UNITED STATES AIR FORCE
611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON

JOINT BASE ELMENDORF-RICHARDSON, ALASKA

NIKOLSKI RADIO RELAY STATION
NIKOLSKI, ALASKA

CERCLA RECORD OF DECISION:
SS006 (Former Drum Storage Area)

FINAL

APRIL 2013

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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
Air Force	U.S. Air Force
ARAR	applicable or relevant and appropriate requirement
AST	aboveground storage tank
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
COC	chemical of concern
DERP	Defense Environmental Restoration Program
DEW	Distant Early Warning
DoD	U.S. Department of Defense
DOT	U.S. Department of Transportation
DRO	diesel range organics
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
FS	Feasibility Study
GRO	gasoline range organics
IC	institutional control
IRA	Indian Reorganization Act
JBER	Joint Base Elmendorf-Richardson

mg/Kg	milligrams per kilogram
mg/L	milligrams per liter
NCP	National Contingency Plan
PA	preliminary assessment
PCB	polychlorinated biphenyl
POL	petroleum, oil, and lubricants
RAB	Restoration Advisory Board
RAO	remedial action objective
RI	remedial investigation
ROD	Record of Decision
RRO	residual range organics
RRS	Radio Relay Station
SARA	Superfund Amendment and Reauthorization Act
SI	site inspection
TBC	To Be Considered
TCE	trichloroethylene
USC	United States Code
UST	underground storage tank
VOC	volatile organic compound

PART 1. DECLARATION

1.1 SITE NAME AND LOCATION

ERP Site SS006

Facility Name:	Former Drum Storage Area (SS006), Nikolski Radio Relay Station (RRS)
Site Location:	Nikolski, Alaska; Section 25; Township 083 South; Range 136 West; Seward Meridian
Latitude and Longitude Number:	52°56'13"N, 168°52'11"W
CERCLIS ID Number:	AK4570028684 (archived)
ADEC Contaminated Sites Hazard ID:	#135, File Number 2621.38.004
Operable Unit/Site:	SS006 (also known as SA593)

This site was part of Nikolski RRS, located on Umnak Island in the Aleutian Island chain, Alaska, approximately 900 air miles from Anchorage, Alaska.

1.2 STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedy for Environmental Restoration Program (ERP) Site SS006 at Nikolski RRS in Nikolski, Alaska. The remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendment and Reauthorization Act (SARA) of 1986 and, to the extent practicable, the National Contingency Plan (NCP). This Decision Document is based on the Administrative Record file for SS006, which can be accessed online at www.adminrec.com, or at the Information Repository at the Nikolski Indian Reorganization Act (IRA) Council Office in the Village of Nikolski.

As the lead agency, the U.S. Department of Defense (DoD) U.S. Air Force (Air Force) issues this document. The Air Force is managing remediation of contamination at SS006 in accordance with CERCLA and as required by the Defense Environmental Restoration Program (DERP). This ROD is issued in accordance with and satisfies requirements of: DERP, United States Code (USC), Title 10, Section 2701 et seq.; CERCLA 42 USC 9601 et seq.; and the NCP (Code of Federal Regulations [CFR], Title 40, Chapter 300).

As the lead agency, the Air Force has selected the remedy for this site. The Alaska Department of Environmental Conservation (ADEC) concurs that the selected remedy for ERP Site SS006, if properly implemented, will comply with state law.

The U.S. Environmental Protection Agency (EPA), Region 10, was consulted and subsequently deferred to ADEC for regulatory oversight of the ERP activities at Nikolski RRS.

This document complies with the requirements of the *Alaska Oil and Hazardous Substances Pollution Control Act*, 18 Alaska Administrative Code (AAC) 75, revised as of 8 April 2012.

1.3 ASSESSMENT OF SITE

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. The chemicals of concern (COCs) are diesel range organics (DRO) and residual range organics (RRO), commingled with trichloroethylene (TCE), which have been detected at this site above 18 AAC 75 soil cleanup levels. Pursuant to 18 AAC 75.350, ADEC determined during the 2001 Remedial Investigation (RI) that groundwater is not considered a drinking water source at SS006. Residual COCs in groundwater following the excavation of contaminated soil and during post remediation monitoring will require land use controls through the establishment of institutional controls (ICs) to limit the use of the site.

