/kg)	ND (57)	ND (210)	ND (110)	ND (110)	ND (12)	ND (11)	ND (10)	ND (10)	ND (10)	ND (12)	ND (11)	ND (11)	ND (100)	ND (11)
Aroclor 1254 (µg/kg)	ND (57)	ND (210)	ND (110)	ND (110)	ND (12)	ND (11)	ND (10)	ND (10)	ND (10)	ND (12)	ND (11)	ND (11)	ND (100)	ND (11)
Aroclor 1260 (µg/kg)	990 QN	3200 QN	2000 QN	2400 QN	5.8 J QN	ND (11)	ND (10)	62 QN	ND (10)	130 QN	220 QN	ND (11)	2600 QN	180 QN
total PCBs (µg/kg)	990 QN	3200 QN	2000 QN	2400 QN	5.8 J QN	ND (11)	ND (10)	62 QN	ND (10)	130 QN	220 QN	ND (11)	2600 QN	180 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS174	11NC31SS181	11NC31SS152	11NC31SS155	11NC31SS169	11NC31SS170	11NC31SS188	11NC31SS189	11NC31SS201	11NC31SS202	11NC31SS203	11NC31SS204	11NC31SS207	11NC31SS208
Laboratory ID	280-20446-174	280-20446-181	280-20446-152	280-20446-155	280-20446-169	280-20446-170	280-20446-188	280-20446-189	580-28787-1	580-28787-2	580-28787-3	580-28787-4	580-28787-7	580-28787-8
Location ID	031-174	031-181	031-152	031-155	031-169	031-170	031-39	031-40	031-201	031-202	031-203	031-204	031-207	031-208
Date Collected	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/18/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11
Aroclor 1016 (µg/kg)	ND (11)	ND (10)	ND (110)	ND (11)	ND (210)	ND (500)	ND (22)	ND (44)	ND (5.4)	ND (5.4)	ND (5.5)	ND (5.6)	ND (5.3)	ND (5.4)
Aroclor 1221 (µg/kg)	ND (21)	ND (20)	ND (220)	ND (22)	ND (420)	ND (990)	ND (44)	ND (89)	ND (8.7)	ND (8.7)	ND (8.7)	ND (9)	ND (8.4)	ND (8.7)
Aroclor 1232 (µg/kg)	ND (11)	ND (10)	ND (110)	ND (11)	ND (210)	ND (500)	ND (22)	ND (44)	ND (8.7)	ND (8.7)	ND (8.7)	ND (9)	ND (8.4)	ND (8.7)
Aroclor 1242 (µg/kg)	ND (11)	ND (10)	ND (110)	ND (11)	ND (210)	ND (500)	ND (22)	ND (44)	ND (5.4)	ND (5.4)	ND (5.5)	ND (5.6)	ND (5.3)	ND (5.4)
Aroclor 1248 (µg/kg)	ND (11)	ND (10)	ND (110)	ND (11)	ND (210)	ND (500)	ND (22)	ND (44)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.4)	ND (3.2)	ND (3.2)
Aroclor 1254 (µg/kg)	ND (11)	ND (10)	ND (110)	ND (11)	ND (210)	ND (500)	ND (22)	ND (44)	ND (5.4)	ND (5.4)	ND (5.5)	ND (5.6)	ND (5.3)	ND (5.4)
Aroclor 1260 (µg/kg)	ND (11)	62 QN	2100 QN	ND (11)	3800 QN	15000 QN	370 QN	720 QN	17 QN	7500 QN	4300 QN	14 QN	120 QN	3.4 J QN
total PCBs (µg/kg)	ND (11)	62 QN	2100 QN	ND (11)	3800 QN	15000 QN	370 QN	720 QN	17 QN	7500 QN	4300 QN	14 QN	120 QN	3.4 J QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS209	11NC31SS210	11NC31SS211	11NC31SS214	11NC31SS215	11NC31SS216	11NC31SS217	11NC31SS218	11NC31SS220	11NC31SS222	11NC31SS223	11NC31SS225	11NC31SS226	11NC31SS233
Laboratory ID	580-28787-9	580-28787-10	580-28787-11	580-28787-14	580-28787-15	580-28787-16	580-28787-17	580-28787-18	580-28787-20	580-28787-22	580-28787-23	580-28787-25	580-28787-26	580-28787-33
Location ID	031-209	031-210	031-211	031-214	031-215	031-216	031-217	031-218	031-220	031-222	031-223	031-225	031-226	031-233
Date Collected	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11
Aroclor 1016 (µg/kg)	ND (5.5)	ND (5.5)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.4)	ND (5.5)	ND (5.6)	ND (5.5)	ND (5.6)	ND (6.2)	ND (5.3)	ND (5.4)	ND (5.5)
