United States Army
Corps of Engineers

Formerly Used Defense Sites Program

Decision Document

Site 7 Cargo Beach Road Landfill
Containerized Hazardous, Toxic, and Radioactive Waste
(CON-HTRW) Project # F10AK096905
Northeast Cape Formerly Used Defense Site (FUDS)
St. Lawrence Island, Alaska

June 2009

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Acronyms and Abbreviations

AAC	Alaska Administrative Code
ACM	Asbestos-containing material
ADEC	Alaska Department of Environmental Conservation
ARARs	Applicable or Relevant and Appropriate Requirements
BTEX	Benzene, toluene, ethylbenzene, and xylene
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminant of concern
CSM	Conceptual site model
DoD	Department of Defense
DRO	Diesel Range Organics
E&E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
FS	Feasibility Study
FUDS	Formerly Used Defense Site
GRO	Gasoline-range organics
LUCs	Land Use Controls
mg/kg	milligram per kilogram
mg/L	milligram per liter
MW	monitoring well
MWH	Montgomery Watson Harza
NCP	National Contingency Plan
NFA	No Further Action
OSCI	Oil Spill Consultants, Inc.
POL	Petroleum, oil, and lubricants
ppm	Parts per million
PAHs	Polyaromatic (or Polycyclic) Hydrocarbons
PCBs	Polychlorinated biphenyls
POL	Petroleum, Oil, & Lubricants
RRO	Residual Range Organics
RAB	Restoration Advisory Board
RAO	Removal Action Objectives
RI	Remedial Investigation
TSCA	Toxic Substances Control Act
TRPH	Total recoverable petroleum hydrocarbons
USACE	United States Army Corps of Engineers
UCL	Upper Confidence Level
VOCs	Volatile organic compounds
WACS	White Alice Communications Station

PART 1: DECLARATION

1.1 SITE NAME AND LOCATION

The Northeast Cape Formerly Used Defense Site (FUDS), project number F10AK096905, is located on St. Lawrence Island in the western portion of the Bering Sea, approximately 135 air miles southwest of Nome, Alaska. The Alaska Department of Environmental Conservation (ADEC) contaminated sites record key (reckey) number for the overall Northeast Cape site is 198532X917901. The Site 7 Cargo Beach Road Landfill is tracked with a separate reckey number 198532X917907. The U.S. Environmental Protection Agency identification number is AK9799F2999. The Northeast Cape site is not listed on the National Priorities List.

The Village of Savoonga is the closest community, located 60 miles northwest of the site. The Northeast Cape site, at 63º19' North, 168º58' West, is 9 miles west of the northeastern cape of St. Lawrence Island. The Northeast Cape site originally encompassed 4,800 acres (7.5 square miles). The site is bounded by Kitnagak Bay to the northeast, Kangighsak Point to the northwest, and the Kinipaghulghat Mountains to the south (see Figure 2).

1.2 STATEMENT OF BASIS AND PURPOSE

This Decision Document presents the U.S. Army Corps of Engineers (USACE)-selected remedy for the Site 7 Cargo Beach Road Landfill at Northeast Cape, St. Lawrence Island, Alaska, chosen in accordance with the Defense Environmental Restoration Program (DERP), United States Code, Title 10, Section 2701, et seq.

Per the FUDS Program Policy (ER 200-3-1), containerized hazardous, toxic, or radioactive wastes (CON/HTRW) projects involving tanks, transformers, and other containers are generally not regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process and thus a formal Decision Document is not required. However, this project has followed the CERCLA process as a matter of administrative consistency, to foster community trust and preserve good public relations with an ongoing HTRW project at the same location. The primary concern at this location is drums and other containers containing petroleum-oil-lubricants (POL). However, as with any unpermitted dump site, there is the potential for unknown hazardous wastes to be discovered. If an actual or threatened release of a CERCLA hazardous substance, pollutant, and/or contaminant is identified during the performance of this CON/HTRW cleanup, the situation will need to be assessed to determine if the project needs to transition to a CERCLA response action. An evaluation will be made, in accordance with CERCLA and the NCP to determine if a removal action is warranted to protect human health or the environment.

This response action decision is based upon the Administrative Record for this site, including the results of a phased remedial investigation which was conducted from 1994 to 2006, and several interim removal actions. The accompanying Decision Document summarizes these activities. CON-HTRW items are present at the landfill. The removal of drums that contain POL, hazardous substances, pollutants and/or contaminants is necessary to reduce the likelihood of future spillage; leakage; and exposure to human, animals and the environment, or the food chain.

POL-contaminated sites fall under the CERCLA petroleum exclusion and are therefore being addressed under the authority of the DERP statute. The proposed response action meets ADEC requirements for cleanup of contaminated sites and is also consistent with the response process set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The State of Alaska, through the Department of Environmental Conservation, agrees that the remedy selected complies with CERCLA and state law.

Detailed information supporting the selected response action is also contained in the Administrative Record for this site, located at the U.S. Army Corps of Engineers Alaska District Office on Elmendorf Air Force Base, AK, and the Information Repositories located at the Alaska Resource Library and Information Services in Anchorage, the Sivuqaq Lodge in Gambell, the Savoonga City Hall in Savoonga, and the University of Alaska Fairbanks Northwest Campus Library in Nome.

1.3 ASSESSMENT OF SITE

The response action selected in this Decision Document is necessary to protect the public health and welfare or the environment from actual or threatened releases of hazardous substances into the environment, including unknown liquid contents of buried and partially exposed drums. The response action will reduce the risk of current and future exposure to hazardous substances, pollutants, and/or contaminants and reduce the likelihood of spillage, leakage, or exposure to humans, animals, and the environment.

The former military installation operated from about 1952 until 1972 as an Aircraft Control and Warning Station and a White Alice Communications System station. The property is currently owned jointly by the two local native corporations, Sivuqaq, Inc., in Gambell and Kukulget, Inc., in Savoonga.

The Cargo Beach Road Landfill is an unpermitted landfill that was used as the installation's main solid waste disposal area from around 1965 until base closure. The dump contains a wide variety of unknown materials. The landfill appears to have been created by dumping debris off the sides of a topographic mound. The debris was apparently covered by grading soil out from the top of the mound.

Environmental investigations and cleanup activities at Northeast Cape began in the mid 1980's. Remedial investigations (RI) were initiated at Northeast Cape during the summer of 1994. Additional sampling was performed during subsequent investigations: Phase II RI (1996 and 1998); Phase III RI (2001 and 2002); and Phase IV RI (2004). Demolition of the buildings and all other structures was completed under multiple USACE contracts between 1999 and 2005. The runway, gravel roads, and concrete foundations of some of the structures remain intact.

At the Cargo Beach Road Landfill, over 6,000 55-gallon drums were gathered from the surrounding area during the 2000 field season. During the 2003 field season 15 tons of scrap metal were removed from the area east of Cargo Beach Road. PCB-contaminated soils (14 tons) from 6 discrete areas along the southeastern exposed edge of the landfill were excavated and shipped offsite during the 2005 field season. Exposed drums and debris were removed from the landfill site in 2005, including several drums of waste oil discovered around the perimeter edges

of the landfill. Liquid from two drums was drained and sent off-site for disposal. Field test kits indicated the drums contained used oil and were not contaminated with PCBs. Several other partially buried drums, apparently full with liquid wastes, remain in place. Bristol Environmental protected these drums from vandalism by placing large rocks around them.

1.4 DESCRIPTION OF SELECTED REMEDY

The response action selected in this Decision Document is protective of public health, welfare, and the environment.

The selected remedy entails the following major components:

- Exposing underlying drums/debris by disturbing the upper approximately 1 foot of fill across the areas with mapped metallic anomalies (an estimated 150,000 square feet) to determine if near surface drums are present.
- Excavate test pits or trenches distributed across the areas of known metallic anomalies and previously marked drums to determine if large caches of drums are present;
- Remove or drain identified drums with liquid contents (estimated 50); characterize liquid wastes and transport off-site for proper disposal;
- Based on the visual observations of the contractor and on-site Corps Quality AssuranceRepresentative (QAR), remove incidental contaminated soils (estimated 50 cubic yards) associated with identified drums to the extent grossly-stained soils are evident; characterize soil for disposal and transport offsite;
- Capping of debris with 2 feet of soil cover;
- Revegetation of the site;
- Periodic visual monitoring of the landfill cap for settlement and erosion over a period of 5 years.
- Survey of the landfill boundary with map and text description;
- Deed notation;
- Implementation of land use controls to limit groundwater use and prevent construction of buildings on top of the landfill.

The selected response action presumes that no large caches of buried drums are present in the landfill debris. The primary objective is to remove containerized wastes with the potential for future breakdown and migration of contents into the environment. If other items such as intact batteries or transformers are discovered, they will also be removed with the drums. After removing drums identified through the test pit/trenching process, a limited number of unknown scattered drums may remain in some subsurface locations, but the final action of capping with 2 feet of clean fill will adequately prevent potential future exposure to contaminants, limit infiltration by rainfall, and is protective of human health and the environment. The estimated cost for the response action is $4.6 million.

If a large cache of buried drums is encountered, the remedy will be reevaluated. The scope and cost of the necessary response action will increase subject to the additional information of discovery. Further evaluation will be necessary to determine the most timely and efficient remediation method. Final capping of the landfill could be delayed by additional costs incurred to investigate and remove the buried drums.

1.5 STATUTORY DETERMINATIONS

The Department of Defense (DoD) is authorized to carry out a program of environmental restoration at former military sites according to 10 United States Code (USC) 2701(a). The DERP was set up to accomplish this task. The cleanup of FUDS is a part of this program. FUDS are those properties that the DoD once owned or used, but no longer controls. These properties range from privately owned farms to National Parks. They also include residential land, schools, and industrial areas. The FUDS program includes former Army, Navy, Marine, Air Force, and other defense properties. Over 600 FUDS properties have been identified in Alaska.

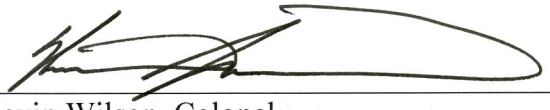
The DoD can remediate releases of petroleum where the release poses an imminent and substantial endangerment to the public health or welfare or to the environment per 10 USC 2701(b)(2). The preparation of this Proposed Plan followed CERCLA guidance as a matter of administrative consistency, based on other ongoing work at the overall site.

The selected remedy is protective of human health and the environment, complies with applicable federal and state regulations, is cost effective, and utilizes permanent solutions to the extent practicable.

A five-year review is not required under CERCLA for CON/HTRW projects involving only petroleum. However, periodic visual inspections for erosion and settlement of the landfill cap will be performed under the HTRW-03 project at the Northeast Cape site.

Authorizing Signatures

This Decision Document presents the selected response action of capping and intrusive investigation for the Site 7 Cargo Beach Road Landfill at the Northeast Cape site, St. Lawrence Island, Alaska. The U.S. Army Corps of Engineers is the lead agency under the Defense Environmental Restoration Program at the Northeast Cape Formerly Used Defense Site (F10AK096905), and has developed this Decision Document consistent with the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan. This document, presenting a selected remedy with a present worth cost estimate of more than $2 million but less than $10 million, is approved by the undersigned, pursuant to Engineer Regulation 200-3-1, Formerly Used Defense Sites Program Policy.



Date 19 June 09

Kevin Wilson, Colonel
US Army Corps of Engineers
District Commander

This signature sheet documents the decision made for the Site 7 Cargo Beach Road Landfill at the Northeast Cape Formerly Used Defense Site, St. Lawrence Island, Alaska. The Alaska Department of Environmental Conservation (ADEC) agrees that the Corps of Engineers' selected remedy complies with CERCLA and state law. The decision may be reviewed and modified in the future if new information becomes available that indicates the presence of contamination or exposures that may cause unacceptable risk to human health or the environment.

Date 6/30/09

JOHN HALVERSON
Alaska Department of Environmental Conservation
Department of Defense Cleanup Unit Lead

PART 2: DECISION SUMMARY

This Decision Summary provides an overview of conditions at the Site 7 Cargo Beach Road Landfill at Northeast Cape. It summarizes the data from the remedial investigation phase, prior removal actions, describes the alternatives considered, and analyzes those alternatives compared to the criteria set forth in the National Contingency Plan (NCP). The Decision Summary explains the rationale for the selected remedy, and how the remedy satisfies the statutory requirements (as applicable) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

2.1 SITE NAME, LOCATION, AND BRIEF DESCRIPTION

The Northeast Cape site, FUDS project # F10AK096905, is located on St. Lawrence Island, Alaska, about 135 air miles southwest of Nome in the Bering Sea (see Figure 1), and 60 miles southeast of Savoonga. The State of Alaska, Department of Environmental Conservation (ADEC) tracks the entire site with reckey # 198532X917901. The Site 7 Cargo Beach Road Landfill is tracked with a separate reckey number 198532X917907. The EPA identification number for Northeast Cape is AK9799F2999. Northeast Cape is located at latitude 63º19'60" North, and longitude 168º58'26" West. The site is not connected via road to other permanent communities on the island, and is only accessible by air, water, or all-terrain vehicle trails.

Figure 1 – Site Vicinity Map

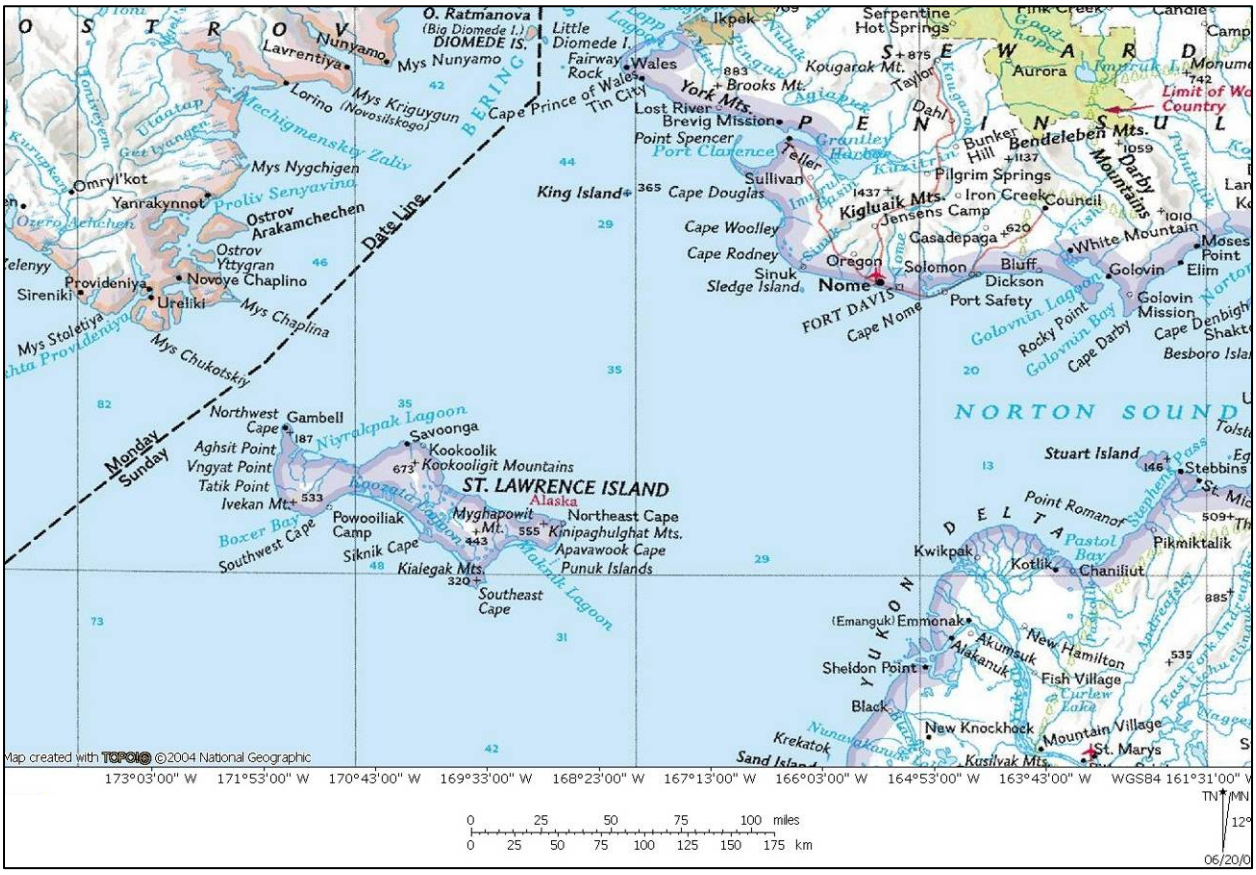
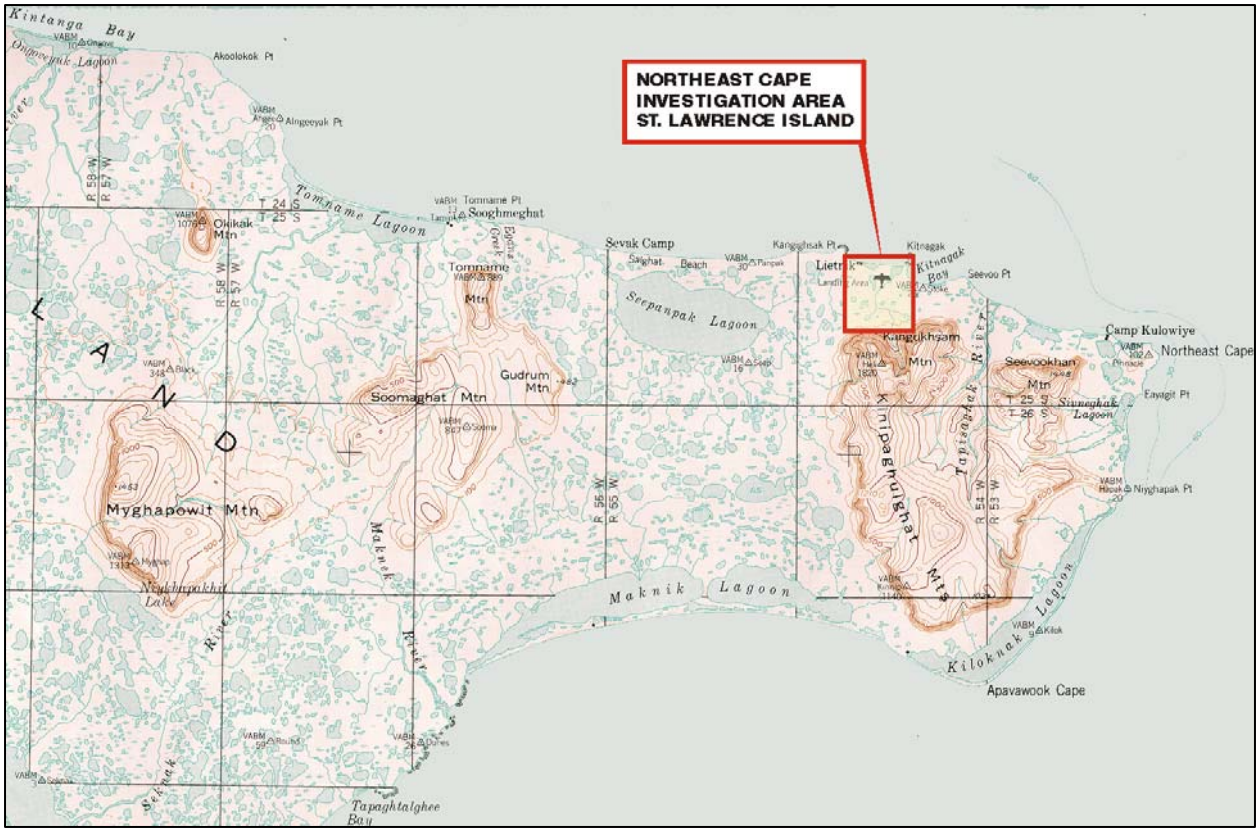


Figure 2 – Site Location Map



2.2 SITE HISTORY

The U.S. Air Force (USAF) constructed an Aircraft Control and Warning Station (AC&WS) at Northeast Cape during 1950 and 1951, and activated the facility in 1952. In 1954, a White Alice Communications System (WACS) station was added, composed of four large parabolic antennas and a building housing the electronic equipment. The original installation supported 212 people. The Northeast Cape site provided radar coverage and surveillance for the Alaskan Air Command, and later for the North American Air Defense Command, as part of an Alaskan early warning system constructed to reduce vulnerability to bomber attack across the polar regions.