1.4 DESCRIPTION OF THE SELECTED REMEDY

The CERCLA-selected remedy for SS006 is Excavation and Offsite Disposal of contaminated soil in a permitted disposal facility. As part of this remedy, post remediation monitoring of monitoring wells would continue once a year until the concentration of TCE and its breakdown products in the groundwater plume is at a steady state, or decreasing, and the contaminant concentrations are decreasing for three consecutive monitoring events. This includes:

- ICs will be used to prevent residential use and restrict surface excavation activities in Tract 39A, which covers approximately 2.44 acres.

- The Air Force will require all surface excavation or digging activities within Tract 39A to be subject to ADEC approval, per State of Alaska regulations (18 AAC 75.325(i), 2008).
- The Air Force will conduct 5-year reviews as required by CERCLA Section 121(c) since hazardous substances may remain onsite at levels above the ADEC maximum contaminant levels (MCLs) for drinking water (AAC, Title 18, Part 80.300(b)(2)(B) and ADEC Method Two soil cleanup levels (18 AAC 75)). These 5-year reviews will include a report on the effectiveness of the ICs.

The ICs will remain in effect indefinitely or until such time as the COCs are below applicable ADEC cleanup levels. COCs for SS006 are TCE, DRO, and RRO. The Air Force, as the responsible entity, will implement, monitor, and maintain the ICs in accordance with CERCLA and NCP regulations. The Air Force will also provide annual monitoring reports to ADEC. If the site remedy is found to be deficient during an inspection, ADEC will be contacted and further corrective action will be planned. ADEC will be notified if the property subject to ICs is transferred, or if any significant changes are made to the use and activity restrictions subject to ICs. There are currently no tenants, contractors, or occupants within the property subjected to ICs.

Remedy Required under State of Alaska Regulations. No additional remedies are required under State of Alaska Regulations, because the CERCLA remedy meets all requirements of the State of Alaska, including but not limited to those requirements set forth in 18 AAC 75.

1.5 STATUTORY DETERMINATIONS

The selected remedy for ERP Site SS006 is protective of human health and the environment, complies with promulgated requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solution technologies to the maximum extent practicable. The selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy, but is preferred because of the greater constraints to implementability. The remedy provides the best balance of tradeoffs in terms of the balancing criteria, while also considering state and community acceptance. Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, 5-year reviews will be required until the groundwater reaches concentrations allowed for unrestricted use.

The NCP establishes the expectation that treatment will be used to address the principal threats posed by a site whenever practical (40 CFR, Section 300.430(a)(1)(iii)(A)). For SS006, Excavation and Offsite Disposal was determined to be the most feasible option that is protective of human health and the environment, but does not constitute treatment. SS006 will also require long-term monitoring for groundwater. No source materials constituting principal threats exist at SS006.

1.6 DATA CERTIFICATION CHECKLIST

The following information is included in the Declaration or Decision Summary sections of this ROD:

- List of COCs and their respective concentrations (**Tables 1-1** and **1-2**).

Table 1-1 ERP Site SS006 Soil Contaminants of Concern and Cleanup Level

Contaminant of Concern	Maximum Detected Concentration (mg/Kg)	ADEC Method Two Cleanup Level (mg/Kg)
Diesel Range Organics	37,700	8,250
Residual Range Organics	222,000	8,300
Trichlorethylene (TCE)	5.72	0.42

Key:
ADEC – Alaska Department of Environmental Conservation
ERP – Environmental Restoration Program
mg/Kg – milligrams per kilogram

Table 1-2 ERP Site SS006 Groundwater Contaminants of Concern and Cleanup Level

Contaminant of Concern	Maximum Detected Concentration (mg/L)	ADEC Table C Cleanup Level (mg/L)
Trichlorethylene (TCE)	0.0441	0.005

Key:
ADEC – Alaska Department of Environmental Conservation
ERP – Environmental Restoration Program
mg/L – milligrams per liter

- Human health and ecological risk evaluation represented by the COCs (Section 2.7).
- Cleanup levels established for COCs (Tables 1-1 and 1-2).
- Current and reasonably anticipated future land use assumptions and beneficial uses used in baseline risk calculations and the ROD (Sections 2.6 and 2.7).