Aroclor 1221 (µg/kg)	ND (8.7)	ND (8.8)	ND (8.5)	ND (8.3)	ND (8.5)	ND (8.7)	ND (8.9)	ND (9)	ND (8.8)	ND (9)	ND (9.8)	ND (8.6)	ND (8.6)	ND (8.7)
Aroclor 1232 (µg/kg)	ND (8.7)	ND (8.8)	ND (8.5)	ND (8.3)	ND (8.5)	ND (8.7)	ND (8.9)	ND (9)	ND (8.8)	ND (9)	ND (9.8)	ND (8.6)	ND (8.6)	ND (8.7)
Aroclor 1242 (µg/kg)	ND (5.5)	ND (5.5)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.4)	ND (5.5)	ND (5.6)	ND (5.5)	ND (5.6)	ND (6.2)	ND (5.3)	ND (5.4)	ND (5.5)
Aroclor 1248 (µg/kg)	ND (3.3)	ND (3.3)	ND (3.2)	ND (3.1)	ND (3.2)	ND (3.2)	ND (3.3)	ND (3.4)	ND (3.3)	ND (3.4)	ND (3.7)	ND (3.2)	ND (3.2)	ND (3.3)
Aroclor 1254 (µg/kg)	ND (5.5)	ND (5.5)	ND (5.3)	ND (5.2)	ND (5.3)	ND (5.4)	ND (5.5)	ND (5.6)	ND (5.5)	ND (5.6)	ND (6.2)	ND (5.3)	ND (5.4)	ND (5.5)
Aroclor 1260 (µg/kg)	4600 QN	3100 QN	230 QN	110 QN	1000 QN	1100 QN	1100 QN	23000 QN	1600 QN	520 QN	2000 QN	12 QN	2300 QN	3100 QN
total PCBs (µg/kg)	4600 QN	3100 QN	230 QN	110 QN	1000 QN	1100 QN	1100 QN	23000 QN	1600 QN	520 QN	2000 QN	12 QN	2300 QN	3100 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS236	11NC31SS291-DUP	11NC31SS237	11NC31SS238	11NC31SS239	11NC31SS240	11NC31SS253	11NC31SS275	11NC31SS276	11NC31SS277	11NC31SS278	11NC31SS279	11NC31SS288	11NC31SS289
Laboratory ID	580-28787-36	580-28787-91	580-28787-37	580-28787-38	580-28787-39	580-28787-40	580-28787-53	580-28787-75	580-28787-76	580-28787-77	580-28787-78	580-28787-79	580-28787-88	580-28787-89
Location ID	031-236	031-236	031-237	031-238	031-239	031-240	031-253	031-275	031-276	031-277	031-278	031-279	031-214	031-215
Date Collected	9/19/11	9/20/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11
Aroclor 1016 (µg/kg)	ND (5.4)	ND (5.6)	ND (5.2)	ND (5.2)	ND (5.3)	ND (5.8)	ND (5.9)	ND (5.3)	ND (5.4)	ND (5.1)	ND (5)	ND (5.7)	ND (5.2)	ND (5.4)
Aroclor 1221 (µg/kg)	ND (8.6)	ND (9)	ND (8.3)	ND (8.3)	ND (8.4)	ND (9.3)	ND (9.4)	ND (8.5)	ND (8.7)	ND (8.1)	ND (8.1)	ND (9)	ND (8.3)	ND (8.6)
Aroclor 1232 (µg/kg)	ND (8.6)	ND (9)	ND (8.3)	ND (8.3)	ND (8.4)	ND (9.3)	ND (9.4)	ND (8.5)	ND (8.7)	ND (8.1)	ND (8.1)	ND (9)	ND (8.3)	ND (8.6)
Aroclor 1242 (µg/kg)	ND (5.4)	ND (5.6)	ND (5.2)	ND (5.2)	ND (5.3)	ND (5.8)	ND (5.9)	ND (5.3)	ND (5.4)	ND (5.1)	ND (5)	ND (5.7)	ND (5.2)	ND (5.4)
Aroclor 1248 (µg/kg)	ND (3.2)	ND (3.4)	ND (3.1)	ND (3.1)	ND (3.2)	ND (3.5)	ND (3.5)	ND (3.2)	ND (3.3)	ND (3.1)	ND (3)	ND (3.4)	ND (3.1)	ND (3.2)
Aroclor 1254 (µg/kg)	ND (5.4)	ND (5.6)	ND (5.2)	ND (5.2)	ND (5.3)	ND (5.8)	ND (5.9)	ND (5.3)	ND (5.4)	ND (5.1)	ND (5)	ND (5.7)	ND (5.2)	ND (5.4)
Aroclor 1260 (µg/kg)	1600 QN	1000 QN	3200 QN	320 QN	3400 QN	16 QN	490 QN	21000 QN	150 QN	39 QN	590 QN	69 QN	210 QN	1100 QN
total PCBs (µg/kg)	1600 QN	1000 QN	3200 QN	320 QN	3400 QN	16 QN	490 QN	21000 QN	150 QN	39 QN	590 QN	69 QN	210 QN	1100 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS290	11NC31SS292	11NC31SS295	11NC31SS296	11NC31SS297	11NC31SS298	11NC31SS299	11NC31SS300	11NC31SS301	11NC31SS302	11NC31SS303	11NC31SS304	11NC31SS305	11NC31SS306
Laboratory ID	580-28787-90	580-28787-92	580-28787-95	580-28787-96	580-28787-97	580-28787-98	580-28787-99	580-28787-100	580-28787-101	580-28787-102	580-28787-103	580-28787-104	580-28787-105	580-28787-106