The AC&WS and WACS operations were terminated in 1969 and 1972, respectively. The majority of the military personnel were removed from the Northeast Cape site by the end of 1969. The buildings, and the majority of furnishings and equipment, were abandoned in place due to the high cost of off-island transport. The main solid waste dump for the installation was located 0.8 mile south of Cargo Beach, midway between the Main Operations Complex and the beach at Kitnagak Bay. This dump site is known as the Site 7 Cargo Beach Road Landfill.

Site-wide removal of containerized hazardous and toxic wastes (drums, tanks, transformers, fuel pipelines, etc.), antenna poles/wires, limited contaminated soils, miscellaneous debris, and demolition of the buildings, utilidors, tram towers, and all other structures was completed under multiple USACE contracts between 1994 and 2005.

2.3 INVESTIGATION AND REMEDIAL ACTION HISTORY

Environmental investigations and cleanup activities at Northeast Cape began in the mid 1980's. The goals of the investigations were to locate and identify areas of contamination and to gather enough information to develop a cleanup plan. Remedial investigations (RI) were initiated at Northeast Cape during the summer of 1994. Additional sampling was performed during subsequent investigations: Phase II RI (1996 and 1998); Phase III RI (2001 and 2002); and Phase IV RI (2004). The studies divided the concerns among 34 separate sites. The results of the remedial investigation showed that contaminants were present at some but not all sites.

The Cargo Beach Road Landfill is an unpermitted landfill that was used as the installation's main solid waste disposal area from 1965 until closure in 1974. The dump contains a wide variety of unknown materials. The landfill appears to have been created by dumping debris off the sides of a topographic mound. The debris was apparently covered by grading soil out from the top of the mound.

2.3.1 Preliminary Assessment

In 1985, URS Corporation conducted an Environmental Assessment of the Northeast Cape facility. The assessment consisted of a file search and preliminary reconnaissance of the facility, which included an inventory of materials left by the military, and a collection of a limited number of soil and water samples. In 1991 and 1992, Ecology and Environment, Inc. (E&E) conducted an additional site reconnaissance and interviewed personnel who had resided at the Northeast Cape complex when it was active. In 1993, E&E prepared a Chemical Data Acquisition Plan (CDAP) to further investigate areas of concern.

2.3.2 Phase I Remedial Investigation

In 1994, Montgomery Watson Harza Americas, Inc. (MWH) performed a Phase I RI in accordance with the CDAP. Soil, sediment, groundwater, and surface water samples were collected and documented in a Remedial Investigation report.

2.3.3 Phase II Remedial Investigation

In 1996, MWH performed a Phase II RI that included collection of soil, water, and biological samples, characterization of liquids in storage tanks and subterranean structures, a radiological survey, and public disclosure of potential asbestos hazards. Because of unresolved technical questions, MWH collected additional data in September 1998 before completion of the Final Phase II Remedial Investigation/Feasibility Study (RI/FS).

In 1999, MWH conducted additional sampling (Phase II RI Addendum) at selected sites to assist in assessing the impact to human health and the environment, determine the extent and transport of contaminants, and help select appropriate remedial technologies.

2.3.4 Phase III Remedial Investigation

During the 2001 and 2002 field seasons, MWH conducted sampling as part of the phased RI. Phase III field work included sampling of surface water, groundwater, sediment, surface and subsurface soils, vegetation (plants), and fish. Phase III RI work was intended to fill data gaps

revealed by public commentary, confirm previous results, and provide data for updated Human Health and Ecological Risk Assessments.

2.3.5 Phase IV Remedial Investigation

Shannon & Wilson, Inc., performed soil sampling at various locations during the summer field season of 2004 to address data gaps identified by the state regulator and community. Sample results from the 2004 sampling event were used to establish PCB-contaminated soil excavation sites for the 2005 field season.

2.3.6 Human Health and Ecological Risk Assessment

Montgomery Watson Harza completed a risk assessment using data from all phases of the Remedial Investigation. The risk assessment was finalized in March 2004.

2.3.7 Feasibility Study

USACE completed a Feasibility Study (FS) in March 2007. The FS summarized the historical sampling results for each site or area of concern at Northeast Cape, summarized previous removal activities applicable to particular sites, and evaluated a range of alternatives according to the criteria prescribed by CERCLA. A total of 33 individual sites were investigated and characterized at Northeast Cape; background sampling locations were included to assess natural conditions. The alternatives evaluated for the Site 7 Cargo Beach Road Landfill included no action, land use controls, natural attenuation, long term monitoring, capping, and excavation/off-site treatment and disposal.

2.3.8 Geophysical Survey

A geophysical survey of the Cargo Beach Road Landfill was conducted in August 2007 to map the extent of buried metallic anomalies. The survey concluded the landfill is not a man-made hill comprised completely of buried debris as previously assumed. The geophysical data are consistent with sidecast debris around the edges of a natural topographic mound. The extent of landfill material is shown on Figure 3. Most debris is located at the northwest and southeast edges of the topographic mound. Buried debris does not extend beneath Cargo Beach Road.

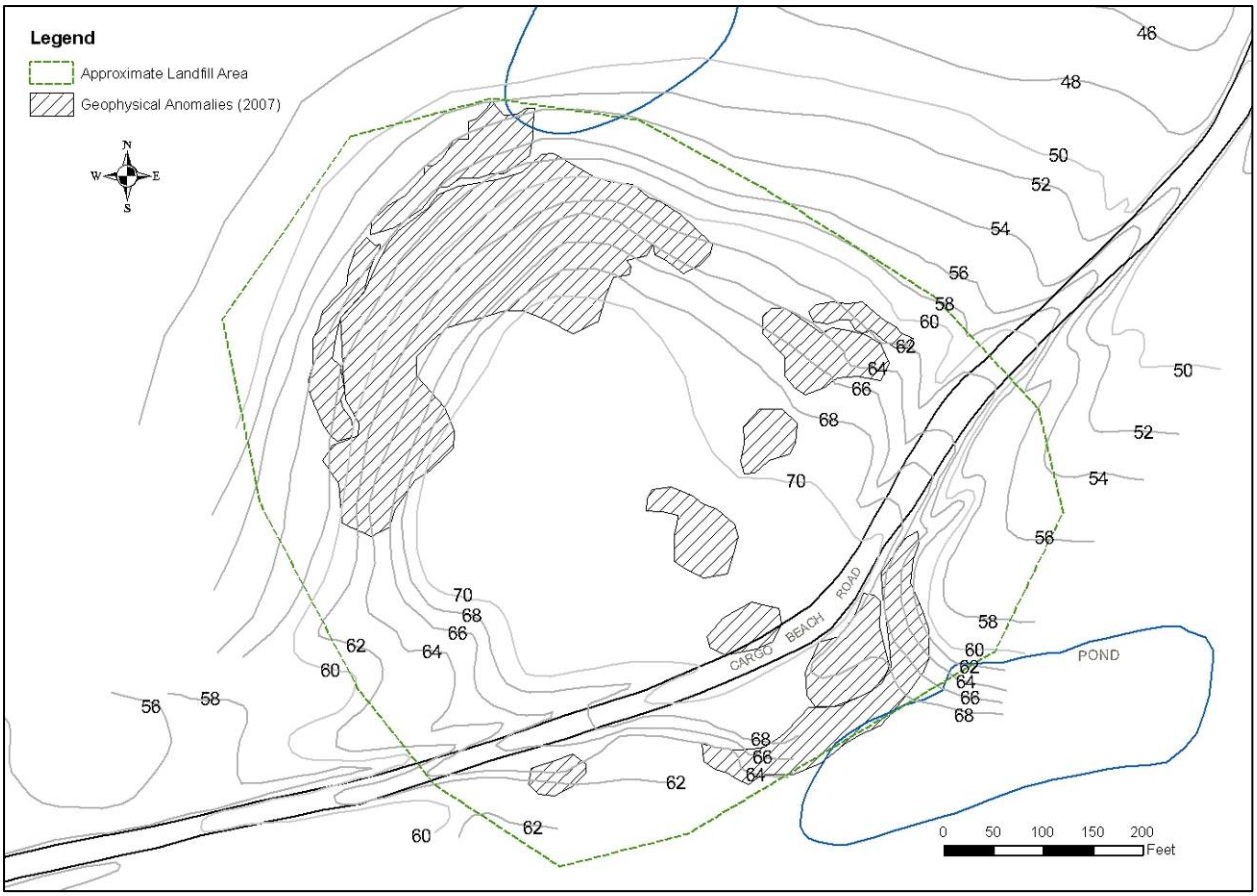


Figure 3. Landfill geophysical survey results (2007).

2.3.9 Removal Actions

Several non-time-critical interim removal actions were performed to address the removal of containerized hazardous/toxic waste items, buildings and miscellaneous debris, and hotspots of contaminated soils.

Site-wide removal of containerized hazardous and toxic wastes (drums, tanks, transformers, fuel pipelines, etc.), antenna poles/wires, limited contaminated soils, miscellaneous debris, and demolition of the buildings, utilidors, tram towers, and all other structures was completed under multiple USACE contracts between 1994 and 2005. Electrical transformers and their contents were removed by Northwest Enviro Services, Inc. in 1994. A portion of the wires and cables posing physical hazards on the tundra were removed by Montgomery Watson in 1997. Nugget Construction conducted drum and tank removals and building demolition activities during the 2000 and 2001 field seasons. Bristol Environmental and Engineering Services, Inc. completed additional removal actions during 2003 and 2005. The runway, gravel roads, and concrete foundations of some of the structures remain intact.

At the Cargo Beach Road Landfill, over 6,000 55-gallon drums were gathered from the surrounding area during the 2000 field season. During the 2003 field season 15 tons of scrap metal were removed from the area east of Cargo Beach Road. PCB-contaminated soils (14 tons) from 6 discrete areas along the southeastern exposed edge of the landfill were excavated and shipped offsite during the 2005 field season. Exposed drums and debris were removed from the landfill site in 2005, including several drums of waste oil discovered around the perimeter edges of the landfill. Liquid from two drums was drained and sent off-site for disposal. Field test kits indicated the drums contained used oil and were not contaminated with PCBs. Several other partially buried drums, apparently full with liquid wastes, remain in place. Bristol Environmental protected these drums from vandalism by placing large rocks around them.

Information Repositories

Sivuqaq Corporation Building (Lodge)
P.O. Box 101
Gambell, Alaska 99742
Phone: (907) 985-5826

Savoonga City Hall
Savoonga, Alaska 99769
Phone: (907) 984-6414

UAF Northwest Campus Library
Nome, Alaska 99762
Phone: (907) 443-2201

Alaska Resource Library and Information Services (ARLIS)
UAA Consortium Library
Anchorage, Alaska 99508
Phone: (907) 272-7547

2.4 COMMUNITY RELATIONS ACTIVITIES

Public participation has been an important component of the cleanup process at the Northeast Cape site. A Community Relations Plan was developed for the project in March 1996 and updated in April 2002. The Community Relations Plan describes the measures used to meet the community relations goal of keeping Savoonga and Gambell residents and other interested people informed about project activities. The Corps provides several ways for local residents to share their knowledge about the Northeast Cape area and its history with the project team. Residents and other interested persons provide feedback and comments on project activities; everyone has had an opportunity to become involved in this project.

A Restoration Advisory Board (RAB) comprised of community members and other interested parties was established in January 2000. RAB meetings are held 2 or 3 times per year to keep the public informed of ongoing project activities. Detailed meeting minutes are recorded and distributed after each meeting. The RAB is served by a technical advisor, under the Technical Assistance for Public Participation (TAPP) program, to provide technical guidance and comments on workplans, reports, proposed remedies, and potential environmental and human health impacts.

The opportunity for public review and commentary on project documents has been made available throughout all phases of the project. Detailed responses to comments on project reports are available in the correspondence file at the Information Repositories or in appendices of the final report document. All comments received are documented in the administrative record file.

Project documentation, reports, and other materials are available at four Information Repositories; the Sivuqaq Lodge in Gambell, the Savoonga City Hall in Savoonga, the

University of Alaska Fairbanks Northwest Campus Library in Nome, and the Alaska Resource Library and Information Services in Anchorage.

2.5 SCOPE AND ROLE OF RESPONSE ACTION

The actions described in this Decision Document address the removal of containerized hazardous, toxic, or radioactive wastes (CON-HTRW) that are present at the landfill. The removal of drums that may contain petroleum-oil-lubricants, hazardous substances or pollutants or contaminants is necessary to reduce the likelihood of future spillage, leakage, and exposure to human, animals, or the food chain. After removal of any drums containing liquid, the landfill will be capped with 2 feet of fill material in accordance with State of Alaska regulations, to eliminate exposure of debris and mitigate surface migration of contaminants.

The overall Northeast Cape site remediation is being addressed through proposed remedial actions under a separate hazardous, toxic, or radioactive waste (HTRW) project as described in the Proposed Plan for Northeast Cape dated July 2007. A final decision on the proposed remedy for the other areas of concern is under consideration. The project goal is implementation of the selected response actions for the Site 7 Cargo Beach Road Landfill simultaneously with other planned actions at the Northeast Cape site, to gain efficiency of scale and reduce site mobilization costs as compared to costs if the remedy were implemented independently. The preferred remedy for the remainder of the Northeast Cape includes implementation of chemical oxidation remediation, excavation and treatment of contaminated soils at various sites, monitoring activities, removal of contaminated sediments, and implementation of land use controls. The overall project strategy is to accomplish final cleanup efforts over a period of 2 to 5 field seasons, subject to the availability of funding.

2.6 SITE CHARACTERISTICS

This section provides an overview of the Northeast Cape site, including geographical information, hydrology, ecological resources, and land use.

2.6.1 Geographical and topographic information

The Native Village of Savoonga is located on St. Lawrence Island, in the western portion of the Bering Sea, approximately 164 air miles southwest of Nome, Alaska (see Figure 1). Savoonga has a subarctic maritime climate with some continental influences during the winter. Summer temperatures average 40° to 51° Fahrenheit (F); winters average -7° to 11° F. Temperature extremes from -34° to 67° F have been recorded. Average precipitation is 10 inches annually, with 58 inches of snowfall. The island is subject to prevailing winds, averaging 18 miles per hour. Freeze-up on the Bering Sea occurs in mid-November, with break-up in late May.

The area occupied by the former installation consists mainly of rolling tundra which rises from the Bering Sea towards the base of the Kinipaghulghat Mountains. The Kinipaghulghat Mountains rise abruptly to an elevation of approximately 1,800 feet above sea level roughly 3 miles from the coastline. The installation activities spanned from the beach to the mountain summit. The Cargo Beach Road Landfill is located at about 70 feet in elevation, halfway between the main operations complex area and the Bering Sea beach. The former installation layout is shown in Figure 6.

2.6.2 Conceptual Site Model

The Conceptual Site Model (CSM) for Northeast Cape describes potential sources, release mechanisms, transport media, exposure routes, and human and ecological receptors. The primary sources of contaminants are releases to surface/subsurface soils. Transport or receiving media include soil, sediment, groundwater, surface water, air, flora, or fauna.

The primary contaminants of concern at the Site 7 Cargo Beach Road Landfill are chemicals associated with petroleum hydrocarbon releases, metals, and polychlorinated biphenyls (PCBs). These compounds have low aqueous solubilities and high sorbing efficiencies onto carbon present in environmental media. Thus, these compounds have a high degree of retention in soils and sediments.

Figures 4 and 5 present graphical CSMs for Northeast Cape. These graphical representations show potential sources, release mechanisms, transport media, exposure routes, and human and ecological receptors. Human receptors are expected to include site visitors, seasonal subsistence users, and future permanent residents. Several potential exposure scenarios applicable to the Cargo Beach Road Landfill were identified in the conceptual site model:

- incidental ingestion of soil/sediment
- dermal contact with soil/sediment/surface water
- inhalation of dust from soil or volatile organic compounds in water
- consumption of subsistence food items

The potentially affected biological resources evaluated included vegetation, birds, fish, shellfish, terrestrial mammals, marine mammals, and special status species. The ecological risk evaluation focused on three selected indicator receptors, the tundra vole, cross fox, and glaucous-winged gull.