- Potential land and groundwater use that will be available at the site as a result of the selected remedy (Section 2.6).
- Estimated capital, annual operations and maintenance, total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected (Section 2.10).
- Key factors that led to selecting the remedy (description of how the selected remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision) (Section 2.10).

Additional information can be found in the Administrative Record files for SS006, Nikolski RRS, Alaska, which can be accessed through the Air Force at Joint Base Elmendorf-Richardson (JBER), or at the Information Repository at the Nikolski IRA Council Office in the Village of Nikolski.

1.7 AUTHORIZING SIGNATURES

This signature sheet documents the Air Force approval of the CERCLA remedy selected in this ROD for ERP Site SS006 (Former Drum Storage Area). By signing this declaration, ADEC concurs that proper implementation of the selected remedy for SS006 will comply with state environmental laws. This decision will be reviewed and may be modified in the future if information becomes available that indicates the presence of contaminants or exposures that may cause unacceptable risk the human health or the environment.

13 May 2013

ROBYN M. BURK, Colonel, USAF
Commander, 611th Air Support Group

Date

5/15/2013

JOHN HALVERSON, Environmental Program Manager
Federal Facilities Section, Contaminated Sites Program
Alaska Department of Environmental Conservation

Date

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PART 2. DECISION SUMMARY

The decision summary identifies the selected remedies, explains how these remedies fulfill statutory and regulatory requirements, and provides a substantive summary of the administrative record file that supports the remedy selection decision.

2.1 SITE NAME, LOCATION, AND DESCRIPTION

ERP Site SS006 is one of 13 ERP sites at Nikolski RRS, located on Umnak Island in the Aleutian Island chain, approximately 900 air miles from Anchorage, Alaska (**Figure 2-1**). The site has also been assigned Compliance Restoration Program Site Number SA593. Nikolski RRS encompasses approximately 435 acres on the southwest end of Umnak Island and is located in Section 25, Township 083 South, Range 136 West, Seward Meridian. Nikolski RRS is an inactive Air Force installation established on lands withdrawn from public domain by Public Land Order.

As the lead agency for CERCLA remedial activities, the Air Force has conducted environmental restoration at SS006 in accordance with CERCLA under the DoD ERP that was established by Section 211 of SARA. As the lead regulatory agency, ADEC provides primary oversight of the environmental restoration actions, in accordance with CERCLA and Alaska State laws and regulations.

Site Name: Former Drum Storage Area (SS006), Nikolski RRS
Site Location: Section 25; Township 083 South; Range 136 West; Seward Meridian
Latitude and Longitude: 52°56’13”N, 168°52’11”W
Point of Contact: Mr. Pat Roth, Air Force Remedial Project Manager

Patrick.Roth.1@us.af.mil
Air Force 611 CES/CEAR
10471 20th Street, Suite 343
JBER AK 99506

ERP Site SS006 is the designation for the environmental site located near the beach on Nikolski Bay, west of the airstrip, known as the Former Drum Storage Area (**Figures 2-2** and **2-3**). During the 1995 Preliminary Assessment (PA)/Site Inspection (SI), approximately 200 drums were located in the site vicinity, mostly on their sides directly on the ground about

200 feet from the shoreline. Some drums were full and had unbroken seals on the bungs. Other drums had leaked into surface soil and water. Container markings indicated that possible drum contents were: antifreeze, diesel fuel, jet fuel, lube oil, aviation gasoline, unleaded gasoline, and petroleum naphtha. In 1997, the drum contents were sampled, characterized, and removed, and the hazardous and nonhazardous wastes were shipped offsite for disposal and recycling. During 1996 and 1997 drum removal activities, surface soil and water samples were collected. After the 1997 drum removal action, a fence was constructed around the area that previously contained the drums.