Location ID	031-216	031-237	031-295	031-296	031-297	031-298	031-299	031-300	031-301	031-302	031-303	031-304	031-305	031-306
Date Collected	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11	9/20/11
Aroclor 1016 (µg/kg)	ND (5.4)	ND (5.3)	ND (5.2)	ND (5.5)	ND (5.6)	ND (5.7)	ND (5.3)	ND (5.4)	ND (5.5)	ND (5.7)	ND (5.5)	ND (5.5)	ND (5.9)	ND (5.4)
Aroclor 1221 (µg/kg)	ND (8.7)	ND (8.4)	ND (8.3)	ND (8.8)	ND (8.9)	ND (9.2)	ND (8.5)	ND (8.7)	ND (8.9)	ND (9.2)	ND (8.8)	ND (8.8)	ND (9.4)	ND (8.7)
Aroclor 1232 (µg/kg)	ND (8.7)	ND (8.4)	ND (8.3)	ND (8.8)	ND (8.9)	ND (9.2)	ND (8.5)	ND (8.7)	ND (8.9)	ND (9.2)	ND (8.8)	ND (8.8)	ND (9.4)	ND (8.7)
Aroclor 1242 (µg/kg)	ND (5.4)	ND (5.3)	ND (5.2)	ND (5.5)	ND (5.6)	ND (5.7)	ND (5.3)	ND (5.4)	ND (5.5)	ND (5.7)	ND (5.5)	ND (5.5)	ND (5.9)	ND (5.4)
Aroclor 1248 (µg/kg)	ND (3.3)	ND (3.2)	ND (3.1)	ND (3.3)	ND (3.3)	ND (3.4)	ND (3.2)	ND (3.3)	ND (3.3)	ND (3.4)	ND (3.3)	ND (3.3)	ND (3.5)	ND (3.3)
Aroclor 1254 (µg/kg)	ND (5.4)	ND (5.3)	ND (5.2)	ND (5.5)	ND (5.6)	ND (5.7)	ND (5.3)	ND (5.4)	ND (5.5)	ND (5.7)	ND (5.5)	ND (5.5)	ND (5.9)	ND (5.4)
Aroclor 1260 (µg/kg)	1400 QN	240 QN	330 QN	ND (5.5)	15 QN	17 QN	7 J QN	21 QN	32 QN	580 QN	14 QN	20 QN	4500 QN	820 QN
total PCBs (µg/kg)	1400 QN	240 QN	330 QN	ND (5.5)	15 QN	17 QN	7 J QN	21 QN	32 QN	580 QN	14 QN	20 QN	4500 QN	820 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	11NC31SS307	Comp Group 1	Comp Group 2	Comp Group 3	Comp Group 4	Comp Group 5	Comp Group 6	Comp Group 7	Comp Group 8	Comp Group 9	Comp Group 10	Comp Group 11	Comp Group 12	Comp Group 13
Laboratory ID	580-28787-107	580-28787-108	580-28787-128	580-28787-114	580-28787-115	580-28787-109	580-28787-123	580-28787-127	580-28787-122	580-28787-110	580-28787-121	580-28787-111	580-28787-116	580-28787-126
Location ID	031-307													
Date Collected	9/20/11	9/19/11	9/20/11	9/19/11	9/19/11	9/19/11	9/19/11	9/20/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/20/11
Aroclor 1016 (µg/kg)	ND (5.4)	ND (5.4)	ND (5.1)	ND (5.4)	ND (5.8)	ND (5.4)	ND (5.3)	ND (5)	ND (5.2)	ND (5.6)	ND (5.1)	ND (5.4)	ND (5.5)	ND (5)
Aroclor 1221 (µg/kg)	ND (8.7)	ND (8.7)	ND (8.2)	ND (8.6)	ND (9.3)	ND (8.7)	ND (8.5)	ND (8.1)	ND (8.3)	ND (8.9)	ND (8.1)	ND (8.6)	ND (8.8)	ND (7.9)
Aroclor 1232 (µg/kg)	ND (8.7)	ND (8.7)	ND (8.2)	ND (8.6)	ND (9.3)	ND (8.7)	ND (8.5)	ND (8.1)	ND (8.3)	ND (8.9)	ND (8.1)	ND (8.6)	ND (8.8)	ND (7.9)
Aroclor 1242 (µg/kg)	ND (5.4)	ND (5.4)	ND (5.1)	ND (5.4)	ND (5.8)	ND (5.4)	ND (5.3)	ND (5)	ND (5.2)	ND (5.6)	ND (5.1)	ND (5.4)	ND (5.5)	ND (5)
Aroclor 1248 (µg/kg)	ND (3.3)	ND (3.3)	ND (3.1)	ND (3.2)	ND (3.5)	ND (3.3)	ND (3.2)	ND (3)	ND (3.1)	ND (3.3)	ND (3.1)	ND (3.2)	ND (3.3)	ND (3)
Aroclor 1254 (µg/kg)	ND (5.4)	ND (5.4)	ND (5.1)	ND (5.4)	ND (5.8)	ND (5.4)	ND (5.3)	ND (5)	ND (5.2)	ND (5.6)	ND (5.1)	ND (5.4)	ND (5.5)	ND (5)
Aroclor 1260 (µg/kg)	610 QN	330 QN	23 QN	310 QN	200 QN	120 QN	140 QN	140 QN	610 QN	120 QN	420 QN	300 QN	300 QN	120 QN
total PCBs (µg/kg)	610 QN	330 QN	23 QN	310 QN	200 QN	120 QN	140 QN	140 QN	610 QN	120 QN	420 QN	300 QN	300 QN	120 QN