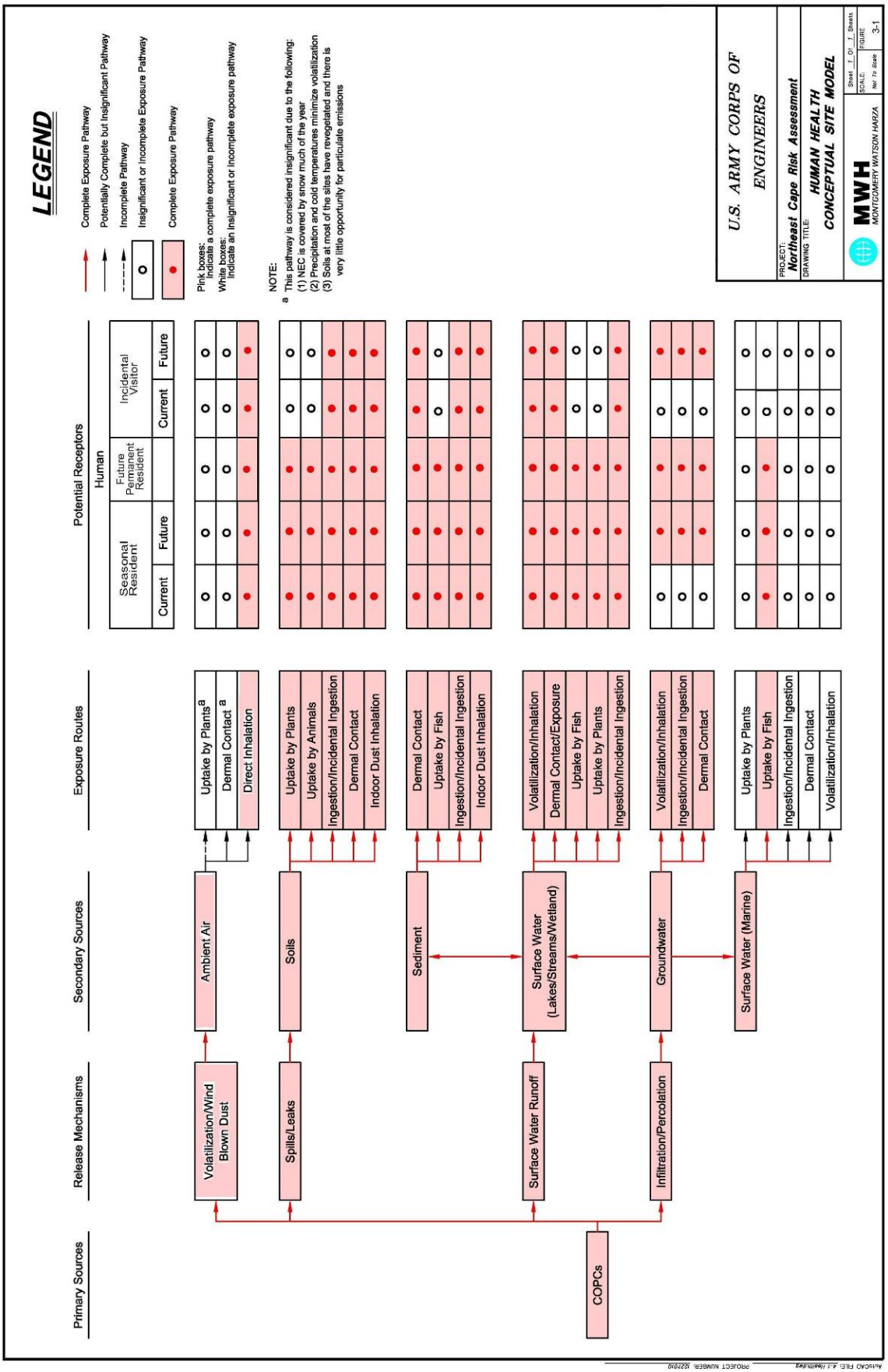


Figure 4. Human Health Conceptual Site Model

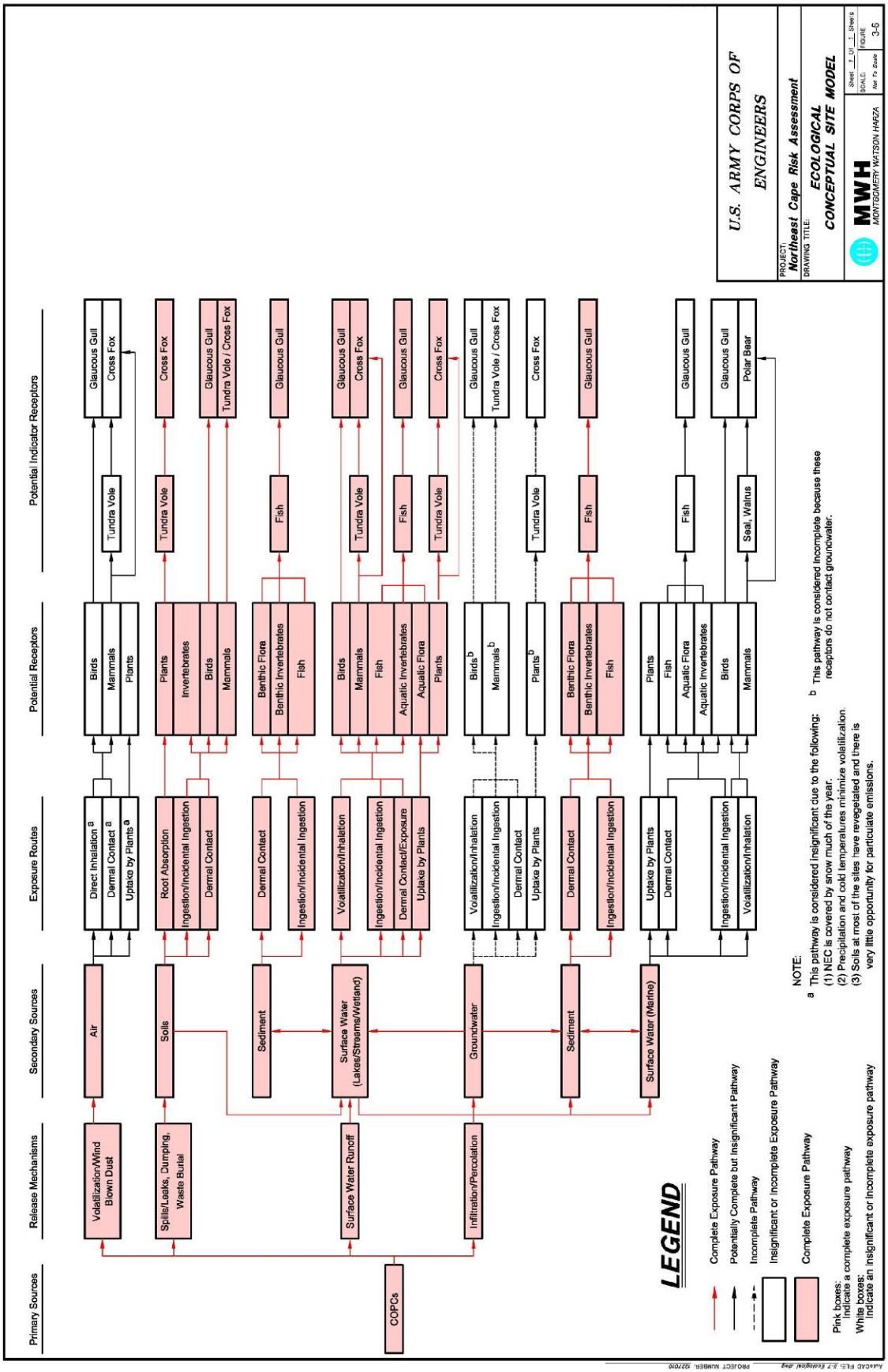
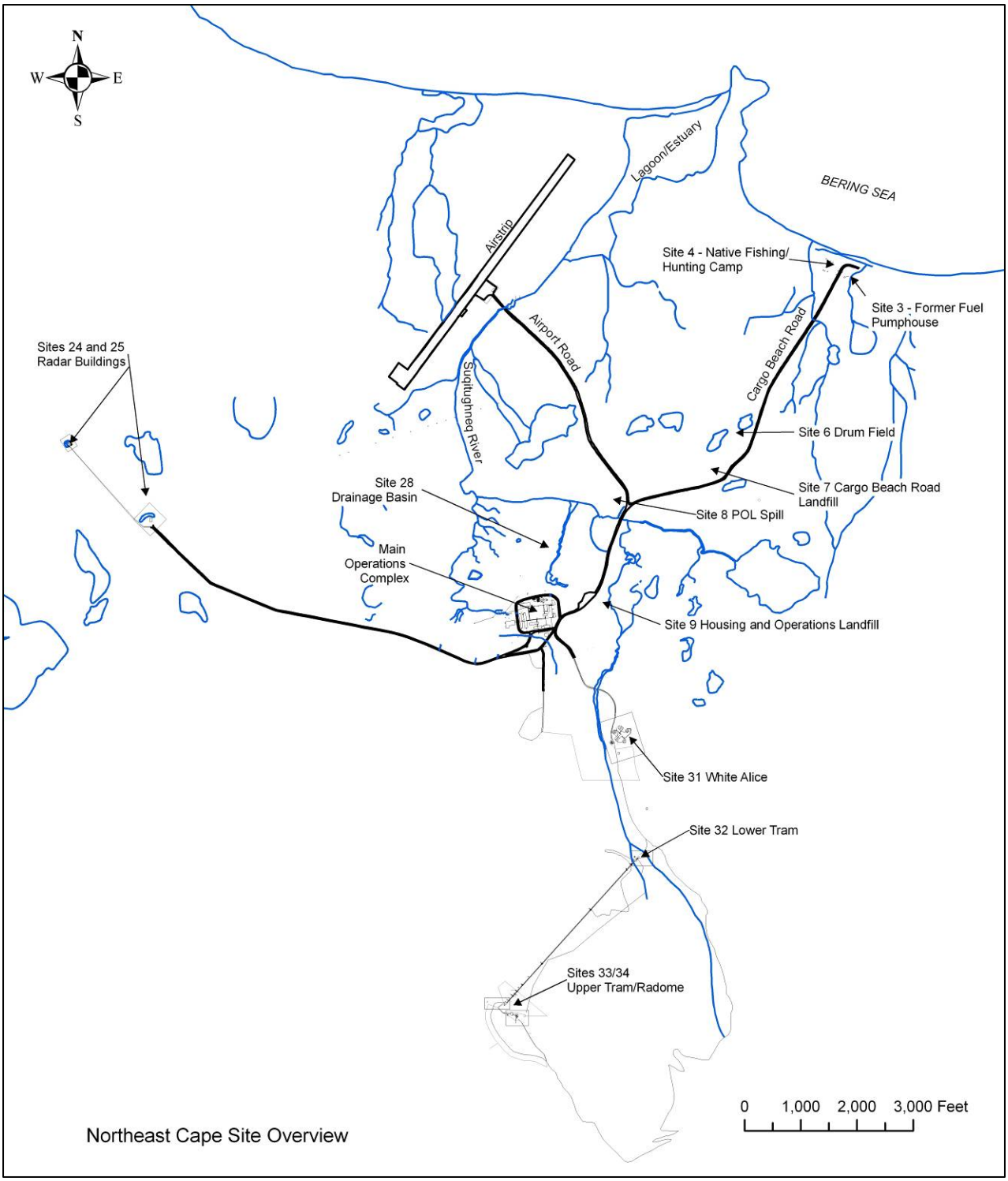


Figure 5. Ecological Conceptual Site Model

Figure 6 – Northeast Cape Site Layout Map



2.6.3 Geology

St. 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 Northeast Cape Installation vicinity, shallow unconsolidated surficial materials overlie quartz monzonitic rocks of the Kinipaghulghat Pluton (Patton and Csejtey, 1980). The Pluton forms the mountainous area south of the Northeast Cape Installation, which includes Kangukhsam Mountain. Immediately south of the Northeast Cape Installation, an unnamed drainage in the Kinipaghulghat Pluton has created an erosional valley and alluvial fan of unconsolidated sediments. The primary areas of the former military site are located on this alluvial fan, which progrades north from the mountain front toward the Bering Sea. 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.

In general, the native soil stratigraphy at Northeast Cape is characterized by silts near the surface, overlying more sand-dominated soils at depth . The silt contains varying quantities of clay/sand/gravel, and varies 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/cobbles, and ranges from 2 feet to greater 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 Northeast Cape Installation is unknown.

2.6.4 Ecological and Biological Resources

St. Lawrence Island supports habitats for the following endangered or threatened species: the spectacled eider (endangered), Steller's eider (threatened), and Steller sea lion. Walrus and polar bears are protected under the Marine Mammal Protection Act.

The ocean surrounding the Northeast Cape area was used extensively for subsistence hunting of whales, walrus, seals, sea birds, and fish. Subsistence harvests have dropped off considerably since the major fuel spill (30,000 gallons) in 1967 (TEC, 2001).

2.6.5 Sampling Strategy

Field sampling activities occurred primarily during RI activities in 1994, 1996, 1998, 2001, 2002, and 2004. The primary objectives of the RI activities were to define the horizontal and vertical extent of hydrocarbon and other contamination at the site, document the concentration of remaining contamination in areas of soil excavation, and provide data for comparison of background soil, sediment, and fish tissue with similar onsite media. During the phased investigation activities, over 400 samples were collected from various media, including surface soil, subsurface soil, sediments, groundwater, fish, and plant tissues. Information obtained from the RI was evaluated in a human health and ecological risk assessment, completed in 2004.

2.6.6 Location and Extent of Contamination

Environmental sampling activities at Site 7 have included the collection of soil, sediment, surface, and shallow groundwater samples (see Figure 7). Detected analytes were compared to background concentrations and the most conservative ADEC Method Two cleanup levels to

determine the contaminants of concern (COCs). Chemical analyses were conducted for petroleum-related compounds, volatile organic compounds, semi-volatile organic compounds, metals, pesticides, and PCBs. Based on the results of the phased Remedial Investigations, contaminants exceeding action levels in the soil were diesel range organics (DRO), residual range organics (RRO), PCBs, arsenic, chromium, and lead. The Cargo Beach Road Landfill has a limited amount of soil contamination remaining above the applicable risk-based cleanup levels (ingestion and inhalation Method Two soil cleanup levels). These soils will either be capped or removed as grossly-contaminated soils. A summary of historical soil sampling results is presented in Table 1.

The maximum concentration of DRO in soil was 32,000 mg/kg, which exceeds the cleanup level of 9,200 milligrams per kilogram (mg/kg). DRO concentrations ranged from non-detect (ND) to 2,300 mg/kg at the other sampling locations. The sample with the elevated DRO concentration was collected in 1994, from a location approximately 75 feet east of the road, at the base of the exposed debris slope. A large amount of debris has been removed from this location and though surface soils have been disturbed by heavy equipment, this soil remains clearly stained, and will be removed as grossly-contaminated soil.

PCBs were detected in soils on the eastern edge of the landfill at concentrations ranging from ND – 50.8 mg/kg. Six locations with PCBs > 1 mg/kg were excavated and disposed offsite during the 2005 field season. The field screening and laboratory soil confirmation sampling results demonstrated that PCBs were successfully removed to below 1 mg/kg at 4 of the 6 locations. Subsurface soils (2.0 to 3.5 ft bgs) at two locations, 7A and 7E on the eastern slope of the Site 7 landfill may still contain PCBs above the cleanup level of 1 mg/kg based on immunoassay screening results only (see Figure 7). Samples were screened for PCBs in the field using EnSys PCB field-screening kits, calibrated to 0.5 mg/kg of Aroclor® 1260. EnSys field-screening results indicated that the PCB concentrations in soil remained above 0.5 mg/kg. Three screening samples were analyzed from pit 7A, with results ranging from -0.42 to -0.69 (negative readings indicate potential for PCBs above the calibration standard of 0.5 mg/kg). Three screening samples were analyzed from pit 7E, with results ranging from 0.32 to -0.63. No additional soil was removed from these two areas because landfill debris was encountered in the floor of both excavations, precluding further access. Laboratory samples were not submitted to confirm the level of PCBs remaining at locations 7A and 7E. According to field observations, the soil contamination is commingled with buried landfill debris and further excavation was not practical. The two excavations were lined with plastic sheeting and backfilled with clean fill. Sediment/soil samples were also collected from five locations at ephemeral ponds surrounding the landfill. See Table 2 for a summary of historic sediment results. Only one sediment/soil sample (SD103) collected in 1994 contained detectable concentrations of PCBs at 1.78 mg/kg.

On the north side of the landfill, DRO was detected in surface water at one location only (SW101) during the 1994 investigation. The average DRO concentration from a triplicate sample was 8.9 milligrams per Liter (mg/L). A downgradient shallow groundwater sample from WP 7-3 collected during the 2001 investigations contained 0.39 mg/L DRO.

The RI results demonstrate that significant contamination has not migrated away from the landfill into shallow subsurface waters.

During the Phase I remedial investigation (1994), 4 boreholes were placed around the landfill in an attempt to locate groundwater and characterize migration of contaminants around the landfill dump site. The boreholes were drilled to a maximum depth of 31 feet. One of the four boreholes (BH 7-4) was terminated at 15 feet bgs and converted to a monitoring well. At this location, groundwater was encountered at an elevation of 48.84 feet (9.25 feet bgs after development). MW 7-4 is located east of the landfill and adjacent to a pond that had a surveyed elevation of 50.21 feet. At BH 7-1, 7-2, and 7-3, groundwater was not encountered, even though the holes were drilled to depths of 31, 26, and 17 feet bgs, respectively. These depths are below a depth that groundwater might be expected. The lack of groundwater in these boreholes was attributed to frozen soil conditions. A thin layer of perched groundwater may be present immediately above the frozen soil during the warmer summer months. The water in well MW 7-4 could be such perched groundwater. The bore holes drilled to date suggest that locating perched and flowing groundwater layers will be largely futile.

Additional investigation was conducted during the Phase III remedial investigation (2001). An array of well points were driven into the ground surrounding the landfill. As in 1994, these well points confirmed the lack of groundwater at Site 7. One location (WP 7-1) west of the landfill contained anomalous levels of several metals and low levels of petroleum hydrocarbons (DRO and RRO). The water samples were turbid (not filtered), therefore it is likely the metals detected in the samples originated from suspended sediments in the water column and are not representative of dissolved phase shallow groundwater conditions at the site.

Sampling of the shallow groundwater is problematic at Site 7 due to the tundra/wetland environment. Groundwater sample collection is very difficult because water is intermittent, slow to recharge, and highly turbid (i.e., low quality). Furthermore, the groundwater exposure pathway is incomplete at this site because the shallow groundwater does not produce a sufficient quantity of water to be considered a reasonably expected potential future drinking water source. Table 3 summarizes the historical shallow groundwater data.

Groundwater migration from the site is likely limited because of the low permeability of the shallow, partially frozen soils. Groundwater probably remains in a relatively localized area with any migration occurring in northeasterly direction, corresponding to surface topography.