The Nikolski RRS is a former military facility. The portion of the site that is on Air Force property is within an area surveyed as Tract 39A. SS006 has an assigned ADEC contaminated sites Record Key number (198325X918204) and Site Hazard ID (135) for the portion of the site on Air Force property. SS006 also has an assigned ADEC contaminated sites Record Key number (2002250101001) and Site Hazard ID (3936) for the portion of the site that is not on Air Force property. The lead agency for addressing environmental contamination at Nikolski RRS is the Air Force, and ADEC is the lead regulatory agency. EPA Region 10 was consulting regarding this and other Nikolski RRS sites, consistent with the other requirements of 10 USC 2705. In 1994, EPA Region 10 reviewed the PA Report for Nikolski RRS and, using the EPA's Hazard Ranking System, concluded that Nikolski RRS did not warrant National Priorities Listing. Photos of SS006 are provided in **Appendix A**.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES

2.2.1 Site History

Nikolski RRS was one of 18 Distant Early Warning (DEW) stations constructed in Alaska between 1950 and 1959 to provide reliable communications for the DEW Line. The installation was constructed in 1958 and became operational in 1961. RRS facilities were originally known as White Alice Communications Systems, but Nikolski was redesignated as an RRS by the Air Force Alaskan Air Command in 1969 (USAF, 1997a). The original installation consisted of the following:

- Main facility on High Hill:
  - Composite Building (OT001).
  - Composite Building septic tank and outfall (ST018).
  - Composite Building petroleum, oil, and lubricant (POL) outfall (WP007).