Table 14 Site 31 Soil Confirmation Results (continued)

Sample ID	Comp Group 14	Comp Group 15	Comp Group 16	Comp Group 17	Comp Group 18	Comp Group 19	Comp Group 20	Comp Group 21	Comp Group 22	Site-Specific Cleanup Level (µg/kg)
Laboratory ID	580-28787-108	580-28787-113	580-28787-117	580-28787-120	580-28787-125	580-28787-112	580-28787-118	580-28787-119	580-28787-129	
Location ID										
Date Collected	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	9/19/11	
Aroclor 1016 (µg/kg)	ND (5.5)	ND (5.3)	ND (5.7)	ND (5.6)	ND (5.4)	ND (5.2)	ND (5.6)	ND (5.6)	ND (5.5)	1,000
Aroclor 1221 (µg/kg)	ND (8.8)	ND (8.5)	ND (9.1)	ND (8.9)	ND (8.7)	ND (8.4)	ND (8.9)	ND (8.9)	ND (8.7)	1,000
Aroclor 1232 (µg/kg)	ND (8.8)	ND (8.5)	ND (9.1)	ND (8.9)	ND (8.7)	ND (8.4)	ND (8.9)	ND (8.9)	ND (8.7)	1,000
Aroclor 1242 (µg/kg)	ND (5.5)	ND (5.3)	ND (5.7)	ND (5.6)	ND (5.4)	ND (5.2)	ND (5.6)	ND (5.6)	ND (5.5)	1,000
Aroclor 1248 (µg/kg)	ND (3.3)	ND (3.2)	ND (3.4)	ND (3.3)	ND (3.3)	ND (3.1)	ND (3.3)	ND (3.4)	ND (3.3)	1,000
Aroclor 1254 (µg/kg)	ND (5.5)	ND (5.3)	ND (5.7)	ND (5.6)	ND (5.4)	ND (5.2)	ND (5.6)	ND (5.6)	ND (5.5)	1,000
Aroclor 1260 (µg/kg)	17 QN	270 QN	1500 QN	110 QN	130 QN	16 QN	240 QN	45 QN	81 QN	1,000
total PCBs (µg/kg)	17 QN	270 QN	1500 QN	110 QN	130 QN	16 QN	240 QN	45 QN	81 QN	1,000