Table 1. Summary of Soil Sampling Results at the Cargo Beach Road Landfill

Sample Location	COCs	Cleanup Level (mg/kg)	# Exceeds	Depth (feet)	Maximum (mg/kg)
SS119	DRO	9,200 [a]	1/19	0-2	32,000
SS126	Arsenic	11 [b]	1/14	0-2	17.3
SS126	Chromium	50 [b]	1/16	0-2	75
SS126	Lead	400 [c]	1/17	0-2	460
7A, 7F	PCBs	1 [c]	0/31	0-2	>0.5

[a] risk-based soil cleanup level derived from site-specific risk assessment, ingestion/inhalation pathways, future residential use.
[b] site-specific background level
[c] 18 AAC 75, Table B1, Over 40 inch Zone, direct contact pathway

Table 2. Summary of Sediment Sampling Results at the Cargo Beach Road Landfill					
Sample Location	**COCs**	**Cleanup Level (mg/kg)**	**# Exceeds**	**Depth (feet)**	**Maximum (mg/kg)**
SD301	DRO	9,200 [a]	0/9	0-0.5	4,900
SD101	Arsenic	11 [b]	0/7	0-0.5	10.9
SD103	Chromium	50 [b]	1/7	0-0.5	100
SD103	Lead	400 [c]	0/7	0-0.5	210
SD103	PCBs	1 [c]	1/7	0-0.5	1.78

[a] risk-based soil cleanup level derived from site-specific risk assessment, ingestion/inhalation pathways, future residential use.
[b] site-specific background level
[c] 18 AAC 75, Table B1, Over 40 inch Zone, direct contact pathway

Table 3. Summary of Shallow Groundwater Results at the Cargo Beach Road Landfill					
Sample Location	**COCs**	**ADEC Table C Level (mg/L)**	**# Exceeds**	**Year**	**Maximum (mg/L)**
MW 7-1	DRO	1.5	0/5	2001	0.66
MW 7-1	RRO	1.1	2/3	2001	2.7
MW 7-1	Chromium	0.1	1/4	2001	0.255
MW 7-1	Lead	0.015	2/4	2001	0.040
MW 7-1	Nickel	0.1	1/4	2001	3.54

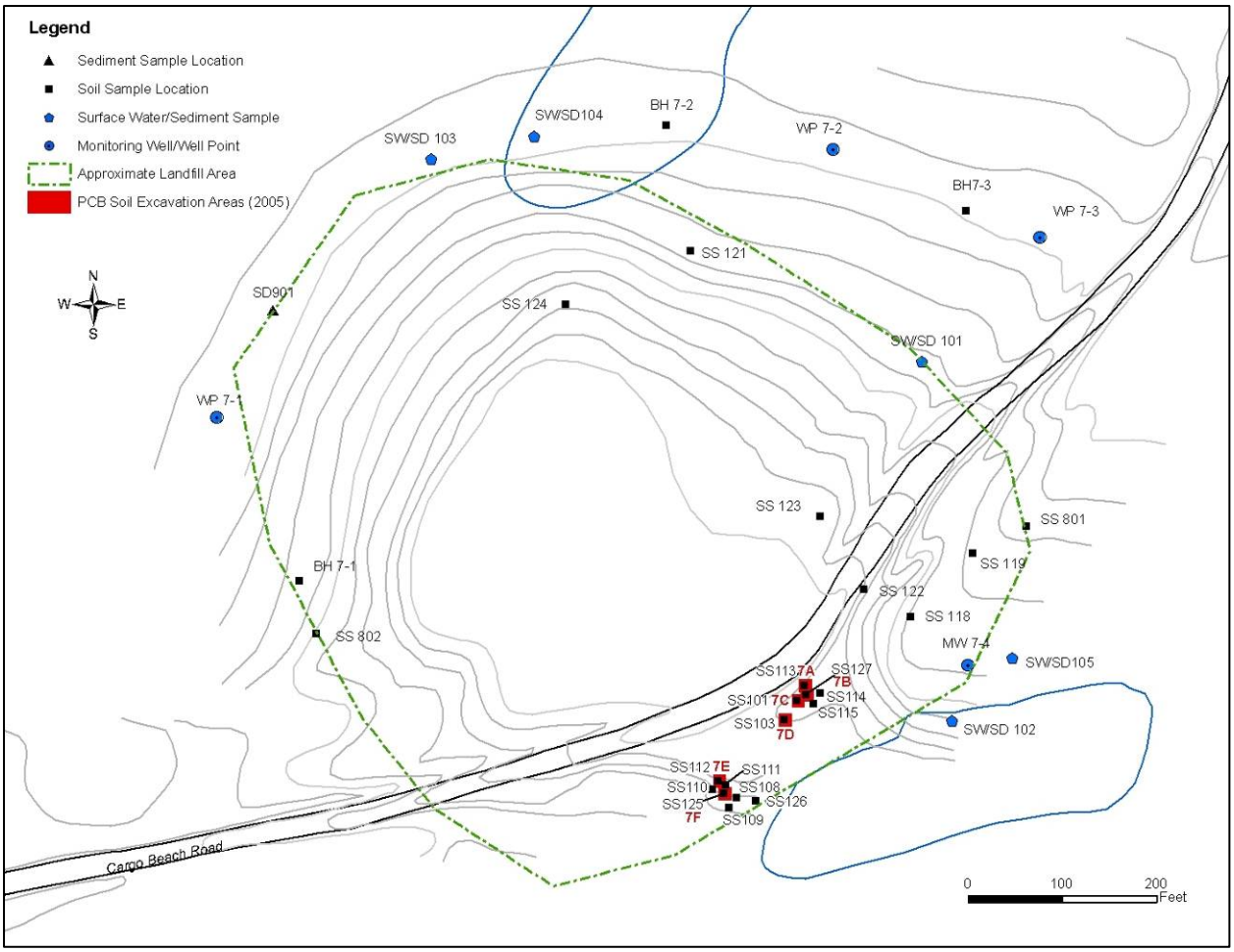


Figure 7. Cargo Beach Road Landfill historical sampling locations.

2.7 CURRENT AND POTENTIAL FUTURE LAND USES

St. Lawrence Island is owned jointly by two local native corporations, Kukulget, Inc., in Savoonga, Alaska and Sivuqaq, Inc., in Gambell, Alaska. Non-Native land on St. Lawrence Island is limited to State land used for airstrips and related facilities in Gambell and Savoonga. The Native Village of Savoonga and the Native Village of Gambell are the federally recognized tribes in the vicinity. Savoonga and Gambell are inhabited primarily by Native St. Lawrence Island Yupik people, who lead a subsistence-based lifestyle.

Savoonga is located approximately 60 miles northwest of the former Northeast Cape Installation. There are no roads connecting these locations and local residents travel via boat or all-terrain vehicle to access the site. Savoonga has a population of 712 people according to the 2006 Alaska Department of Commerce, Community, and Economic Development. The population of Savoonga has been slowly increasing since 1990 (2 percent per year growth); this trend is expected to continue.

2.7.1 Land Use

The entire project site, as is all of St. Lawrence Island, is owned by the two regional Native

corporations – Kukulget, Inc. (Savoonga) and Sivuqaq, Inc. (Gambell). Current land use at the Northeast Cape site is for seasonal subsistence camps and recreational activities; it is open space or undeveloped. The surrounding lands are primarily used for subsistence hunting and gathering. St. Lawrence Island residents harvest food from areas in and around the Northeast Cape Installation during the summer months (i.e., mid-June through mid-September), and others occasionally visit the area both in summer and winter. No people currently reside permanently at, or in the vicinity of, the former Northeast Cape Installation. Individuals from Savoonga and Gambell (to a lesser extent) visit Northeast Cape during the year to engage in subsistence fishing, hunting, and gathering. Food harvests consist of fish, animals, and plants.

Future land use is anticipated to be residential with the immediate and surrounding areas used for recreation and subsistence hunting, fishing, or gathering. Local residents state that additional fishing/hunting camps may be built, and a permanent residential scenario is possible at some sites. In particular, representatives of the tribal government, the Native Village of Savoonga, desire to re-establish a permanent community at Northeast Cape in the future. The local residents assert the village is running out of space to build homes and strongly believe Northeast Cape is a desirable location for another village, especially since historically there was a village there and it was a prime hunting/gathering area for subsistence items. The area is not utilized as frequently anymore due to concerns over contamination.

2.7.2 Groundwater Use

The shallow groundwater surrounding the Site 7 Cargo Beach Road Landfill is not a current or reasonably expected potential future drinking water source, according to criteria in State of Alaska regulations (18 AAC 75.350). This area is characterized by low-lying tundra (see Figure 8). The polygons shown on Figure 8 delineate areas designated as non-drinking water sources at Northeast Cape and Institutional Controls will be established, as required, to inform the public this area is not suitable for drinking water. These polygons are delineated by the coordinates in Table 4. The shallow groundwater is not consistently encountered, exists in insufficient quantities, and is of poor quality. The groundwater exposure pathway at the Landfill is incomplete because the shallow groundwater does not produce a sufficient quantity of water to be considered a reasonably expected potential future drinking water source.

Table 4. Non-Drinking Water Area Site Polygons

CORNER	SITE	X COORDINATE	Y COORDINATE
NE Corner	3/4	1815671.6059	3409754.3393
NW Corner	3/4	1815298.6637	3409897.7786
SE Corner	3/4	1815442.1030	3409226.9240
SW Corner	3/4	1815047.0933	3409383.6039
NE Corner	6/7	1814396.9151	3406834.2223
NW Corner	6/7	1813488.1144	3407359.2389
SE Corner	6/7	1813374.5143	3405296.0157
SW Corner	6/7	1812324.4811	3405971.4757
NE Corner	9	1811988.7300	3404301.2234
NW Corner	9	1811431.1158	3404472.3432
SE Corner	9	1811714.3484	3403513.4827
SW Corner	9	1811186.2376	3403755.4105

Notes: coordinates shown in Alaska State Plane, NAD83, Zone 9, feet

Figure 8 – Northeast Cape Non-Drinking Water Site Locations

The groundwater near Site 7 is significantly different than that existing to the south at the historic Main Complex area. Wells drilled at the Main Complex show a readily-defined water table with abundant water. This water table is perched upon permafrost in the wetland areas immediately adjacent to the Main Complex (e.g., Site 28), but in the designated non-drinking water polygon areas further north, the water table has all but disappeared due to frozen ground.

Four groundwater wells at the southeast portion of the Main Complex supplied the installation with potable drinking water during operation of the facility. These wells were pulled and decommissioned during previous remedial actions at the site in 2002.

An informational land use control for the Landfill and other designated tundra areas of Northeast Cape will be established to ensure community awareness of the non-drinking water use determination.

2.7.3 Surface Water Use

Local residents who utilize the subsistence fishing and hunting camp adjacent to Cargo Beach typically gather water from the surface waters of the Suqitughneq River, upstream of the intersection of the Airport and Cargo Beach Road. The Suqitughneq River may be used as a temporary or potential future drinking water source. Surface water samples collected from the Suqitughneq River, upgradient of the landfill, do not exhibit levels of contaminants above ADEC

regulatory criteria. The ADEC has agreed that surface water around and downgradient of the landfill has correctly been assessed as insufficient for use, as explained in Section 2.7.2.

2.8 SUMMARY OF SITE RISKS

A baseline risk evaluation estimates the risks posed by contaminants remaining at the site if no action were taken. It provides the basis for taking action and identifies the contaminants of concern and potential exposure pathways that need to be addressed by the selected remedial action. This section of the Decision Document summarizes the results of the baseline risk evaluation for Northeast Cape. An assessment of the risks to human health involves a four-step process: identification of contaminants of potential concern, an assessment of contaminant toxicity, an exposure assessment for the population at risk, and a quantitative characterization of the risk.

Contaminants of concern (COC) were identified during the RI by comparison to federal and state risk-based screening levels and cleanup criteria, and site-specific background values for inorganics. Screening levels were based on the most stringent ADEC soil and groundwater cleanup levels promulgated in 18 Alaska Administrative Code (AAC) 75.340 and 345. The cleanup levels established by the ADEC are based on an estimate of the reasonable maximum exposure expected to occur under current and future site conditions and are designed to be protective of human health and the environment.

The objective of an exposure assessment is to identify potential contaminant exposure scenarios by which the contaminants remaining in site media could be contacted by humans and to quantify the intensity and extent of that exposure. The assessment considers current and potential future uses of the site, potentially exposed populations, exposure pathways, and potential intake of each COC from each contributing medium for the population at risk. The potentially exposed populations identified included visitors, current seasonal subsistence users, and future permanent residents. Exposure point concentrations (EPCs) were estimated as either the maximum detected contaminant concentration or the 95 percent upper confidence limit (95% UCL) on the arithmetic mean concentration detected. If the calculated 95% UCL was greater than the maximum value, then the maximum value was assumed as the EPC; otherwise, the 95% UCL was used.

Toxicity information was provided in the risk assessment for the chemicals of potential concern (COPCs). In general, cancer risks are calculated using toxicity factors known as slope factors (SFs), while noncancer risks are assessed using reference doses (RfDs).

For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the specific carcinogen. Excess lifetime cancer risk is calculated by multiplying the slope factor by the quantitative estimate of exposure, the "chronic daily intake." These risks are probabilities generally expressed in scientific notation (e.g., $1x10^{-6}$). For example, an excess lifetime cancer risk of $1x10^{-6}$ indicates that an individual has a one in a million (1:1,000,000) chance of developing cancer as a result of site-related exposure to a carcinogen under the specific exposure conditions assumed.

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (30 years) with a reference dose derived for a similar exposure period. The ratio of exposure to toxicity is called a hazard quotient (HQ). Hazard quotients are calculated by dividing the exposure by the specific RfD. By adding the hazard quotients for all contaminants of concern that affect the same target organ (liver, nervous system, etc), the hazard index (HI) can be calculated.

2.8.1 Summary of Human Health Risk Evaluation

The Final Human Health and Ecological Risk Assessment (MWH, 2004) for the Northeast Cape installation evaluated the potential risks associated with exposure to soil, sediment, shallow subsurface water, groundwater, and subsistence food consumption. The risk assessment included incidental ingestion, dermal contact, and dust inhalation as components of the human exposure for soil. The ingestion of groundwater was evaluated directly and not with the modeled migration to groundwater pathway for soils. However, subsequent to the risk assessment, the shallow groundwater in the vicinity of the Cargo Beach Road Landfill has been designated, with agreement by the ADEC, to not be a reasonably expected potential future drinking water source. The risk assessment also evaluated the subsistence consumption of fish and plants harvested from impacted areas of the Northeast Cape site and from locations in the vicinity of the installation that are not impacted by site activities.

Under a future permanent resident scenario, complete exposure pathways include the incidental ingestion and contact with soils or sediment, and dust inhalation. The shallow groundwater is not a reasonably expected potential future drinking water source. The shallow groundwater surrounding the Site 7 Cargo Beach Road Landfill is intermittent both spatially and temporally. Monitoring wells installed at this tundra location are extremely slow to recharge. The shallow groundwater is only available seasonally and during the summer months the quantity of water is unreliable and insufficient to support its use as a permanent potable water supply.

Potential sources of drinking water include shallow groundwater beneath the main complex, groundwater upgradient of the main complex, or fresh surface water obtained from the Suqitughneq River.

Subsistence food sources for future seasonal or permanent residents could include plants and fish collected from the site or surrounding locations. The consumption of fish collected from the Suqitughneq River as well as other nearby locations was further evaluated by the Agency for Toxic Substances and Disease Registry (ATSDR, 2005) and they concluded no adverse health effects are likely to result from ingestion of the subsistence-caught fish species.

The State of Alaska considers a cumulative cancer risk of 1×10^{-5} and noncancer HI of 1 as the point of departure for making risk management decisions concerning a site. At Site 7, the Human Health and Ecological Risk assessment identified potential future human health risks based on exposure to site soil containing metals, benzene, PAHs, PCBs, or petroleum hydrocarbons. Arsenic was identified as the primary risk driver in soil. The soil-related carcinogenic risk estimate for future permanent residents was 5×10^{-5} (due primarily to arsenic) and the noncarcinogenic hazard estimate was 2.4 (non-petroleum compounds, arsenic and PCBs) and 6.7 (petroleum hydrocarbons), which slightly exceeds the point of departure criteria.

Arsenic is considered a naturally occurring compound in the soils, and was eliminated as a contaminant of concern based on comparison of levels with site-specific background concentrations. The overall cancer risk is within the USEPA acceptable risk range of $1x10^{-4}$ and $1x10^{-6}$.

The noncarcinogenic hazard estimate for future residents was based on an exposure scenario using historical PCB data. PCB-contaminated soils were excavated from the landfill based on the previous sampling results. The maximum residual concentration of PCBs detected was 1.78 mg/kg, in one shallow surface soil/sediment location (0-0.5 feet) at the western edge of the landfill. The landfill cap will cover this area. The remaining soil contamination associated with potential noncancer risk is DRO at a single sampling location. Severely-stained soils are planned for excavation and removal prior to capping the landfill.

2.8.2 Summary of Ecological Risk Evaluation

The potentially affected biological resources evaluated included vegetation, birds, fish, shellfish, terrestrial mammals, marine mammals, and special status species. The ecological risk evaluation focused on three selected indicator receptors, the tundra vole, cross fox, and glaucous-winged gull. These species were utilized in the risk characterization, which integrated exposure dose analysis and effect assessment and compared these values to ecological toxicity reference values to calculate a chemical-specific hazard quotient for each site.

Ecological hazard estimates were calculated for three ecological indicator receptors based on modeled exposure to chemicals in site soil, sediment, surface, or shallow subsurface water, as appropriate for a given site.

The ecological risk assessment indicated the potential for adverse ecological effects to small mammals (e.g., tundra vole) from exposure to the highest concentrations of DRO at the Landfill. The ecological hazard estimates for the cross fox also slightly exceeded ADEC's point of departure criterion of 1.0 for combined Sites 6 and 7. However, exceedence of the ADEC ecological criterion at this location was attributable to aluminum, which was present within the range of ambient concentrations. The primary contaminant associated with ecological hazard estimates in excess of ADEC's point of departure criterion was DRO. Metals concentrations were within normal background ranges for the area. It is important to note that the highest concentration of DRO was detected at a single location, not site-wide. Furthermore, the sampling location was adjacent to a large debris removal action and this area should either be dug up as grossly-contaminated soil or covered under a new landfill cap.

2.8.3 Basis for Response Action

The investigations completed at the site verified that contaminated soil and sediment may present an unacceptable risk to human health. The response actions selected in this Decision Document are necessary to protect the public health from actual or threatened releases of hazardous substances into the environment.

2.9 REMOVAL ACTION OBJECTIVES

The goals of the DERP-FUDS Program are to reduce the risk resulting from past DoD activities to safe levels, in a timely, cost-effective manner. Specific response action alternatives were

developed and evaluated for the Site 7 Cargo Beach Road Landfill at Northeast Cape. The removal action objectives (RAOs) for the Landfill are:

- Reduce threats to human health, safety, and the environment
- Removal of drums containing POL, hazardous substances, pollutants or contaminants as necessary to reduce the likelihood of future spillage, leakage, and exposure to humans, animals, and the food chain.
- Prevent current and future exposure to humans by ingestion, inhalation, and dermal contact with contaminated soils at levels above risk-based cleanup levels.
- Prevent exposure to ecological receptors by direct contact with contaminated soils/sediment above risk-based cleanup levels

Chemical-specific applicable regulations (for petroleum hydrocarbons) or ARARs (for CERCLA hazardous substances) for Northeast Cape include regulations promulgated by the State of Alaska in the Oil and Other Hazardous Substances Pollution Control Regulations, Title 18 AAC Chapter 75. The ADEC regulations also allow alternate cleanup levels for soil and sediment to be developed based on site-specific conditions or a risk assessment, following methods specified in 18 AAC 75.340.

The soil cleanup levels for the Cargo Beach Road Landfill are discussed below. The primary COCs are PCBs and petroleum compounds. A secondary objective is preventing migration of contaminants in soils to adjacent surface waters.