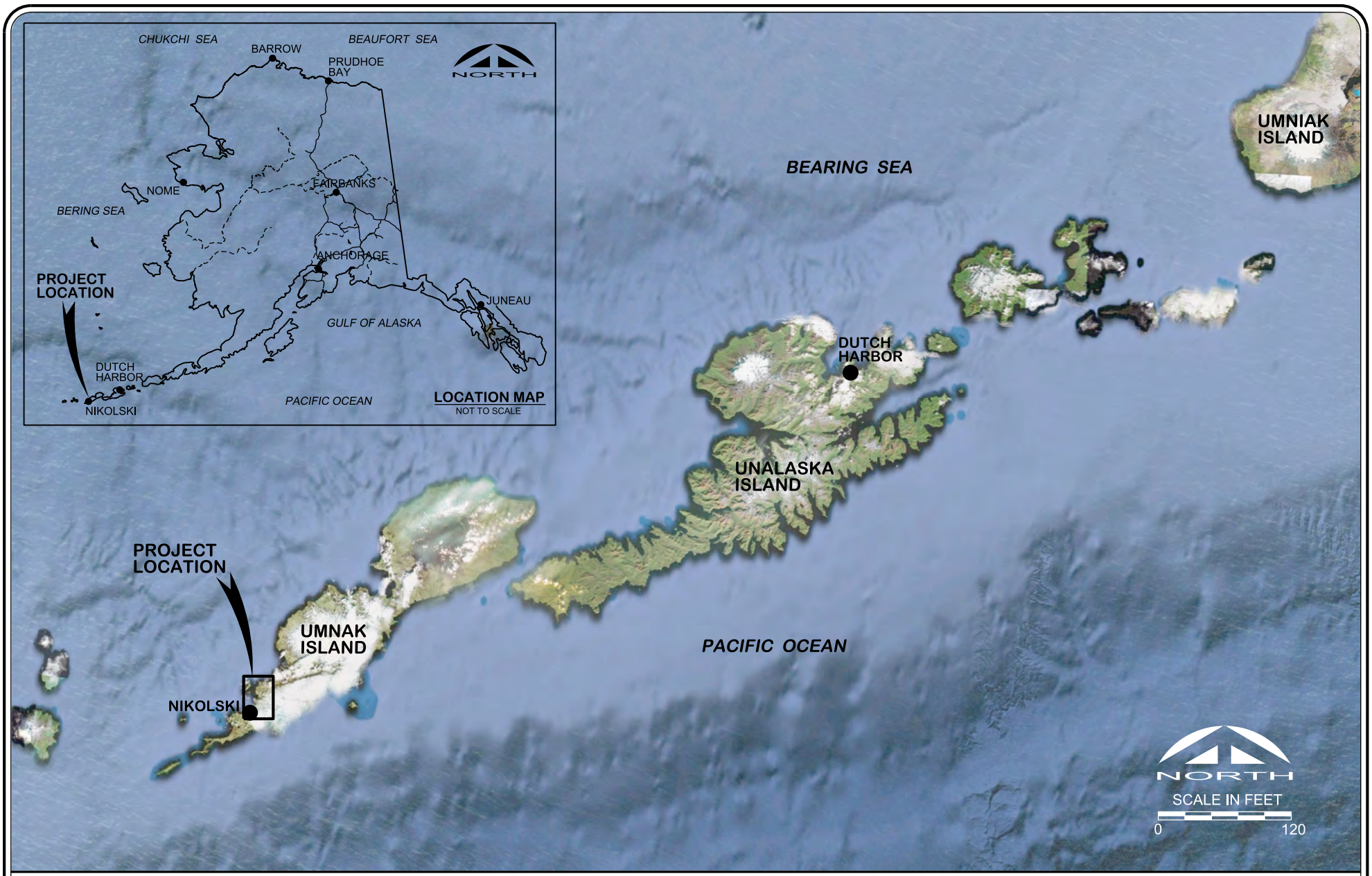

FIGURE 2-1

U.S. AIR FORCE - NIKOLSKI RRS, ALASKA
RECORD OF DECISION FOR ERP SITE SS006

LOCATION AND VICINITY MAP

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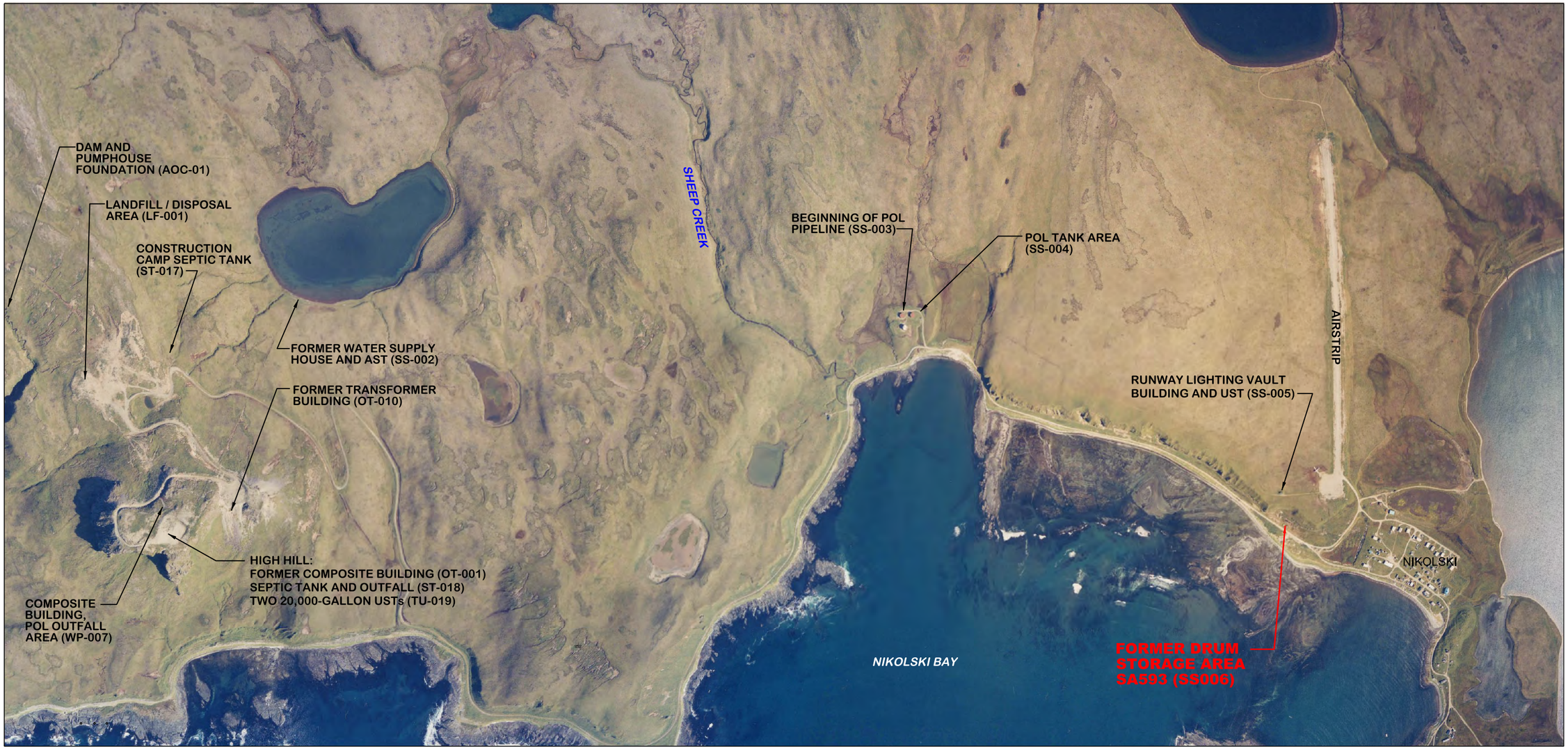