Notes:
* Duplicate and sample have different dates to confuse the lab, actually taken on same date
Blue highlight indicates non-detect result greater than the cleanup level
Red highlight indicates results are above the cleanup level
Green highlight indicates composite sample result failed the 1/n rule
Purple highlight indicates the sample is a duplicate
J = Result is an estimate
DUP = Sample is a field duplicate of the previous sample
MN = Result is an estimate due to sample matrix; bias is unknown
ND = results were non-detect, limit of detection in parentheses
Q = MS/MSD and surrogate recoveries were not reported due to high dilution in presence of high concentrations of target analyte. Unknown bias.
QH = Surrogate recovery exceeded acceptance limit; result may have high bias
QL = Surrogate recovery less than acceptance limit; result may have low bias
QN = Result is an estimate due to a quality control failure; bias is unknown

µg/Kg = micrograms per kilogram
MS = matrix spike
MSD = matrix spike duplicate

Table 15 Site 21 Arsenic by EPA 6020 in Soil Background Results (mg/kg)

Sample ID	11NC21SS01	11NC21SS02	11NC21SS03	11NC21SS10-DUP	11NC21SS04	11NC21SS05
Laboratory Sample ID	580-27633-1	580-27633-2	580-27633-3	580-27633-10	580-27633-4	580-27633-5
Location ID	21-01	21-02	21-03	21-03	21-04	21-05
Date Collected	7/22/2011	7/22/2011	7/22/2011	7/22/2011	7/22/2011	7/22/2011
Arsenic Result (mg/Kg)	5.4	3.1	3.5	2.9	6	6

Table 15 Site 21 Arsenic by EPA 6020 in Soil Background Results (mg/kg) (continued)

Sample ID	11NC21SS06	11NC21SS07	11NC21SS08	11NC21SS09	Site-Specific Cleanup Level[1]
Laboratory Sample ID	580-27633-6	580-27633-7	580-27633-8	580-27633-9	
Location ID	21-06	21-07	21-08	21-09	
Date Collected	7/22/2011	7/22/2011	7/22/2011	7/22/2011	
Arsenic Result (mg/Kg)	10	6.3	3.6	**22**	**11**

Notes:

[1]Cleanup level based on NE Cape 2009 Decision Document

BOLD = Result is above site-specific cleanup Level

DUP = Duplicate of previous sample

EPA = U.S. Environmental Protection Agency

mg/kg = milligrams per kilogram

Table 16 Site 21 Arsenic in Soil by EPA 6020

Sample ID	11NC21SS001	11NC21SS002	11NC21SS003	11NC21SS004	11NC21SS007 DUP	11NC21SS005	11NC21SS006	11NC21SS008	
Laboratory Sample ID	580-28199-5	580-28199-6	580-28199-7	580-28199-8	580-28199-11	580-28199-9	580-28199-10	580-28199-12	
Location ID	21-001	21-002	21-003	21-004	21-004	21-005	21-006	21-008	Site-Specific Cleanup Level[1]
Date Collected	8/21/2011	8/21/2011	8/21/2011	8/21/2011	8/21/2011	8/21/2011	8/21/2011	8/21/2011	
Arsenic Result (mg/kg)	**56**	**32**	**22**	**100**	**140**	**180**	**74**	**80**	11

Notes:

[1]Cleanup level based on NE Cape 2009 Decision Document

Red highlight = results are above cleanup level

DUP = duplicate of previous sample

EPA = U.S. Environmental Protection Agency

mg/kg = milligrams per kilogram

Table 17 MOC Tar Results for Disposal by EPA Method 8270C (µg/kg)

Laboratory ID	580-27899-1	580-27899-2
Sample ID	11NCTAR001	11NCTAR002
Date Collected	7/30/2011	7/30/2011
Analyte		
1,4-Dichlorobenzene	ND (120) QL	ND (120) QL
2,4,5-Trichlorophenol	ND (120) QL	ND (120) QL
2,4,6-Trichlorophenol	ND (120) QL	ND (120) QL
2,4-Dinitrotoluene	ND (120) QL	ND (120) QL
2-Methylphenol	ND (120) J QL	ND (120) QL
3 & 4 Methylphenol	ND (120) QL	ND (120) QL
Hexachlorobenzene	ND (61) QL	ND (60) QL
Hexachlorobutadiene	ND (120) QL	ND (120) QL
Hexachloroethane	ND (120) QL	ND (120) QL
Nitrobenzene	ND (310) QL	ND (300) QL
Pentachlorophenol	ND (310) QL	ND (300) QL
Pyridine	ND (3100) QL	ND (3000) QL

Notes:

J = MS/MSD recovery on this sample exceeded RPD limits

ND = Result is non-detect; the limit of detection is in parentheses

QL = Holding time exceedance; results are considered estimated with low bias

µg/kg = micrograms per kilogram

EPA = U.S. Environmental Protection Agency

MOC = Main Operations Complex

MS/MSD = matrix spike/matrix spike duplicate

RPD = relative percent difference

Table 18 Soil Confirmation Results for Tar Removal Area by EPA Method 8270 SIM in µg/kg

	Sample ID	11NCTARSS001	11NCTARSS002	11NCTARSS003	11NCTARSS004	11NCTARSS005	11NCTARSS006	11NCTARSS007	11NCTARSS008
	Laboratory ID	580-27899-3	580-27899-4	580-27899-5	580-27899-6	580-27899-7	580-27899-8	580-27899-9	580-27899-10
	Location ID	TAR-2	TAR-3	TAR-4	TAR-5	TAR-6	TAR-7	TAR-8	TAR-9
	Date Collected	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011
Analyte	Site-Specific and ADEC Cleanup Levels (µg/kg)								
Anthracene	3,000,000	ND (51)	ND (3.1)	110	ND (14)	1.7 J QH	2.9 J QH	ND (2.8)	110
Acenaphthene	180,000	ND (51)	ND (3.1)	16 J	ND (14)	ND (3.0)	ND (3.0)	ND (2.8)	22 J
Acenaphthylene	180,000	ND (51)	ND (3.1)	260	ND (14)	2.5 J QH	0.64 J QH	ND (2.8)	1.6 J
Benzo(a)anthracene	3,600	83 J	ND (3.1)	260	ND (14)	6.4 QH	11 QH	ND (2.8)	220
Benzo(b)fluoranthene	12,000	88 J	ND (3.1)	420	ND (14)	9.3 QH	8.3 QH	ND (2.8)	120
Benzo(k)fluoranthene	120,000	ND (51)	ND (3.1)	150	ND (14)	2.6 J QH	3 J QH	ND (2.8)	46
Benzo(a)pyrene	2,100	49 J	ND (3.1)	440	ND (14)	4.1 J QH	4.2 J QH	ND (2.8)	66
Benzo(g,h,i)perylene	38,700,000	25 J	ND (3.1)	180	ND (14)	2.5 J QH	1.9 J QH	ND (2.8)	17 J
Chrysene	360,000	200	2.3 J QH	500	13 J	15 QH	27 QH	ND (2.8)	280
Dibenz(a,h)anthracene	4,000	ND (51)	ND (0.0031)	64 J	ND (14)	ND (3.0)	ND (3.0)	ND (2.8)	11 J
Fluoranthene	1,400,000	160	1.6 J QH	230	ND (14)	12 QH	7.2 QH	ND (2.8)	450
Fluorene	220,000	ND (51)	ND (3.1)	ND (53)	ND (14)	1.9 J QH	0.97 J QH	ND (2.8)	42
Indeno(1,2,3-cd)pyrene	41,000	ND (51)	ND (3.1)	190	ND (14)	2.7 J QH	1.8 J QH	ND (2.8)	22 J
Naphthalene	120,000*	ND (51)	0.51 J QH	11 J	ND (14)	0.73 J QH	0.53 J QH	0.38 J	6.3 J
Phenanthrene	3,000,000	74 J	1.4 J QH	94 J	ND (14)	5.3 J QH	5.1 J QH	ND (2.8)	350
Pyrene	1,000,000	140	2.2 J QH	540	8.3 J	14 QH	9 QH	ND (2.8)	330
1-Methylnaphthalene	NS	ND (51)	0.48 J QH	8.1 J	ND (14)	0.37 J QH	ND (3.0)	ND (2.8)	4.7 J
2-Methylnaphthalene	6,100	ND (51)	ND (3.1)	12 J	ND (14)	0.51 J QH	ND (3.0)	ND (2.8)	7.8 J

Table 18 Soil Confirmation Results for Tar Removal Area by EPA Method 8270 SIM in µg/kg (continued)