SOIL

Site-specific soil cleanup levels are protective of future permanent residents with an assumed lifetime exposure to contaminated soils through incidental ingestion (e.g., eating soil), inhalation (e.g., dust), or dermal (skin) contact. These soil cleanup levels are protective of human health and the environment. The cleanup levels are listed in Table 5. Sediments that are intermittently submerged (i.e., ephemeral ponds, wet tundra) are considered soil, including all areas adjacent to the Cargo Beach Road Landfill.

Table 5. Soil Cleanup Levels

Chemical of Concern	Cleanup Level (mg/kg)
Arsenic	11 [a]
Polychlorinated Biphenyls (PCBs)	1 [b]
Diesel Range Organics (DRO)	9,200 [c]
Residual Range Organics (RRO)	9,200 [c]

[a] site-specific background level

[b] 18 AAC 75, Table B1, Over 40 inch Zone, direct contact pathway

[c] risk-based cleanup level derived from site-specific risk assessment, ingestion/inhalation pathways, future residential use.

SURFACE WATER

Surface water must meet water quality standards as promulgated by the State of Alaska in 18 AAC 70. The water quality criteria for petroleum hydrocarbons, oil, and grease are set out in regulation at 18 AAC 70.020(b) and stipulate these compounds may not cause a visible sheen upon the surface of the water. In addition, the regulations contain surface water quality levels of

0.010 milligrams per Liter (mg/L) total aromatic hydrocarbons (TAH) and 0.015 mg/L total aqueous hydrocarbons (TAqH). TAH is the sum of concentrations of benzene, toluene, ethylbenzene, and xylenes, commonly called BTEX. TAqH is the sum of concentrations of TAH (BTEX) plus the polycyclic aromatic hydrocarbons (PAH).

2.10 DESCRIPTION OF ALTERNATIVES

The Corps of Engineers considered the following alternatives for the Cargo Beach Road Landfill:

2.10.1 Alternative 1 - No Further Action

No further action (NFA) is the appropriate response action when no additional remedial actions are necessary to protect human health and the environment, based on established cleanup levels and regulatory standards. NFA is required to be used as a baseline to compare all other responses.

2.10.2 Alternative 2 - Land Use Controls

Land use controls make use of restrictions to minimize exposure to contaminants at a site. The restrictions can be physical, such as erecting a fence, or take the form of land management practices, such as requiring special building permits or not allowing new wells in a particular area. Land use controls also involve informational measures and notices such as a deed notice, and community education to ensure knowledge of groundwater use determinations and potential sources of viable drinking water. Other land management practices include providing detailed drawings or maps showing a landfill cap boundary, and cautioning against excavation or construction activities that could compromise the cap integrity.

2.10.3 Alternative 3 - Natural Attenuation

Natural subsurface processes are allowed to continue to reduce contaminant concentration to acceptable levels. Natural attenuation can significantly limit the migration of contaminants resulting from releases of petroleum hydrocarbons. Biodegradation by indigenous subsurface microorganisms appears to be one of the primary mechanisms for natural attenuation.

2.10.4 Alternative 4 - Long-Term Monitoring

Soil and/or water samples are collected from impacted sites and analyzed for the contaminants of concern on an established time schedule. Analytical results are used to evaluate the contaminant degradation or check on the mobility.

2.10.5 Alternative 5 - Capping

Capping provides containment by minimizing vertical movement of contamination and reducing the likelihood of human and animal contact with contamination. Capping consists of covering the contaminated area with 2 feet of soil material to minimize the infiltration of surface water, graded to promote drainage, and a vegetative covering that prevents erosion and restores the area’s native vegetation.

2.10.6 Alternative 6 – Excavation and Off-site Disposal

Excavation using conventional earthmoving equipment is the common method of extracting contaminated soil at and below the ground surface. Excavation methods are typically not affected by waste types or technical requirements at sites.

2.11 COMPARATIVE ANALYSIS OF ALTERNATIVES

The Feasibility Study provided a detailed analysis of the various alternatives considered including: natural attenuation, long-term monitoring, capping, and/or excavation with off-site disposal.

The Corps of Engineers evaluated the alternatives based on the nine evaluation criteria established under CERCLA. Each alternative should meet the threshold criteria of overall protection of human health and the environment and compliance with ARARs. Five balancing criteria are used to analyze the alternatives: long-term effectiveness and permanence, reduction in toxicity, mobility, or volume through treatment, short-term effectiveness, implementability, and cost. Two additional modifying criteria, state acceptance and community acceptance, are evaluated based on public comments on the Proposed Plan.

2.11.1 Overall Protection of Human Health and the Environment

This criterion addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, and/or informational land use controls.

Alternative 1 (No Further Action) would not reduce potential future risks posed to human health and the environment since no actions would be taken to remove the known drums with contents or reduce the likelihood of future spillage, leakage, and exposure to human, animals, or the food chain. Alternative 1 does not provide information to the public about the remaining buried debris.

Alternative 2 (Land Use Controls) is protective of current and potential future users, by informing the landowners that future excavation or building construction is not recommended in the immediate vicinity of the buried debris. Land use controls provide an effective means of limiting access and exposure to the buried landfill materials.

Alternative 3 (Natural Attenuation) does not address the threatened release of unknown liquids within the drums.

Alternative 4 (Long-Term Monitoring [LTM]) provides minimal protection through periodic sampling to determine if contaminants have migrated from the Landfill.

Alternative 5 (Capping) is protective of human health and the environment by eliminating potential exposure pathways and reducing erosion.

Alternative 6 (Excavation/Offsite Disposal) reduces risk by removal of the mixed waste, metal debris, drums with potential POL, hazardous substances, pollutants or contaminants, and incidental contaminated soils to below the applicable cleanup levels and provides the greatest degree of protection for future receptors because the contaminants would be treated and/or disposed off-site.

2.11.2 Compliance with Risk-Based Standards for Petroleum

This criterion addressed whether each alternative meets the applicable risk-based standards for petroleum hydrocarbons relevant for each alternative at the site.

Alternative 1 (NFA) does not comply with the soil cleanup levels. Alternative 2 (Land Use Controls) prevents exposure to buried debris. Alternatives 3 and 4 (Natural Attenuation, LTM) comply with cleanup levels over time. Alternative 5 (Capping) complies with soil cleanup levels and prevents exposure to buried debris. Alternative 6 (Excavation/Offsite Disposal) removes potential future source of contaminants.

2.11.3 Long-Term Effectiveness and Permanence

The evaluation of alternatives under this criterion addresses the results of a remedial action in terms of the risk remaining at the site after response objectives have been met.

Alternative 6 (Excavation/Offsite Disposal) has the highest degree of long-term effectiveness because the debris and potential contaminants would be treated and/or disposed off-site. Alternative 5 (Capping) provides a medium-high degree of effectiveness by removing drums with liquid wastes and providing an adequate dermal cover over the remaining inert debris which might still include some drums, but may require occasional maintenance of the cap. Alternative 4 (LTM) provides a medium degree of long-term effectiveness because the potential risks from a threatened release of the drum contents and future contaminant migration would be identified. Alternative 3 (Natural Attenuation) does not control potential future breakdown of containers within the landfill. Alternative 2 (Land Use Controls) provides a mechanism to prevent human exposure to the landfill contents, but depends on the ability of the landowner to maintain effective communication/education.

2.11.4 Reduction in Toxicity, Mobility, and Volume through Treatment

This evaluation focuses on the ability of the remedial alternatives to reduce the toxicity, mobility, or volume of contaminants.

Alternative 6 (Excavation/Offsite Disposal) has the highest degree of reduction in toxicity, mobility, and volume of contamination because the debris and unknown contaminants would be removed and treated/disposed off-site. Alternative 5 (Capping) reduces the potential for contaminant mobilization by reducing infiltration and limiting the potential for contaminant migration to the surrounding environment. Alternatives 3 (Natural Attenuation) and 4 (LTM) reduce the potential for petroleum hydrocarbons to impact the environment by natural breakdown over time. Alternatives 1 (NFA) and 2 (Land Use Controls) do not significantly reduce contaminants associated with the site.

2.11.5 Short-Term Effectiveness

This criterion evaluates the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during construction and operation of the remedy until cleanup levels are achieved. Workers conducting remedial actions are required to wear protective clothing and equipment as appropriate to minimize potential exposure.

Alternative 2 (Land Use Controls) provides short-term effectiveness through education and outreach to the community to prevent potential exposure to hazards. Alternative 1 (NFA) is not effective in the short term. Alternative 3 (Natural Attenuation) has limited protection in the short term because of the slow breakdown of hydrocarbons in the environment. Alternative 4 (LTM) does not address short term risks associated with release of the drum contents. Alternatives 5 (Capping) and 6 (Excavation/Offsite Disposal) pose minor short-term risks due to active construction activities involving site disturbance and the potential for puncturing drums. Any immediate impacts would be addressed by standard safety practices.

2.11.6 Implementability

This criterion evaluates the technical and administrative feasibility of implementation of each alternative from design through construction and operation. Factors associated with implementability include the ease of construction, the availability and capacity of materials and/or facilities, and logistical and/or administrative practicability.

Alternatives 2 (Land Use Controls), 3 (Natural Attenuation), and 4 (LTM) are straightforward to implement. Alternative 5 (Capping) is slightly more difficult to implement given the need to import more equipment, top cover soils, and effort at a remote location. Alternative 6 (Excavation/Offsite Disposal) is the most challenging to implement based on uncertainty in the actual quantity of materials to be removed, the remote location, and the availability of an adequate number of shipping containers for the wastes.

2.11.7 Costs

This criterion evaluates the relative costs associated with implementation of each alternative, including design, construction, and operation. Costs for the various alternatives range from a low of $236,000 for Alternative 3 (Natural Attenuation) to a high of $21 million for Alternative 6 (Excavation/Offsite Disposal). Alternative 1 NFA has no associated costs. Alternative 5 Capping has medium-high costs. Alternative 2 (Land Use Controls) has medium-low costs.

Table 6 shows a comparison of the costs for each alternative evaluated.

Table 6. Comparison of Removal Alternative Costs *

Alternative 1	No Further Action	$0
Alternative 2	Land use controls	$374,000
Alternative 3	Natural Attenuation	$236,000
Alternative 4	LTM	$704,000
Alternative 3&4	Natural Attenuation and LTM	$940,000
Alternative 5	Capping	$4,600,000
Alternative 6	Excavation / Offsite Disposal	$12,000,000 to $21,000,000

* Note. Costs are from the Feasibility Study (2007), and have subsequently been revised using parametric estimating software and updated assumptions.

2.11.8 State Acceptance

This criterion evaluates whether the State of Alaska agrees with the analysis and recommendations resulting from the field investigations and the Proposed Plan. ADEC has fully participated throughout the process at this site and agrees that the remedy selected complies with CERCLA and state law.

2.11.9 Community Acceptance

Based on the written and oral feedback on the Proposed Plan distributed in May 2008, many stakeholders disagreed with the Alaska District's analysis and recommended preferred alternative. A public meeting was held on 25 June 2008 in Savoonga to discuss the proposed remedy. The public comment period was extended to 30 July 2008. Many comments were received from members of the community, environmental groups, or local government representatives that questioned the selection of a limited removal action with capping as the preferred alternative for the Site 7 Cargo Beach Road Landfill.

The Alaska District evaluated all comments submitted but did not significantly change the final selected remedial approach. If, during the course of drum removals, a large cache of drums or hazardous items are encountered, USACE will re-evaluate the methodology and cleanup action. The Responsiveness Summary (Part III) contains detailed responses to all submitted comments.

2.12 PRINCIPAL THREAT WASTE

Identifying principal threat wastes combines both hazard and risk. In general, principal threat wastes are those considered to be highly toxic or highly mobile and which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur. Conversely, non-principal threat wastes are those source materials that generally can be reliably contained and that would only present a low risk in the event of exposure. Principal threat wastes exclude petroleum and any fraction thereof. No principal threat waste is associated with the Cargo Beach Road Landfill site, since petroleum hydrocarbons are the primary COCs.

2.13 SELECTED REMEDY

The Corps of Engineers determines that Capping with Intrusive Removal Action/Incidental Removal of Contaminated Soils is the selected remedy for the Cargo Beach Road Landfill.

2.13.1 Summary of Rationale for the Selected Remedies

The selected remedy meets the criteria of overall protection of human health and the environment and compliance with applicable risk-based standards for POL. Selection of this alternative for the Cargo Beach Road Landfill site also considered the other evaluation criteria presented and assessed in Section 2.11.

Alternatives 5 (Capping) and 2 (Land Use Controls) are the selected remedies for the buried landfill materials at the Site 7 Cargo Beach Road Landfill. In addition, removal of drums containing wastes will be conducted prior to installing the landfill cap. After the cap is constructed, periodic visual monitoring, for settlement and erosion, will be conducted over a period of 5 years immediately following the closure. Additional visual monitoring, up to 30 years, may be conducted if deemed necessary based on the results of the site inspections. The periodic reviews will be conducted under the overall HTRW-03 project at Northeast Cape. A deed notice will also be prepared to document the capped landfill boundaries, and a detailed map of its location will be provided to the landowner. The landowner will also be informed that the shallow groundwater is not a reasonable potential future drinking water source, according to state regulations, and educational efforts will be conducted to ensure the community is aware of viable potential future drinking water sources. The land use controls will also inform the landowners that future building construction or excavation which could disturb the cap is not recommended in the immediate vicinity of the site.

2.13.2 Description of the Selected Remedy

The selected remedy entails the following major components:

- Exposing underlying drums/debris by disturbing the upper approximately 1 foot of fill across the areas with mapped metallic anomalies (an estimated 150,000 square feet) to determine if near surface drums are present.
- Excavate test pits or trenches distributed across the areas of known metallic anomalies and previously marked drums to determine if large caches of drums are present;
- Remove or drain identified drums (estimated 50) with liquid contents; characterize the waste contents; transport off-site for proper disposal;
- Remove incidental contaminated soils (estimated 50 cubic yards) associated with identified drums to the extent grossly-stained soils are determined by the contractor and Corps QAR; characterize the soils for disposal; transport off-site for proper disposal;
- Capping of debris with 2 feet of soil cover;
- Revegetation of the site;
- Survey of the landfill boundary with map and text description;
- Deed notation;
- Implementation of land use controls to limit groundwater use and prevent construction of buildings on top of the landfill.
- Visual monitoring of the capped area for settlement and erosion over a period of 5 years, with additional periodic reviews as necessary.

The selected response action presumes that no large caches of buried drums are present in the landfill debris. After removing drums identified through the test pit/trenching process, a limited number of unknown scattered drums may remain in some subsurface locations, but the final action of capping with 2 feet of clean fill will adequately prevent potential future exposure to contaminants, limit infiltration by rainfall, and is protective of human health and the environment.

If a large cache of buried drums is encountered, the scope and cost of the planned response action will increase by an unknown amount. Further evaluation may be necessary to determine the most timely and efficient remediation method. Final capping of the landfill could be delayed by additional costs incurred to investigate and remove the buried drums.

2.13.3 Summary of Estimated Remedy Costs

The estimated cost for the selected remedy described above is $4.6 million. The costs include design, mobilization/demobilization, field work, and reporting/site closeout. Based on anticipated costs and future funding levels, a single year of field effort is assumed. The implementation of land use controls (i.e., institutional controls), community relations activities, and periodic reviews will be conducted under the HTRW-03 project for the overall Northeast Cape site. Periodic visual monitoring, land use controls implementation, community relations, and site closeout costs are an estimated $1.3 million. A breakdown of the estimated costs is provided in Table 7.

Table 7. Estimated Costs of Selected Remedies

Remedial Design	$40,000
Field Work	
Mobilization/Demobilization	$1,250,000
Intrusive Investigation/Drums & Incidental Soil Removal	$400,000
Capping	$2,750,000
Reporting/Site Closeout	$160,000
TOTAL COSTS RA-C	**$4,600,000**
Land Use Controls Implementation	$170,000*
Periodic Reviews	$300,000*
Community Relations/RAB	$142,000*

* Note: These estimated costs are included under the Northeast Cape F10AK096903 HTRW project, with the assumption that 1/3 of costs are applicable to Site 7.

The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record file, an Explanation of Significant Differences or a Decision

Document amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

2.13.4 Expected Outcomes of the Selected Remedies

After successful implementation of the selected alternative, the Cargo Beach Road Landfill at Northeast Cape site will be available for continued seasonal and recreational use.

Protection of human health and the environment would be achieved by removing evident potential sources of contamination (e.g., drums with liquid contents), removing incidental contaminated soils to below applicable risk-based soil cleanup levels, and capping the buried debris with 2 feet of clean fill. The dermal cover will prevent current and future exposure to debris and limit infiltration of rainwater.

Informational land use controls would be developed and maintained as an effective notification tool, incorporating a deed notice into land records to inform potential future landowners of the location of the capped landfill and the requirements for future excavations and building activities. The deed notice would be filed with the Nome Recording District and copies distributed to both landowners.

2.13.5 Statutory Determinations

USACE must select remedies that are protective of human health and the environment, comply with legal requirements (unless a statutory waiver is justified), are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. The CERCLA process includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element. The following subsections discuss how the selected remedy meets these statutory requirements.

Protective of Human Health and the Environment

The selected remedy is protective of human health and the environment. The current and future exposure pathway is incidental ingestion of contaminated soil by local residents. The preferred alternative, drum and soil removal, capping, and land use controls, provides protection by limiting future contaminant migration through removal of liquid drums, placement of a dermal cover, and implementation of a deed notice and other land use controls. The selected remedy achieves the protection of human health and the environment by removing drums containing liquid wastes, removing severely stained soils, and eliminating future exposure by capping the remaining buried debris.

Applicable Requirements

The chemical-specific applicable risk-based standards for petroleum hydrocarbons for the selected remedy are 18 AAC 75.341 and 345. The selected remedy controls the actual or threatened release of unknown hazardous substances from the containers to the surrounding environment.

Cost Effectiveness
The selected remedy is considered cost-effective with respect to the level of protection of human health and the environment and the cost of the selected remedy. In making this determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (NCP Section 300.430(f)(1)(ii)(D)). This was accomplished by evaluating the overall effectiveness of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and were ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness).

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable
The selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used in a practicable and cost-effective manner at the site. USACE has determined that the selected remedy provides the best balance of tradeoffs in terms of the nine criteria. The ADEC agrees that the remedy selected complies with CERCLA and state law.

Landfill capping after intrusive actions to remove drums with liquids maximizes the onsite benefits while balancing the trade-offs with risks and costs. The selected alternative provides a long-term and permanent solution to the buried debris and residual contamination, particularly because of the remoteness of the site, the infrequency of visitors, and the present and anticipated future land use. Consequently, the selected alternative maximizes the permanence of the solution and best balances the trade-offs with more aggressive removal and/or treatment options.

Preference for Treatment as a Principal Element
The selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used in a cost effective manner at the Cargo Beach Landfill site.

State Acceptance
The State of Alaska, through the Department of Environmental Conservation (DEC), agrees that the selected remedy of intrusive removal actions, capping and land use controls (i.e., institutional controls) for the Cargo Beach Road Landfill at Northeast Cape Air Force Station complies with CERCLA and state law. The decision may be reviewed and modified in the future if new information becomes available that indicates the presence of contamination or exposures that may cause unacceptable risk to human health or the environment.