NORTH

SCALE IN FEET

0 1000

FIGURE 2-2

U.S. AIR FORCE - NIKOLSKI RRS, ALASKA
RECORD OF DECISION FOR ERP SITE SS006

SITE MAP

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FIGURE 2-3

U.S. AIR FORCE - NIKOLSKI RRS, ALASKA
RECORD OF DECISION FOR ERP SITE SS006

ERP SITE SS006
FORMER DRUM STORAGE AREA

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  - Transformer building (OT010).
  - Two 20,000-gallon underground storage tanks (USTs – TU019), administratively incorporated into OT001.
  - Two 1,311-gallon aboveground storage tanks (ASTs) for fuel storage, one 60-gallon AST motor vehicle gasoline (MOGAS) tank for the emergency fire pump, a 24,000-gallon AST for water storage.
  - Two White Alice Arrays were associated with the former Composite Building.
- A landfill located about 1/4-mile northeast of the main facility (LF001).
- POL storage and distribution facilities:
  - POL Tank Area (SS004), located about 1 mile northeast of the village of Nikolski.
  - POL Pipeline (SS003), running about 3 miles from the POL Tank Area to the north-northeast along the coast at High Hill.
- An airstrip and runway lighting vault (SS005).
- A construction camp septic tank (ST017).
- A dam and pumphouse (AOC01) located along a creek to the northeast of the main facility.
- A water supply pumphouse and AST (SS002) located along the bank of the lake located east-southeast of the main facility.
- A drum storage area (SS006) at the foot of the runway.

Nikolski RRS was deactivated in 1977, and most buildings and structures were demolished in 1988, including all aboveground structures at the main facility on High Hill. Nonhazardous and asbestos-containing demolition debris, including building debris and empty drums, were placed into the site demolition landfill (LF001). Hazardous materials generated during the 1988 demolition were transported via barge to the Elmendorf Air Force Base treatment, storage, and disposal facility (USAF, 1995).

2.2.2 History of Investigation and Removal Actions

The following activities were performed at Nikolski RRS since the 1977 facility deactivation:

- 1983 Polychlorinated Biphenyl (PCB) Removal Action
- 1988 site demolition (USAF, 1988)