Analyte	Sample ID / Laboratory ID / Location ID / Date Collected / Site-Specific and ADEC Cleanup Levels (µg/kg)	11NCTARSS024-Dup	11NCTARSS009	11NCTARSS010	11NCTARSS011	11NCTARSS022-Dup	11NCTARSS012	11NCTARSS013	11NCTARSS014
	Laboratory ID	580-27899-26	580-27899-11	580-27899-12	580-27899-13	580-27899-24	580-27899-14	580-27899-15	580-27899-16
	Location ID	TAR-9	TAR-10	TAR-11	TAR-12	TAR-12	TAR-13	TAR-14	TAR-15
	Date Collected	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011
Analyte	Site-Specific and ADEC Cleanup Levels (µg/kg)								
Anthracene	3,000,000	4.7 J	ND (59)	17 J	ND (30)	98 QH	36 J	950	36
Acenaphthene	180,000	ND (14)	ND (59)	ND (59)	ND (30)	15 QH	7.3 J	200	3.2 J
Acenaphthylene	180,000	2.7 J	ND (59)	ND (59)	2.9 J	4.1 J QH	15 J	150	61
Benzo(a)anthracene	3,600	18 J	53 J	53 J	12 J	250 QH	39 J	1800	130
Benzo(b)fluoranthene	12,000	ND (14)	72 J	58 J	ND (30)	200 QH	ND (26)	1100	170
Benzo(k)fluoranthene	120,000	ND (14)	ND (59)	ND (59)	ND (30)	63 QH	ND (26)	450	58
Benzo(a)pyrene	2,100	15 J	50 J	29 J	11 J	110 QH	29 J	750	130
Benzo(g,h,i)perylene	38,700,000	10 J	24 J	ND (59)	ND (30)	36 QH	14 J	230	67
Chrysene	360,000	48	150	160	54 J	270 QH	100	2100	170
Dibenz(a,h)anthracene	4,000	ND (14)	ND (59)	ND (59)	ND (30)	19 QH	ND (26)	120	25 J
Fluoranthene	1,400,000	25 J	83 J	96 J	16 J	450 QH	53	3500	160
Fluorene	220,000	2.9 J	ND (59)	ND (59)	ND (30)	7.3 QH	9.4 J	330	13 J
Indeno(1,2,3-cd)pyrene	41,000	ND (14)	ND (59)	ND (59)	ND (30)	42 QH	ND (26)	280	70
Naphthalene	120,000*	ND (14)	ND (59)	ND (59)	ND (30)	1.3 J QH	ND (26)	35	2.6 J
Phenanthrene	3,000,000	11 J	65 J	70 J	ND (30)	240 QH	45 J	2400	45
Pyrene	1,000,000	33	120	130	26 J	360 QH	26 J	3000	180
1-Methylnaphthalene	NS	ND (14)	ND (59)	ND (59)	ND (30)	2.0 J QH	3.3 J	39	1.7 J
2-Methylnaphthalene	6,100	ND (14)	ND (59)	ND (59)	ND (30)	2.1 J QH	5.7 J	49	2.5 J

Table 18 Soil Confirmation Results for Tar Removal Area by EPA Method 8270 SIM in µg/kg (continued)

	Sample ID	11NCTARSS015	11NCTARSS016	11NCTARSS023-Dup	11NCTARSS017	11NCTARSS018	11NCTARSS019	11NCTARSS020	11NCTARSS021
	Laboratory ID	580-27899-17	580-27899-18	580-27899-25	580-27899-19	580-27899-20	580-27899-21	580-27899-22	580-27899-23
	Location ID	TAR-16	TAR-17	TAR-17	TAR-18	TAR-19	TAR-20	TAR-21	TAR-22
	Date Collected	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011	8/7/2011
Analyte	Site-Specific and ADEC Cleanup Levels (µg/kg)								
Anthracene	3,000,000	ND (16)	30	17 QH	430 J	14 J	ND (13)	27 J	ND (2.8)
Acenaphthene	180,000	ND (16)	3.9 J	2.2 J QH	79 J	ND (27)	ND (13)	ND (27)	ND (2.8)
Acenaphthylene	180,000	ND (16)	63	26 QH	1200	13 J	ND (13)	57	0.56 J
Benzo(a)anthracene	3,600	ND (16)	90	50 QH	1200	17 J	ND (13)	59	ND (2.8)
Benzo(b)fluoranthene	12,000	ND (16)	140	64 QH	2300	ND (27)	ND (13)	110	ND (2.8)
Benzo(k)fluoranthene	120,000	ND (16)	49	21 QH	640	ND (27)	ND (13)	28 J	ND (2.8)
Benzo(a)pyrene	2,100	ND (16)	150	61 QH	2300	19 J	ND (13)	120	ND (2.8)
Benzo(g,h,i)perylene	38,700,000	ND (16)	59	23 QH	1000	ND (27)	ND (13)	51 J	ND (2.8)
Chrysene	360,000	ND (16)	120	60 QH	2600	35 J	ND (13)	120	ND (2.8)
Dibenz(a,h)anthracene	4,000	ND (16)	20 J	8.1 QH	340 J	ND (27)	ND (13)	17 J	ND (2.8)
Fluoranthene	1,400,000	ND (16)	20 J	67 QH	1300	54	ND (13)	59	ND (2.8)
Fluorene	220,000	3.8 J	9.2 J	7.3 QH	150 J	8.7 J	ND (13)	8.6 J	0.8 J
Indeno(1,2,3-cd)pyrene	41,000	ND (16)	63	25 QH	1000	ND (27)	ND (13)	52 J	ND (2.8)
Naphthalene	120,000*	ND (16)	ND (15)	1.0 J QH	44 J	ND (27)	ND (13)	ND (27)	ND (2.8)
Phenanthrene	3,000,000	ND (16)	26 J	25 QH	370 J	23 J	ND (13)	23 J	ND (2.8)
Pyrene	1,000,000	ND (16)	150	83 QH	3300	87	ND (13)	130	ND (2.8)
1-Methylnaphthalene	NS	ND (16)	ND (15)	0.56 J QH	ND (270)	ND (27)	ND (13)	ND (27)	ND (2.8)
2-Methylnaphthalene	6,100	ND (16)	1.8 J	0.93 J QH	46 J	ND (27)	ND (13)	ND (27)	ND (2.8)