Community Acceptance
Comments were received from local residents, community stakeholders, and the RAB's technical advisor during the public comment period. The community remains concerned that inadequate site characterization was conducted at the Northeast Cape site. The community has requested additional assurances that the Landfill site won't pose a future threat due to changing climate conditions, melting of permafrost, undetected contaminants, and contaminant migration. In particular, the community desires complete excavation and removal of the entire landfill contents. This decision may be reviewed and modified in the future if new information becomes available

that indicates the presence of contamination or exposures that may cause unacceptable risk to human health or the environment.

Documentation of Significant Changes Since the Proposed Plan
The Proposed Plan for Site 7 Cargo Beach Road Landfill, Northeast Cape, St. Lawrence Island, Alaska (USACE 2008) was released for public comment in May 2008 and identified Alternative 5 Capping with intrusive investigation and drum removal as the preferred alternative. The public was given 60 days to provide comments pertaining to the recommended alternative. A public meeting was held on 25 June 2008. No significant changes to the selected remedy have been made since the Proposed Plan. However, a contingency plan will be implemented if a large cache of drums or unexpected waste is discovered during the field work. The remedy will be re-evaluated prior to completing the landfill cap.

PART 3: RESPONSIVENESS SUMMARY

A Proposed Plan for the Site 7 Cargo Beach Road Landfill at Northeast Cape was distributed to interested stakeholders and residents of St. Lawrence Island for review in May 2008. The original review period ended on 30 June 2008 and was extended to 30 July 2008. A public meeting was held on 25 June 2008 at the new IRA Building in Savoonga to discuss the proposed remedy, answer questions from the public, and receive oral comments. Various specific comments were received during the public review period and meeting.

The comments expressed a strong desire to remove the entire landfill and its contents, raised concerns about long-term monitoring and maintenance requirements, incomplete site characterization, the potential for future leachate or migration of contaminants away from the landfill, and opposition to importing soil fill material from an off-island location.

A detailed response to comments is attached (see Attachment 1).

PART 4: REFERENCES

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ATTACHMENT 1

Responsiveness Summary

INTRODUCTION

The Corps of Engineers has received numerous detailed and thoughtful comments on the Proposed Plan for the Site 7 Cargo Beach Road Landfill at Northeast Cape. We appreciate the time and effort by the community and stakeholders to submit their input at this critical juncture. We recognize that our responses to the comments will not be entirely satisfactory to everyone. We hope the overview and detailed responses in the following responsiveness summary table provide insight into our decision making process and policy constraints.

	Name	Date	Comment	USACE Response
1.	Ron Scrudato	June 22, 2008	Sampling conducted by USACOE contractors that did not differentiate cap material from material that had been buried in the landfill or was affected by land filled material. The landfill cap is comprised of material deposited on top of the waste. Sampling of the cap is reflective of where the material was excavated and has nothing to do with the composition of the underlying waste.	The primary objective of the remedial investigations was to determine if the landfill contents were migrating away from the mound. The purpose was not to sample within the landfill itself.
2.	Ron Scrudato	June 22, 2008	Off site migration of contaminants into adjacent wetlands, groundwater and tundra soils located north and northwest of the dump has been determined during the remedial investigations of the site as evidenced from the sampling and analysis conducted by the USACOE contractors;	One sediment result (SD103) from 1994 slightly exceeded the 1 ppm cleanup level for PCBs (1.78 mg/kg PCB), this sample was located northwest of the landfill mound. However, we disagree that offsite migration of contaminants has been demonstrated by the complete series of remedial investigations. Shallow groundwater data from 2001 indicated some elevated levels of metals, however this data is not significant based on the poor quality of the samples (shallow pits, extremely long recharge time). High levels of petroleum hydrocarbons have not been detected in the water samples. Soil samples from boreholes

	Name	Date	Comment	USACE Response
				along the north and northwest sides of the site also demonstrate low levels of contaminants in subsurface soils.
3.	Ron Scrudato	June 22, 2008	The USACOE ignores the PCB concentrations defined in a core sample from an adjacent pond sediments collected and analyzed as a part of the NIEHS Environmental Justice grant. This pond does not receive drainage from sources other than the elevated mound of waste material (dump fill material) deposited to the west of the pond;	The USACE considered the sediment core data provided in a report titled "St. Lawrence Island, Alaska Field Sampling and Laboratory Analysis, 2002, Draft - Not for Distribution" and concluded the results did not exceed screening levels. The maximum detected concentration of PCBs in the core was 0.02 mg/kg, compared to a screening level of 0.1 mg/kg. A sediment sample collected by USACE from the same pond in 1994 had non-detectable levels of PCBs (MRL of 0.2 mg/kg). Another sediment sample was collected in 2001 from this pond, and the result was also non-detect (MRL of 0.28 mg/kg and MDL of 0.07 mg/kg).
4.	Ron Scrudato	June 22, 2008	Recognizing and taking into consideration that it is likely other partially-filled drums of petroleum-based materials, PCBs and other contaminants, including arsenic and other metals and petroleum products exist throughout the partially covered dump material.	The purpose of the intrusive investigation is to determine if additional drums with contents are present in the buried debris.
5.	Ron Scrudato	June 22, 2008	Previous sampling of Site 7 included soils collected of the cover material and is not representative of the disposed materials within the dump site. Samples of the actual fill material contained elevated concentrations of contaminants	Our standard protocol regarding landfills is focus on the spread of potential contaminants. If sampling suggests only low levels of contaminants outside of the landfill, we don't

	Name	Date	Comment	USACE Response
			including trace metals and PCBs. The number of contaminated samples relative to the total number of samples collected therefore becomes meaningless and has little to do with the potential impacts to the environment.	recognize a substantial environmental concern. The number of samples which exceed cleanup levels is relevant to convey the spatial scale at which contamination exists at the site. It is not practical to sample every square foot of a site, and samples at the landfill were targeted to areas with the greatest likelihood for contaminant migration.
6.	Ron Scrudato	June 22, 2008	Sampling conducted by the USACOE contactors indentified contaminants of concern in offsite soils and groundwater collected west and northwest of the dump. The comment on page 4 of the Proposed Plan report is inaccurate that "no significant contamination has migrated away form the landfill….." is inaccurate.	USACE agrees that some contaminants have been detected in soil and shallow groundwater in the northwest portion of the landfill site. However, the magnitude of these concentrations is not significant when compared to existing risk-based state standards.
7.	Ron Scrudato	June 22, 2008	PCBs and other contaminants have migrated offsite as evidenced by contaminants defined west and north of the dump site as well as the ephemeral pond located immediately east of Site 7, further demonstrating that PCBs and other contaminants have migrated offsite.	USACE agrees that PCBs were detected at low levels from one soil/sediment sediment in the ephemeral pond to the northwest of the landfill. However, we disagree that significant levels of PCBs have been detected in the pond east of the landfill. Concentrations in the eastern pond ranged from non-detect to 0.02 mg/kg.
8.	Ron Scrudato	June 22, 2008	The geophysical surveys conducted on Site 7 are in general agreement that the elevated mound is comprised of a natural rock core material with waste fill deposited on top and on the slopes of the original rock mound. Based on the material exposed on the mound margins and the discovered partially filled drums of waste material, it is evident the dump was	The purpose of the intrusive investigation is to identify and remove drums with contents. The drum discovered and removed in 2005 contained used oil, and did not contain any hazardous constituents such as PCBs or chlorinated compounds.

	Name	Date	Comment	USACE Response
			used to dispose of mixed wastes that included contaminants of concern including liquids that will invariable migrate when the drums rust through and release the contents into the fill material.	
9.	Ron Scrudato	June 22, 2008	It is recognized that the Proposed Plan will involve digging trenches and identified drums and impacted soils will be removed off island. Based on the geophysical surveys, it is fairly well determined where the waste material is located and as much as is practical, the waste material and impacted fill should be removed off island using modern procedures and equipment. To the extent practical, Site 7 should be restored to its original state with the objective of removing all contaminated materials including drums, metal debris and contaminated liquids and soils removed off island.	The Feasibility Study evaluated removal of all debris and potentially contaminated materials. We believe capping the remaining debris is protective of human health and the environment, and is a more cost effective alternative. The cost difference between investigation/capping and complete removal is nearly $10 million. Metal debris within the landfill is considered safely buried and not inherently hazardous or causing a clear danger, likely to cause serious injury to a person exercising ordinary and reasonable care.
10.	Ron Scrudato	June 22, 2008	Eighteen to twenty-four inches of cover material will not keep buried waste materials from being exposed over time and thereby pose a source of contaminants to the local environments. Burrowing animals will accelerate the exposure of the waste material by reestablishing burrows in the elevated waste mound.	The overall project for remediation at Northeast Cape will include periodic evaluation of the landfill cover (5 year reviews) and maintenance as necessary. Two feet of fill is considered adequate depth for landfill cover for inert monofills by the state of Alaska.
11.	Ron Scrudato	June 22, 2008	There is no mention in the Proposed Plan of site maintenance and associated costs related to the timing and frequency of the maintenance that will be required to maintain the site. Will the cap be maintained annually in the	Long term evaluation and maintenance of the landfill cap will be addressed under the overall site remediation for Northeast Cape. Five year reviews are included with the HTRW project

	Name	Date	Comment	USACE Response
			proposed plan and if not, why not?	and if deficiencies in the cap are noted, appropriate maintenance will be scheduled. Since the initial site remediation will be conducted over several (3-4) field seasons, more frequent, annual evaluations of the landfill cover can occur during those remedial efforts.
12.	Ron Scrudato	June 22, 2008	If the waste material and impacted fill is removed, there will be no maintenance required and also eliminate the potential for waste mobilization. No maintenance costs will be required. Thin (18-24 inches) soils caps on dumps will produce leachate and result in the release of contaminants to the surrounding environments into the foreseeable future.	The slow-to-recharge well points installed around the landfill suggest that landfill leachate does not exist in large volume. We have observed no springs, flushes, intermittent or perennial streams flowing near the site. Removal of additional liquid-filled drums will further limit future mobilization of waste materials. The soil cap is intended to minimize future exposure to debris and contaminants. Large changes to the landfill cap are not expected yearly. Onsite remedial activities during the short term (3-4 years) will allow for more frequent evaluation of the cap and any initial maintenance requirements. 5 year reviews are required for the overall Northeast Cape site, therefore including the landfill evaluation is not a significant increase on costs. Anticipated maintenance costs are low and still represent a cost savings in comparison with the estimated costs for complete removal.

	Name	Date	Comment	USACE Response
13.	Kenneth Kingeekuk	June 25, 2008	Eugene recalled airmen coming from Elmendorf to Northeast Cape in '73, to bury 70 to 90 cans full of oil. Site 7 landfill was all empty barrels.	According to the Phase I remedial investigation report, local residents reported that an area near the Main Complex (Site 10) was believed to contain drums with 90-weight waste oil. A large area of buried drums has not been documented in this vicinity. The goal of test pits and trenching activities at Site 7 is to verify that a large cache of buried drums full of oil is not present. If 70-90 “cans” (drums) full of oil are found as a buried cache at the Site 7 landfill, we would have a larger problem than we anticipated, and would reconsider our removal actions.
14.	Kenneth Kingeekuk	June 25, 2008	Regarding Paul Rookok's comments here (from the last RAB meeting) - Paul was concerned that other materials like asbestos or other toxic materials like leftover paint could be present in the landfill. Jeff Brownlee had stated that landfill's are not typically removed unless they are eroding into the ocean or leaching contaminants into a pond. That's the problem we have. They are leaching into the pond. And Carey replied that sampling doesn’t show any migration of contaminants from the landfill. I disagree.	If landfill leachate has/had connection with the pond, sampling results suggest the impact to the environment is minimal. See response to Ron Scrudato comments # 2, 6, 7, 12. The surface water of the eastern pond was sampled in 1994 and 2001 for contaminants of concern including petroleum, metals, dioxins, volatiles, semi-volatiles, PCBs, and pesticides. No contaminants were detected above screening levels. Only one surface water sampling location, immediately north of the landfill edge (SW101) contained elevated levels of diesel range organics and lead. Subsequent sampling downgradient of this location did not detect these contaminants.

	Name	Date	Comment	USACE Response
15.	Kenneth Kingeekuk	June 25, 2008	And this technology I'm talking about may be useful for this kind of contaminants, non-metal contaminants. That very debris that is still sitting down there. So, this technology I am talking about, it can penetrate the earth like an x-ray. I'm sure NASA has something like this kind of technology. That's how they found those planes that went down over in Greenland during World War II. This kind of technology -- that plane that went down in Oregon sometime ago -- soon after World War II. They thought it was a UFO or something. But it turned out to be a P38 that went down. And they used this technology to locate this wreckage. It could be used at Northeast Cape, too, to locate debris or contaminants.	The magnetic and electromagnetic ground geophysical surveys we conducted did an excellent job of showing the debris at Site 7. Satellite imagery and remote sensing techniques may be useful for long term monitoring or coarse-resolution scans of the area. However, we feel these techniques have limited applicability to the Northeast Cape site and the Site 7 Landfill in particular. Remote sensing for contaminants is not realistic.
16.	Ron Scrudato		I think probably the concern here is that there might be some dump areas, for instance, where there are drums that have been buried, that are not evident or historically well recorded. And those kind of areas are being overlooked. But if it were surveyed, might pick up on something like this.	Additional dump sites may be present, but no evidence of such areas has been documented at this time. Old military landfills typically show unnatural mounds. Drums may sink into wetlands where they are now buried and do not represent a clear hazard to the public or wildlife. It is not standard protocol to use remote sensing techniques to explore for buried debris unless the perceived hazard from such burials is considered highly hazardous (e.g., chemical warfare munitions).
17.	Jeanette Iya	June 25, 2008	Of course we're always fighting for cleanup of hazardous contaminated waste that has certainly -- escaped. The point that we keep stressing is, we know that there are very	The purpose of the intrusive investigation is to identify and remove additional intact drums with liquid contents from the landfill. Our

	Name	Date	Comment	USACE Response
			contaminated debris over there. That it's not showing on the surface. And, of course, the Army Corps of Engineers is only going to take away or remove something that you can see with your eyes. Okay. That's very good. I appreciate it. However, once the chemical or the contamination gets into the soil and there is leaching anywhere, we don't have control of that. Once that gets into the ground, gets into the water source, it has a very detrimental impact on our health. It's not only affecting the people here in Savoonga, it's affecting people in Gambell and people along the mainland. Now they are trying to identify where the contamination is coming from. But, the point that I want to make is when we – when the Army Corps of Engineers identifies those barrels that are not showing above the ground, and like you made the comment earlier, the containers will not last forever. They will leak. That's the fear that I have. I want those containers removed because they will deteriorate in the future. I don't know when. We don't have control of that either. But, you also must take into consideration too that global warming is certainly here. Mother Nature is working in our favor. Two drums are showing up on the pictures you provided. I am hoping that Mother Nature will still continue to work with us. So that if there are any more drums or any more contaminated soil coming up, you will see it for your own eyes and then you will have to clean it up. That's the fear that we have.	intent is to have confidence that only a minimal number of drums might remain. Capping of the remaining debris is protective of human health and the environment.
18.	Paul Rookok	June 25, 2008	We're talking about natural attenuation being nature working in our favor. And that to me is not a good cleanup, you	Natural attenuation processes do break down compounds, including chemicals or other

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			know. It's only taking hazardous material from one place to another, natural attenuations. It's got those chemicals or other materials. They don't go away at all. Nature can't kick them out. They just carry them away. That's all they do. It's not cleaning up. It's just taking the stuff, take them away somewhere else. Nature can't get rid of pollution. It will be there forever. Once they're there they'll be -- it may move a little bit here and there, maybe miles away. But they'll still be there.	materials, into different, smaller constituents. Other components of natural attenuation do include dispersion (spreads out) and dilution (becomes less concentrated).
19.	Ron Scrudato	June 25, 2008	My concern is this, we know where the debris is. And once we excavate into the debris, unless you've excavated it all, how do you know that where you've excavated into the debris and found no drums, that immediately adjacent to where you had excavated – whether over five feet, three feet or ten feet, you'd find a whole bunch of drums in a particular area, perhaps filled with liquid that would eventually leach, as has been pointed out into the waste material and migrate off-site. Unless all the debris is excavated, you're not going to be sure. I think this is a fair statement. You cannot be sure that all these barrels that might have been partially filled with some liquids have been located.	Unless all of the debris is excavated, we won't be sure that all of the drums are removed. We do not believe it is practical to excavate all of the debris. But we want to be sure that we are not leaving a large quantity or cache of drums behind. We intend to remove the known remaining drums, and to conduct activities to remove other remaining drums. An as-yet-unspecified amount of drums will likely be undiscovered. However, capping of the remaining debris will ensure that human health and the environment are protected. If, during the course of drum removals, a large cache of drums is encountered, or a high percentage of investigated ground contains drums, we would propose to re-evaluate our methodology and potential cleanup action.

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20.	Ron Scrudato	June 25, 2008	What I predict you're going to find is that when you are excavating in the waste material, you're going to start encountering liquids, maybe petroleum product liquids that are going to be migrating. And you're not going to be sure of where that stuff is coming from – it will just be filling up your trench.	We are aware of this potential circumstance and will require our contractors to have spill response materials. This is a contributing factor for not excavating beyond that necessary to find a large cache of drums. Liquids encountered in the excavations that create severely-stained soils will be removed, to the extent practical.
21.	Ron Scrudato	June 25, 2008	One of the other concerns that I had is the cost. I know there's going to be a review every five years. And it's based on that review -- will there be funds available, let's say, to repair the landfill cap, the 12 to 18 inch or 24 inches of cover material? Some of it, invariably is going to erode because, obviously, it takes time for that stuff to settle in. Everything trying to get acclimated. So, you will probably lose some cover material here and there. You might get some leachate breakout up there as well, with time. Is there going to be maintenance money involved in this, to ensure that there's going to be funds available to attend to these maintenance requirements on this public site? So, I want to make sure, or hopefully be sure that there will be sufficient funds to maintain Site 7. It's going to be based on the integrity of the cap, some material to keep liquid out and also to keep liquid that might be generated internally, within the landfill rather than having it migrate offsite. I'm even more concerned about the inspections, for instance, on that site. What within a five year period may trigger a	Based on the recommendations of the 5 year reviews, funding will be programmed to conduct necessary repairs or maintenance. We're not sure what you mean by leachate breakout. The cap should minimize the potential for leachate to visibly seep from the landfill edges. We have not noticed springs or flushes at Site 7 and, therefore, do not anticipate them in the future. The primary types of materials buried within the landfill appear to be solid wastes and scrap metal. Since the intrusive investigation will remove potential drums with liquid contents, the probability of generating liquids within the landfill will be minimized. If the 5 year review process indicates serious erosion problems, such as sloughing of the cap or exposed debris, maintenance measures would

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			response in leaking in order to do maintenance. Remote inspection of the landfill would actually be a pretty neat application of satellite imagery, too. In other words, a person could kind of keep an eye on the landfill with regards to erosion. You know, to make sure that it maintains its integrity using satellite imagery.	be recommended. If high resolution imagery is available in the future, for a reasonable cost, and updated frequently, remote evaluation of the landfill may be considered.
22.	Pam Miller	June 25, 2008	I'd just like to say that the preferred alternative that the Corps has chosen, which is essentially capping with gravel and soil, is simply the Corps' preferred alternative. And I think it's premature and inappropriate to assume, before you take public comment, that this will be the alternative chosen. Because the RAB members, the community, has repeatedly stated, very clearly, that the only alternative that is acceptable is complete removal of the hazardous materials from Northeast Cape, including the landfills. And I think the original cost estimate of $80 million or so was based on an inaccurate measure of the volume of that landfill before it was known that a large part of that area was actually bedrock. So, I think it's very important to take into consideration the community's interest in having that hazardous material removed from Site 7, as well as the other areas of Northeast Cape, rather than simply capping it, which is really only a very temporary solution to a larger problem that could pose a long-term health risk to the people of Saint Lawrence Island. And, we will be submitting more detailed comments. But also, I'd like to state that we disagree that	Yes, you are correct, capping the landfill is our preferred alternative, our Proposed Plan. We agree that several people have stated their preference for complete debris removal. The original cost estimate was revised to reflect a smaller volume of debris, based on the geophysical investigation results. The new cost estimate for complete excavation/removal is a range from $12-21 million. Capping is not a temporary solution, but a typically implemented remedy for old dump sites. See also responses to Ron Scrudato’s comments

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			that landfill is not a source of contamination and it's clear that it is leaching. And I don't think the monitoring measures are adequate.	# 2, 6, 7, 12.
23.	Paul Rookok	June 25, 2008	I worked there at Northeast Cape and some of the hazardous materials found at Site 7, we removed from the surface only. And some of the items we found were asbestos. There was something -- barrel filled -- several barrels filled with liquid -- we didn't know. And one barrel, in fact, was important to me, you know, vegetation all around it in three – three foot radius with no vegetation whatsoever. All vegetation around that barrel. My concern is that's only the surface of material, hazardous material found -- what's under there? What's in the remaining parts of the landfill? Maybe there is some more stuff in there, under the landfill. There are other stuff we removed, we don't even know what's beyond. We removed some cylinders, you know fire extinguisher, old fire extinguishers, some other small bottles. I don't know if it's possible that hazardous material we found. Those were shot with a rifle along the range and before they were shipped out.	An intrusive investigation is planned to look for buried drums with liquids in the landfill, and remove them. Severely-stained soil will also be removed. Asbestos-containing materials are buried at landfills all over the country and pose no hazard when buried.
24.	Issac Kulowiyi	June 25, 2008	I was born and raised here in Savoonga. And the first thing I'd like to say is, with the health problems we have here, the government can measure it in dollars so that we go and get it done. Because our lake is more important than their dollars they're putting in. And a bunch of dead vegetation -- I think the last meeting I went to, somebody told me they were done with the mountaintop over there at Northeast Cape. They	Comment noted. The mountaintop, radar station, and roads are addressed under the overall Northeast Cape project.

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			got everything. That year of the cleanup I was hired by a doctor from New York, to bring him up to the radar station up the hill. Maybe 20 feet on both sides of the gravel road, all the vegetation was dead. I asked him, why? Why is this dead? Why don't you bring a sample down? He didn't even want to touch that. Very important -- our reindeer feed from those mountains. Contamination could be spreading to us. And I remember, as a boy growing up at Northeast Cape, they used to use drain oil for dust control on the gravel roads. I think all that gravel road should be tested.	
25.	Kenneth Kingeekuk	June 25, 2008	Since we have an agreement with DOD not to hurt our environment, what is being done to get rid of the oil spills that are in Suqi River and other small streams over there that are being contaminated by PCBs and other contaminants that are in the streams and rivers? What is going to be done about those in the future? Since we have an agreement with the government, if they were supposed to be harming our environment? And now we're having a tough time getting rid of them. And this community, both communities, Gambell and here and the Native village of Northeast Cape all agree that the government should get rid of all this dirty stuff. And what is being done about those in the future?	The overall Northeast Cape site is being addressed under a separate project (HTRW). Contaminated sediments in the Drainage Basin, which flows into the Suqi River, are proposed for removal.
26.	Kenneth Kingeekuk	June 25, 2008	All those oil spills that occurred over the years, it's migrating everywhere. We don't know how far it is now. Our water well over there might still be contaminated too even if it's up stream. Because you have to go so many feet down to find that water. And wherever that water is coming up from,	A remedial investigation was conducted over several years to determine the nature and extent of contamination at the site. A groundwater monitoring well was installed upgradient of the main complex and the water is clean.

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			chemicals from the top is leaking out on the side inwards. Because, the water is lighter than the chemicals. That chemical can't sink rather than float. Well, fuel will float, but other stuff won't.	
27.	Myron Kingeekuk	June 25, 2008	I'd like to see Carey Cossaboom visit the site – see it when they start cleaning up that landfill over there, at least for twice a year. While they're working over there -- look at with your own eyes and tell me if they are cleaning it up, right or not. While they're cleaning it up, too. Go over there and watch what's going on.	The Corps has many different kinds of experts, and sends people as appropriate to conduct field oversight during cleanup actions, attend community meetings, and conduct site visits. Access to the Northeast Cape site is difficult both logistically and contractually (e.g., requires DoD certified charter plane, etc.).
28.	Daphne Kulowiyi	June 25, 2008	I guess what many of us are trying to say is, we've been hurt by this action, not just physically, but emotionally and physically as well. And we're not going to settle for surface cleaning.	Comment noted.
29.	Kenneth Kingeekuk	June 25, 2008	And that island over there is totally waste now. And we are having a heck of a time trying to get it clean. It was clean in the first place, they weren't supposed to harm it. And they weren't supposed to harm our waterfowls, our marine mammals, our fish. But it's too late. What is going to be happening? I told them about this – government be taking over there later this summer. And, hopefully, we'll get the people that know what happened over there.	Comment noted. We understand that the community remains frustrated about the historic military operations and spills at Northeast Cape.
30.	Sivuqaq, Inc., Board	June 26, 2008	If the debris is to be left as a landfill, there should be an impermeable liner placed at the base of all the debris so that any leachate generated by the debris pile would not escape to	Placing an impermeable liner beneath the debris at this point would entail excavating the entire area and creating a new landfill. At this point in

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			the environment.	time, capping the existing debris piles appears to be a much lower cost alternative with little additional risk.
31.	Merle Apassingok	July 22, 2008	**Page 3, Section 1.2, Second Paragraph**: Drums full of liquid wastes, what is in them? The drums need to be removed.	The drums removed in 2005 by Bristol were determined to contain used oil, and did not contain hazardous substances such as PCBs. Drums of liquid wastes will be removed. Our intent is to have confidence that only a minimal number of drums might remain.
32.	Merle Apassingok	July 22, 2008	**Page 3, Section 1.3, Second Paragraph**: Unknown materials and covered debris, they should be investigated as to what is under the covered part.	The objective of the intrusive investigation is to locate potential buried drums with liquids or unknown materials. The objective is not to characterize the entire contents of the landfill.
33.	Merle Apassingok	July 22, 2008	**Page 5, Section 1.3, First Paragraph:** Area of severely-stained soil observed in the general vicinity at the bottom of the eastern landfill edge, will it be cleaned?	Yes, these stained soils are planned for removal prior to capping the landfill.
34.	Merle Apassingok	July 22, 2008	**Page 5, Section 1.3, Third Paragraph:** 7A and 7E on the eastern slope of the Site 7 landfill may still contain PCB's above the cleanup level of 1 mg/kg based on immunoassay screening results. According to field observations, the soil contamination is commingled with buried landfill debris and further excavation was not practical (why?). The two excavations were lined with plastic sheeting and backfilled with clean fill (will this be left alone or will it be removed?).	The soil will be left in place and covered as part of the landfill cap. Additional excavation was not conducted during the previous fieldwork because the contractor encountered debris, which complicated removal of soil and was beyond the scope of their contract.
35.	Merle Apassingok	July 22, 2008	**Page 5, Section 1.3, Fifth Paragraph:** Metals and fuels were identified as contaminants of potential concern in shallow groundwater during the remedial investigation, (continue on to page 6, first paragraph) Even though the shallow water will not be used for drinking water for humans, it may be used by the animals that we eat. Will they be cleaned?	It is unlikely animals would access groundwater for consumption. Surface water sampling demonstrates the ponds surrounding the landfill are clean. One surface water sample, collected

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				in triplicate during the 1994 investigation did contain elevated levels of diesel range organics, but subsequent sampling downgradient demonstrated subsurface water did not contain fuels.
36.	Sivuqaq, Inc.	June 26, 2008 and July 22, 2008	**Alt. 5**: Still imposes public health and contaminates in the long run. Over time it will spread due to various reasons including weather and topographical changes (global warming.) **Therefore, Sivuqaq Inc. chooses Alt #6-Excavation and Off-site Disposal on Page 10.**	The existing contaminant levels do not pose a current or future risk to human health or the environment. The single soil sample location with DRO above the cleanup level is planned for removal. PCBs-contaminated soil was excavated under a prior removal action. Alternative choice noted.
37.	Morgan L. Apatiki, Sr.	July 31, 2008	1.2 page 3 Nugget Construction was also excavating and containerizing the saturated soil in 2001 field season, according to the report from local crew member, somehow the operation was ceased and reburied the excavation.	Unclear what area is being referenced. Nugget excavated a small amount of stained soils (less than 1 ton) at the Cargo Beach Road Landfill site during the 2001 field season. Over 1,600 tons of stained soils were also removed from other areas of Northeast Cape by Nugget.
38.	Morgan L. Apatiki, Sr.	July 31, 2008	1.3 page 3 of 16 Most landfills were heavily soaked with oil, according to the eye-witness report from Savoonga.	We are aware of one small area with severely stained soils at the Site 7 Landfill, which will be addressed during the removal action.
39.	Morgan L. Apatiki, Sr.	July 31, 2008	1.3 page 5 of 16 I didn't understand "Arsenic was eliminated" stated repeatedly in this pamphlet. Does it mean that you left the arsenic in place?	Arsenic is considered to be naturally occurring, meaning already present in the mineralized soils of the area. Therefore it is no longer considered a contaminant ("eliminated", so to speak), and will be left in place.

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40.	Morgan L. Apatiki, Sr.	July 31, 2008	1.3 page 5 of 16 Please publicize the potable water that is indicated not reasonably for potential future drinking water source stated in this pamphlet.	Institutional controls will be publicized to inform the community about the tundra areas not being suitable sources of groundwater.
41.	Morgan L. Apatiki, Sr.	July 31, 2008	1.5 page 8 of 16 Presence of the contaminant has been prolonged, I believe most of the migratory marine mammals and land species became receptors to the (COPC).	Long term, or chronic exposure to ecological receptors was considered. The migratory marine mammals and other land species may be considered potential (or actual) receptors, however the amount of any COPCs to which they were exposed and for how long determines the potential for adverse effects. The ecological risk assessment considered all three necessary pieces: presence of contamination, degree of hazard or toxicity, complete exposure pathways, and receptors.
42.	Morgan L. Apatiki, Sr.	July 31, 2008	1.6/1.7 page 9 of 16 The OBJECTIVES and ALTERNATIVES for remedial removal action became so complicated for me to decide which one of them would be in priority list for removal action. Most of them seem to be stated to contain high level of contaminant. If you are aware of the human health and ecological risk assessment, please be advised to remove them quickly. It will be appreciated. I'm also thankful for your continued remedial investigation and-removal actions.	The primary risk drivers, or chemicals at concentrations that could cause potential risk were PCBs and DRO. Severely stained soils are planned for removal. Arsenic is considered naturally occurring and unlikely to be caused by a site-specific, manmade source. The potential for adverse impacts to humans and animals is low according to the ecological risk assessment. Thank you for your continued support.

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43.	Morgan L. Apatiki, Sr.	July 31, 2008	1.7 page 10 of 16 Letting the contaminants to be allowed to naturally attenuated wasn't a very good idea. It is almost like letting it runoff somewhere. It may be prolonged and outer appearance may be degraded, the core will stay active. Naturally attenuation may be caused by migration.	Natural attenuation processes break down compounds, including chemicals or other materials, into different, smaller constituents. Other components of natural attenuation include dispersion (spreads out) and dilution (becomes less concentrated).
44.	Morgan L. Apatiki, Sr.	July 31, 2008	1.7 page 10 of 16 Capping the sites and mono-fill wasn't recommended by people of the St. Lawrence Island. Radiation from it during the hot weather will continue to affect the area. Note that the migration depend on valence state affecting solubility (Dissolved or Absorbed) and dependant on site characteristics, including pH temperature, character of environment (clays vs. sand)	We remember that the monofill proposed for the previous building demolition project did not meet local favor, and was rejected. We know the community prefers complete excavation and removal of the landfill, but our proposed plan offers a more cost effective solution. A radiological survey was conducted at the Landfill during the Phase II RI, and the readings were all less than the established background level. We agree that migration pathways are subject to many variables
45.	Morgan L. Apatiki, Sr.	July 31, 2008	1.7 page 11 of 16 Also the Long Term Monitoring seem to be addressed as the natura-ly attenuate. There are releases of unknown liquids within the drums.	The purpose of the intrusive investigation is to identify and remove drums with liquid contents.

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46.	Morgan L. Apatiki, Sr.	July 31, 2008	GENERAL The overall verification of the site conditions is still questionable. There are some factors that still need to be identified & characterized. Local Issues and Expressed Concerns Regarding: -Brominated compound that may be used for road dust treatment. -PCB Particle -Radionuclide-substance that emit radiation. -Bio-accumulative Haps -Spilled petroleum product composed of: -Gasoline Range Organic -Diesel Range Organic -Lubricant -Transformer -Residual Range Organic -Sedimentation -Nitrate -Inhalant Volatile -Levels fluctuate seasonally & daily. Not to mention the other compound elements that may have involved leaving the overall protection of human health and environment with uncertainty. The stench of the (FUDS) installation sites continues to persist. The global warming may have affect on it.	The ADEC approved the site characterization and remedial investigation work completed to date by USACE at Northeast Cape. The overall Northeast Cape site, including the roads and other areas of concern, are being addressed under a separate project. Sites with petroleum-contaminated soils and residual PCB-contaminated soils, as well as contaminated sediments near the main complex in the drainage basin, are proposed for remediation. We have not noticed a stench at NE Cape.
47.	Vi Waghiyi and Pamela Miller, Alaska Community Action on Toxics (ACAT)	August 6, 2008	We disagree that the Preferred Alternative is adequately protective of health and the environment and urge that USACE and ADEC proceed with Alternative 6, Excavation and Off-Site Disposal. Although the state has indicated acceptance of the preferred alternative, we believe that the Corps' proposed preferred alternative fails CERCLA standards for compliance, effectiveness, implementability, and community acceptance. We have witnessed through successive RAB and community meetings over a period of several years that the people of St. Lawrence Island will not accept anything less than excavation and removal of hazardous debris and contamination, including contamination from Site 7, one of the primary areas of	Community acceptance is a modifying factor under CERCLA. It is not a threshold criteria. We believe that capping is protective of human health and the environment and complies with applicable regulations.

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			concern at Northeast Cape.	
48.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	The cost of excavation and removal is small relative to the **extreme economic liability** to the landowners Sivuqaq, Inc. and Kukulget, Inc.) and **long-term health hazards** to residents of St. Lawrence Island. The people of St. Lawrence Island have indicated their intent to re-establish a permanent year-round village at NE Cape and should not suffer the uncertainty about the contents of the landfill, liability, and health hazards associated with the proposed alternative which is a spurious, temporary and superficial "fix" rather than a solution.	We do not recognize any economic liabilities the landowners will incur by having a safe, capped landfill. Long term health hazards have not been substantiated. Capping is considered standard industry practice, implementable technology that is not considered spurious or temporary.
49.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	The Proposed Plan acknowledges that the Cargo Beach Road Landfill was the installation's main solid waste landfill and that the "dump contains a wide variety of unknown materials." This statement confirms that the site has not been properly characterized. The so-called "landfill" is an illegal dump site that contains not only solid, but hazardous waste.	While it is a prudent to plan for the presence of hazardous materials within the landfill itself, the actual presence of hazardous waste cannot be confirmed at this time. We are not aware of any violations of solid waste or landfill laws that may have been in existence at the time material was placed.
50.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	The Corps has not ruled out the possibility that the dump contains radioactive materials, unexploded ordnance, or other hazardous chemicals. The feasibility study and proposed plan do not provide a good characterization of the landfill and sampling thus far has been insufficient to determine conclusively that migration of contaminants from the landfill is not occurring.	Radioactive materials: As part of the Phase II RI, a limited radiological survey was conducted in 1996 at various sites across Northeast Cape, based on community concerns. The Cargo Beach Road Landfill was included as part of the survey. Ground continuous monitoring was conducted using a Victoreen #41546 Radiacmeter, Model #450. This meter detects beta and detects and measures gamma radiation

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				to a depth of one meter below ground surface. The gravel borrow area was chosen as the background site for Northeast Cape, and the survey resulted in calculation of an action level of 0.14 millirads per hour (mR/h). The U.S. Army standard is one (1) mR/h. All areas surveyed resulted in readings less than the established background of 0.14 mR/h. Unexploded ordnance: Northeast Cape was evaluated for potential use of munitions and there was no evidence of significant use of munitions; an MMRP project was not recommended by the Center of Expertise in Huntsville. Other hazardous chemicals: Samples collected during the remedial investigation were analyzed for a wide range of contaminants. PCBs were documented in soils on the eastern edge of the landfill, but are not widespread at the site. We disagree that adequate investigation has not yet been conducted. The ADEC approved the site characterization and remedial investigation work completed to date at Northeast Cape.