Notes:

*Site-specific cleanup level

J = Result is an estimate

ND = Non-detect; limit of detection in parentheses

QH = Surrogate recovery exceeded upper acceptance limit. Sample results may have high bias.

µg/kg = micrograms per kilogram

ADEC = Alaska Department of Environmental Conservation

Dup = Sample is a field duplicate of the previous sample

EPA = U.S. Environmental Protection Agency

NS = not specified

SIM = selective ion monitoring

Table 19
Site 9 Surface Water Results by EPA 8260B (Volatile Organic Compounds) in µg/L

	Sample ID	11NC09WA006	11NC09WA007	11NC09WA008	11NC09WA009	11NC09WA010-DUP
	Laboratory ID	580-28786-14	580-28786-15	580-28786-16	580-28786-17	580-28786-18
	Location ID	009-01	009-02	009-03	009-04	009-04
	Date Collected	9/19/2011	9/19/2011	9/19/2011	9/19/2011	9/19/2011
Analyte	ADEC Cleanup Level					
1,1,1,2-Tetrachloroethane	Total Aromatic Hydrocarbons (TAH) 5 µg/L	ND (0.45) ML	ND (0.45) ML	ND (0.45) ML	ND (0.45) ML	ND (0.45) ML
1,1,1-Trichloroethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,1,2,2-Tetrachloroethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,1,2-Trichloroethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,1-Dichloroethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,1-Dichloroethene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,1-Dichloropropene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2,3-Trichlorobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2,3-Trichloropropane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2,4-Trichlorobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2,4-Trimethylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2-Dibromo-3-Chloropropane		ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)
1,2-Dibromoethane		ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
1,2-Dichlorobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2-Dichloroethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,2-Dichloropropane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,3,5-Trimethylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,3-Dichlorobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,3-Dichloropropane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
1,4-Dichlorobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
2,2-Dichloropropane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
2-Butanone (MEK)		ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)
2-Chlorotoluene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
2-Hexanone		ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)
4-Chlorotoluene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
4-Methyl-2-pentanone (MIBK)		ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)
Acetone		ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)	ND (4.5)
Benzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Bromobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Bromochloromethane		ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
Bromodichloromethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Bromoform		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Bromomethane		ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)
Carbon disulfide		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Carbon tetrachloride		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Chlorobenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Chlorodibromomethane		ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Chloroethane		ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)
Chloroform		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Chloromethane		ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)	ND (2.3)
cis-1,2-Dichloroethene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
cis-1,3-Dichloropropene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Dibromomethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Dichlorodifluoromethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Ethylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Hexachlorobutadiene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Isopropylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
m,p-Xylene		ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Methyl tert-butyl ether		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Methylene Chloride		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Naphthalene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
n-Butylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
N-Propylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
o-Xylene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
p-Isopropyltoluene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
sec-Butylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Styrene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
tert-Butylbenzene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Tetrachloroethene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Toluene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
trans-1,2-Dichloroethene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
trans-1,3-Dichloropropene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Trichloroethene		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Trichlorofluoromethane		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
Vinyl chloride		ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)

Notes:
ML = Result is an estimated biased low due to MS/MSD recoveries below the acceptance limits.
ND = Non-detect, limit of detection in parentheses

µg/L = micrograms per liter
ADEC = Alaska Department of Environmental Conservation
DUP = Sample is a field duplicate of the previous sample
EPA = U.S. Environmental Protection Agency
LOD = limit of detection
MEK = methyl ethyl ketone
MIBK = methyl isobutyl ketone
MS/MSD = matrix spike/matrix spike duplicate
SW = EPA Solid Waste Test Method
VOC = volatile organic compound