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51.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	The Proposed Plan also states: "Based on surface exposures, many full drums are likely buried here which may eventually spill." We emphasize that it is a serious matter that additional drums have been found that are full of liquid and that this is indicative of a deeper and more serious problem that requires complete excavation in order to remove all full or partially-full drums as well as contamination that has leaked/leached into soils, sediments, surface-, and groundwater beneath, adjacent, and downstream from the site. The proposed plan states that approximately 50 drums will be removed. It is likely that many more filled or partially filled drums remain in the dump and must be removed. Again, we assert that the Island residents require complete removal in order to assure protection of health and the environment.	The purpose of the intrusive investigation is to validate the assumption that full drums do not exist in great quantities within the landfill, deal with the known drums that were left in place, and proactively address other drums that may be uncovered. The likelihood of a large cache of full drums is low, given that drums were typically used and then disposed of empty. Over 6,000 drums have already been removed from the Site 7 vicinity. Fuels were a commodity utilized at the installation. The assumption that 50 drums will be removed is an estimate. If more drums are uncovered, contingencies or a contact modification may be considered. Complete removal of the landfill is not the only method which provides protection of human health and the environment.
52.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	The Corps has not provided an adequate hydrological assessment in order to determine flow patterns of leachate from the landfill to surface and groundwater.	During the Phase I remedial investigation (1994), 4 boreholes were completed using a hollow stem auger in an attempt to locate groundwater and characterize migration of contaminants around the landfill dump site. At Site 7, the boreholes were drilled to a maximum depth of 31 feet on four sides of the landfill. One of the four boreholes (BH 7-4) was terminated at 15 ft bgs and converted to a monitoring well. At this location, groundwater

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				was encountered at an elevation of 48.84 ft, or 9.25 ft bgs (after development). MW 7-4 is located east of the landfill and adjacent to a pond that had a surveyed elevation of 50.21 ft. At BH 7-1, 7-2, and 7-3, groundwater was not encountered, even though the holes were drilled to depths of 31, 26, and 17 ft bgs, respectively. These depths are below a depth that groundwater might be expected. The lack of groundwater in these boreholes was attributed to frozen soil conditions, which would render the fine-grained materials at this site impermeable. A thin layer of perched groundwater may be present immediately above the frozen soil during the warmer summer months. The water in well MW 7-4 could be such perched groundwater. The bore holes drilled to date suggest that locating all (or any) perched and flowing groundwater layers will be too challenging to find. Additional investigation was conducted during the Phase III remedial investigation (2001) and confirmed the lack of groundwater at Site 7. Groundwater migration from the site may be limited because of the low permeability of the shallow, partially frozen soils. Groundwater

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				probably remains in a relatively localized area with any migration occurring in northeasterly direction, corresponding to surface topography. *Phase III RI Report (2003).* In 2001, 3 well points were installed between 3 and 6 ft bgs downgradient of the landfill. Despite being installed in saturated ground, well point WP 7-1 in particular was extremely difficult to sample, required 3 days to obtain sufficient volume of water, and the water was noted as "silty" in the field notes. The well points were installed in saturated ground, but yielded little water. The original attempted well point locations for WP 7-2 and WP 7-3 were dry after 48 hours. The water samples collected from WP 7-2 and WP 7-3 were actually "pits" dug 36 to 40 inches in the ground and allowed to fill with water.
53.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	Thus the minimal sampling does not provide conclusive evidence that contaminants are not migrating from the landfill site. In fact, in his comments on the Proposed Plan, Technical Advisor to the RAB, Ron Scrudato, provides evidence of migration of contaminants from Site 7 into adjacent tundra soils, wetlands, and groundwater from Remedial Investigation data. Additional data from a sediment core collected and analyzed as part of the NIEHS project confirmed PCB contamination in pond sediments adjacent to the site.	The sampling done to date indicates that landfill leachate is not a great problem. Dissolved metals were not detected in shallow groundwater monitoring. See also response to Ron Scrudato's comments #2, 6, 7, 12. We disagree that data from the sediment core confirms PCB contamination. It actually supports the data which indicates that landfill leachate is not significant.

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			Additionally, the Corps mischaracterizes sampling data taken from fill material. These data are not representational of contamination associated with the landfill and serve only to underestimate levels of contaminants in the environment adjacent, beneath, and downgradient from Site 7.	We typically do not characterize landfill soils, but assess the migration of leachate as expressed in the surrounding soils. The data from soils on/surrounding the landfill, while suggesting potential for migration from the dump site, also suggest such migration is minimal.
54.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	We disagree that the groundwater exposure pathway is not completed. Surface and groundwater are connected with potential future sources of drinking water.	ADEC has concurred that shallow subsurface groundwater in the immediate vicinity of the landfill is not a reasonably expected potential future drinking water source.
55.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	The capping and minimal drum removal that the Corps proposes as the preferred alternative (Alternative 5) would not be protective of health and the environment. We strongly disagree with the Corps' conclusion that "The proposed remedy is protective of public health, welfare, and the environment." We find it ludicrous that the Corps would assert that 18-24 inches of "dermal cover" would provide any measure of protection.	Capping is a proven remedial technology that is considered protective of human health and the environment. The ADEC solid waste regulations for inert waste monofills specify construction of a final cover of soil material at least 24 inches thick, graded to promote drainage without erosion, and revegetated. Inert waste monofill requirements are appropriate for the Cargo Beach Road site because the deposited materials were solid wastes. Our proposed plan objective is to demonstrate that no large caches/ quantities of drums remain undiscovered.
56.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	Further, it is unconscionable that the landowners "will be responsible for implementing the institutional controls and ensuring that no excavations occur within the final capped area." The landowners **must not** be burdened with a	Landowners are responsible for helping to implement the institutional controls, because they have authority over the land use and restrictions on the property. However, the

	Name	Date	Comment	USACE Response
			responsibility and financial liability that must be assumed by the Corps (USACE).	financial cost is covered by USACE.
57.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	Capping is not a solution and will only require extensive long-term maintenance and monitoring. Capping is a poor alternative that will result in surfacing of additional buried materials, erosion of the cap material, damage/invasive penetration by burrowing animals, and inevitable leaching of contaminants into the surrounding environment. This is not an acceptable alternative and we insist that excavation and removal is the only alternative that will prevent further mobilization of contamination and consequent hazards to the health of the people of St. Lawrence Island.	Capping is a solution; long-term maintenance is not anticipated to be overly burdensome. If site conditions change significantly in the future, revisions to the remedial action can be further evaluated. Capping is meant to prevent surfacing of additional buried materials. Site 7 should not be subject to high rates of erosion; it is not adjacent to the ocean or a flowing body of water. Damage from burrowing animals can be mitigated if such activity compromises the gravel cap. If leaching of contaminants has not created a measurable health hazard to date, there is little reason to suspect such a situation will develop in the future provided a reasonable effort confirms that a large quantity of liquid waste drums is unlikely to exist.
58.	Vi Waghiyi and Pamela Miller, ACAT	August 6, 2008	We agree with Dr. Scrudato, TAPP Advisor to the RAB, that Site 7 should be restored to its original state and all contaminated materials removed off island. Capping is not an acceptable alternative. We assert that Alternative 6 is the only alternative that will prevent harmful exposures and is ultimately cost-effective because it will eliminate the need for expensive and long-term maintenance.	Long term maintenance costs associated with capping are low in comparison with capital costs for complete excavation and removal. Periodic inspections of the site will be conducted as part of the 5 year reviews which are necessary for other sites at Northeast Cape.

DEPT. OF ENVIRONMENTAL CONSERVATION'
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITES PROGRAM

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File: 475.38.013

May 22, 2009

Mr. Carey Cossaboom
U.S. Anny Engineer District, Alaska
Mail Code CEPOA-PM-P
P.O. Box 6898
Elmendorf AFB, Alaska 99506-6898

Re: ADEC Additional Law Department Comments on the Northeast Cape Site 7 Decision Document

Dear Carey:

The State Department of Law reviewed and has additional comments on the document titled *Decision Document, Site 7 Cargo Beach Road Landfill, Containerized Hazardous, Toxic, and Radioactive Waste (HTRW) Project # F10AK096905, Northeast Cape Formerly Used Defense Site (FUDS) Saint Lawrence Island Alaska.* We received the document in September, 2008. Below are the law department comments:

1. Section 1.2, third paragraph, 4th sentence: Please add "and the environment" after "humans, animals". Done

2. Section 1.2, fourth paragraph, and throughout the document: Please change "DEC concurs" to "ADEC agrees that the remedy selected complies with CERCLA and state law." Done

3. Section 1.4, Description of Selected Remedy, 4th bullet: Please add criteria that determine what "severely stained" soil means. The bullet was changed to eliminate field screening of soils, and the word “grossly” is substituted for “severely”. It can be argued that “severely-stained” soil is a subjective term that might require analysis to confirm (which would greatly slow-down the project). “Grossly stained”, implies staining that is glaringly noticeable, yet embraces a degree of subjectivity, which is the intent. We have demonstrated that no significant contaminant leachate is escaping this landfill. Therefore, the elimination of defined contamination is not necessary. However, eliminating grossly contaminated soil can only serve to further protect the environment.

4. Section 1.4, paragraph after bullets: Please add sentence explaining if large amounts of drums are found the remedy will be reevaluated. This was addressed in the 2nd paragraph after the bullets; additional verbiage is now added to better attend to this comment.

5. Signature Page for the State: See comment number 2. Done

6. Section 2.5, first paragraph: Please change the last sentence in this paragraph that starts "After removal of any full drums" to "After removal of any drums containing liquid". Done

7. Section 2.6.6, second paragraph: Please explain if this area of elevated DRO in soil is planned to be under the cap and if any additional samples were collected after the area was disturbed. Further clarification has been added; no additional samples were collected as the contamination remains obvious.

8. Section 2.7.1: State who the landowner is. Done

9. Section 2.7.3: Please specify where the surface water testing was done - upstream of Cargo Beach Road, downstream, or both. Done

10. Section 2.8.1, first paragraph: Please specify the ADEC designated the area around the Cargo Beach Road Landfill to not be a reasonably expected future drinking water source. Done

11. Section 2.8.2, third paragraph: Explain if this area of high DRO in soil is going to be under the cap and if the high sample point was ever retested. Done; it was not re-tested.

12. Table 6: Costs for land use controls seem excessive. The cost for land use controls on Table 7 is listed as $170,000. Please clarify. The cost in Table 6 was taken from the Feasibility Study (FS), and as the note to the table asserts, these estimates have since been revised (Table 7) with a better understanding of what is actually required for long-term monitoring at an unpermitted landfill. The FS actually estimated many more site visits than are actually required. FS cost estimates are typically applicable for comparative purposes only and are not a substitute for Government Cost Estimates.

13. Table 6: $4.6 million to cap the landfill seems excessive. Does this amount include a dedicated mobe and demobe? The amount did include a dedicated mobe/demobe. Our recent contract award indicates the $4.6 million estimate was low.

14. Section 2.11.8: See comment #2. Done

15. Section 2.13.2, 4th bullet: Please define "severely stained". "Severely" has been changed to "grossly"; see response to Comment #3.

16. Section 2.13.5, first paragraph: There is no bias against offsite disposal in CERCLA. Please change the text. Text has been deleted.

17. Section 2.13.5, 5th paragraph: Please reword the second sentence in this paragraph to read, "USACE has determined that the selected remedy provides.... ADEC agrees that the remedy selected complies with CERCLA and state law". Done

18. Section 2.13.5, State Acceptance: See comment #2. Done

Sincerely,

Jeff Brownlee
Environmental Program Specialist

Copy: Jennifer Currie, Dept. of Law, Anchorage
Lisa Geist, COE - Anchorage

Alaska District Corps of Engineers
Staff / Action Sheet

Please initial concur or non concur & insert the date of your response

	Division	Concur	Non Concur	Date
1	DC Wilson			
2	DDC			
3	DP Smith			6/19/09
4	OC Vanagel			6/15
5	ESP Jaeger			6/19/09
6	PM-EST Ken A			6/19/09
7	EN-EE Broyles			06/08/2009

S: 23 Jun 2009

SUBJECT: DATE: 8 Jun 2009

Re-sign of Decision Document on Site 7 Landfill, NE Cape

RECOMMENDATION: DC Signature on page 10

DISCUSSION:

Lt. Col Stone signed this 20 Feb 2009. Subsequent to his signature, the ADEC legal staff reviewed this document and asked for some minor revisions. The comment letter from the ADEC is attached. USACE responses to the comments are shown in red and the corresponding text in the Decision Document can be reviewed.

APPROVAL AUTHORITY'S COMMENTS:

Approval ☐ Disapproval ☐ See Me ☐

POC: Carey Cossaboom 753-2689

Div/Branch Chief's Signature for Release: Clare Jaeger

Phone #: 753-2855

POA FORM 305a, OCT 2007

Alaska District Corps of Engineers
Staff / Action Sheet

Please intial concur or non & date

S: 10 Feb 2009

	Division	Concur	Non	Date
	DDC STONE			2/20/09
	DP Smith			2/17/09
	OC ~~Vanagel~~			5Feb09
	ESP Jaeger			2/3/09
	PM-ESP Andraschko			2/2/09
	EN-EE Geist			2/2/09

SUBJECT: Date: 2 Feb 2009

Decision Document on Site 7 Landfill, NE Cape FUDS CON/HTRW Project, F10AK0969-05, St. Lawrence Island, AK

RECOMMENDATION:

DDC signature on page 10

DISCUSSION:

This Decision Document is for the CON/HTRW project (a.k.a. Site 7 Cargo Beach Road Landfill) at Northeast Cape on St. Lawrence Island. The estimated cost for remediation is $4.6 Million.

This Decision Document outlines our planned response action for the Site 7 Landfill at NE Cape. It entails capping the landfill after removing liquid-filled drums, followed by land use controls.

The ADEC project manager has reviewed and commented on the draft version of this decision document. The ADEC may not fully agree with our limited debris removal approach, suggesting in their draft comments that they would like to see more debris handling. However, we believe we have demonstrated that contaminants are not spreading from the site and that capping is sufficient.

The USACE OC and PAO, and USACE POD have reviewed the draft version of this decision document. The CX reviewed and commented on the draft version of this decision document. Their comments were helpful, and have been addressed.

APPROVAL AUTHORITY'S COMMENTS:

Approval ✓ Disapproval ___ See Me ___

Carey Cossaboom
FUDS Project Manager
X 2689

POC: Carey Cossaboom

Div/Branch Chief's Signature for Release: Clare Jaeger

Phone #: X 2855

POA FORM 305a, REVISED NOV 00

Decision Document
Northeast Cape FUDS, CON/HTRW Project
St. Lawrence Island, Alaska

January 2009

U.S. Army Engineer District, Alaska
P.O. Box 6898
Elmendorf AFB, Alaska 99506-0898

EXECUTIVE SUMMARY

SELECTED RESPONSE ACTION

This Decision Document outlines the U.S. Army Corps of Engineers selected remedy for the Northeast Cape CON/HTRW Project (F10AK0969-05), also known as the Site 7 Cargo Beach Road Landfill, located on St. Lawrence Island, Alaska. These remediation efforts are planned in conjunction with the Decision Document for the Northeast Cape HTRW Project (F10AK0969-03). These planned responses were preceded by multiple removal actions (mostly BD/DR) which took place between 1994 and 2005.

The remedial actions are chosen in accordance with the Defense Environmental Restoration Program (DERP), United States Code, Title 10, Section 2701, et seq. Per the FUDS Program Policy (ER 200-3-1), CON/HTRW projects involving tanks, transformers, and other containers are generally not regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) process and thus a formal Decision Document is not required. However, this project has followed the CERCLA process as a matter of administrative consistency, to foster community trust and preserve good public relations.

The response action entails capping the Site 7 Landfill after removing drums of liquid waste buried within the landfill. Disturbing the upper 1 foot of fill across the areas with mapped metallic anomalies (an estimated 150,000 square feet) will reveal the near surface drums/debris within the landfill. Further test pits or trenches will be excavated across the areas of known metallic anomalies and previously marked drums to determine if large caches of drums are present. Drums identified with liquid contents will be drained and/or removed; drums considered empty under RCRA regulations do not need to be removed since debris removal is not a specific goal. Liquid wastes will be characterized and transported off-site for proper disposal. Based on visual observations or field screening of soils for petroleum, oil, and lubricants (POL), incidental contaminated soils will be removed, characterized, and transported off-site for disposal. It is estimated that 50 drums and 50 cubic yards of severely-stained soils will be encountered. If other items with the potential for future breakdown and migration of contents into the environment such as intact batteries or transformers are discovered, they will also be removed with the drums. The landfill will then be capped with 2 feet of soil cover and the site re-vegetated. Groundwater is not an issue at the site since it has

been demonstrated to exist in insufficient quantity (i.e., largely frozen) to constitute drinking water. The landfill boundary will be surveyed and land use controls, including deed notation, will be implemented to prevent construction of buildings on top of the landfill and inform the community that the local groundwater is designated as a non-drinking water source. Periodic visual monitoring of the landfill will occur over a period of 5 years.

The selected response action presumes that no large caches of buried drums are present in the landfill debris. If a large cache of buried drums is encountered, the scope and cost of the planned response action will increase by an unknown amount. Further evaluation would be necessary to determine the most efficient remediation method. Final capping of the landfill could thus be delayed.

DEGREE OF RISK REDUCTION

The response actions selected in this Decision Document are necessary to protect the public health from actual or threatened releases of hazardous substances into the environment. Current land use at the Northeast Cape site is seasonal subsistence fishing, hunting, and plant gathering. Future land use is anticipated to be residential; the tribal government of the Native Village of Savoonga desires to re-establish a permanent community at Northeast Cape.

The primary soil/sediment contaminants associated with risk or hazard estimates are POL. The response actions will prevent current and future exposure to humans and ecological receptors by ingestion, inhalation, and dermal contact with contaminated soils at levels above applicable risk-based standards for petroleum hydrocarbons.

COST

The cost to complete the selected response action for the Northeast Cape CON/HTRW Project is estimated at $4.6 million. The CON/HTRW response actions make up about 13% of the costs necessary to complete full remediation on the FUDS property ($35.6 million).

FISCAL YEARS FOR DESIGN AND CONSTRUCTION

Presuming that no large caches of buried drums are present in the landfill debris, the design/construction portion of the project should be completed in one fiscal year; reporting will extend beyond the federal fiscal year. It is scheduled for award in FY09; field work could be completed in FY09 if the selected contractor (TBD) can secure barge services to conduct work this summer.

DURATION OF REMEDIAL ACTION – OPERATIONS

There are no Remedial Action-Operations (RA-O) necessary for the CON/HTRW project at Northeast Cape.

LAND USE CONTROLS REQUIRED

The State of Alaska, Department of Environmental Conservation (ADEC) requires that land-use controls (LUC), or Institutional Controls (IC), be implemented, on a site-specific basis, to protect the public from conducting non-ordinary activities that have the potential to cause harm (18 AAC 75.375). Informational ICs are needed to educate property owners about safe environmental practices for future development or building at a site.

Land use controls necessary at the Northeast Cape Site 7 Landfill include a deed notification to record the location of capped debris areas, and informational measures to caution the landowners and community against excavation or construction activities that could compromise the cap integrity. Since shallow groundwater is not consistently encountered here (i.e., frozen), and is of poor quality, the State has informed us that it is also important to inform people that the local groundwater is designated as a non-drinking water source per 18 AAC 75.350. The Native Village of Savoonga pledged their assistance to serve as an information repository for land use controls at Northeast Cape.

POTENTIAL REMEDIES CONSIDERED

The Corps of Engineers considered the following remedial alternatives for the Cargo Beach Road Site 7 Landfill:

Alternative 1 - No Further Action

Alternative 2 - Land Use Controls

Alternative 3 - Natural Attenuation

Alternative 4 - Long Term Monitoring

Alternative 5 - Capping

Alternative 6 - Excavation/Offsite Treatment/Disposal