- 1993 PA (USAF, 1994)
- 1995 PA/SI, which identified 13 areas where hazardous substances or petroleum products may have been stored, released to the environment, or disposed of onsite (USAF, 1995)
- 1996 follow-up PA/SI (USAF, 1996)
- 1997 Drum Removal Action at Former Drum Storage Area SS006 (USAF, 1997a, 1997b; 1998)
- 2000 SI Report (USAF, 2000)
- 2001 Supplemental Clean Sweep Environmental Survey Report (USAF, 2001)
- 2001 RI, which included the 13 sites identified during the PA/SI (USAF, 2002a)
- 2002 Supplemental RI at the Construction Camp Septic Tank (ST017) and POL Tank Area (SS004) (USAF, 2002b)
- 2003 Feasibility Study (FS) that addressed contaminants at the Composite Building and Associated White Alice Arrays (OT001), POL Tank Area (SS004), and Construction Camp Septic Tank Site (ST017) (USAF, 2003)
- 2004 Baseline Risk Assessment (BRA) that addressed the Composite Building and Associated White Alice Arrays (OT001), the POL Outfall (WP007), the POL Pipeline (SS003), and the POL Tank Area (SS004) (USAF, 2004)
- 2007 septic tank closure and decommissioning that addressed the septic tank at the Composite Building Septic Tank and Outfall (ST-018)
- 2007 UST closure activities at SS005, including the removal of the 500-gallon UST, associated underground piping, and remaining equipment and debris from within the Runway Lighting Vault, as well as confirmation sampling and analysis, backfill, and site re-grading (USAF, 2010).
- 2007 in-place closure at the Two 20,000-gallon USTs site (TU-019), which consisted of: site preparation, soil excavation around the USTs, removal of tank liquids and sludge, UST cleaning, confirmation sampling and analysis, backfilling of the USTs, and site re-grading (USAF 2010).
- 2009 excavation and removal of two USTs at Site TU-019 to address regulatory deficiencies identified by ADEC regarding the 2007 in-place UST closure (USAF, 2010). Site TU-019 was incorporated into OT-001.

- 2009 SI at SS005 that consisted of soil sampling and laboratory analysis in the area of the former UST and piping (USAF, 2010)

Environmental investigations and studies were conducted at SS006 between 1995 and 2001. Remediation work began in 1995 with compilation of existing historical information for Nikolski RRS (USAF, 1994). During investigations completed as part of the 1995 PA/SI (USAF, 1995), approximately 200 drums were observed in the vicinity of the Drum Storage Area. While some of the drums had evidence of surface soil staining, this area was not sampled in 1995.

Of the 200 drums observed at SS006 during the 1995 PA/SI, most were on their sides directly on the ground, about 200 feet from the shoreline. Some drums were full and had unbroken seals on the bungs. Other drums had leaked onto surface soil and water. Container markings indicated that possible drum contents were: antifreeze, diesel fuel, jet fuel, lube oil, aviation gasoline, unleaded gasoline, and petroleum naphtha. In 1996, three soil samples were collected from areas of stained surface soil at SS006. In 1997, drum contents were sampled, characterized, and removed, and hazardous and nonhazardous wastes were shipped offsite for disposal and recycling. In 1997, surface soil and water samples were collected during drum removal activity. Soil samples collected for these studies were analyzed for a variety of chemical compounds potentially associated with POL discharges, including: gasoline range organics (GRO), DRO, RRO, volatile organic compounds (VOCs), PCBs, polycyclic aromatic hydrocarbons (PAHs), and metals.

After the 1997 drum removal action, a fence was constructed around the area previously containing the drums. The analytical results for the investigations and studies conducted from 1995 to 2001 (**Figure 2-4**) were compared to ADEC Method Two soil cleanup levels specified in 18 AAC 75.341. Results indicated that TCE, DRO, and RRO contamination exceeded applicable ADEC Method Two soil cleanup levels, warranting further evaluation.

2.3 COMMUNITY PARTICIPATION

NCP Section 300.430(f)(3) establishes requirements for notification and document availability of Proposed Plans for review by the public. The Air Force has participated in several public meetings in the village of Nikolski, and has met with staff and officers of the tribal government and Chaluka Corporation to discuss issues specifically pertaining to Nikolski RRS. In 2001, a fact sheet was provided to the community to seek public input regarding

formation of a Restoration Advisory Board (RAB) and other ways that the public could provide input and voice concerns. However, community members opted to not participate in a formal RAB.

The Proposed Plan and supporting documents for SS006 were made available to the public in September 2012, and the public review and comment period for the Proposed Plan was 25 September to 25 October 2012. A public meeting on the Proposed Plan for SS006 was conducted on 4 October 2012. The Air Force received no written or oral comments during the public comment period on the Proposed Plan.

2.4 SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

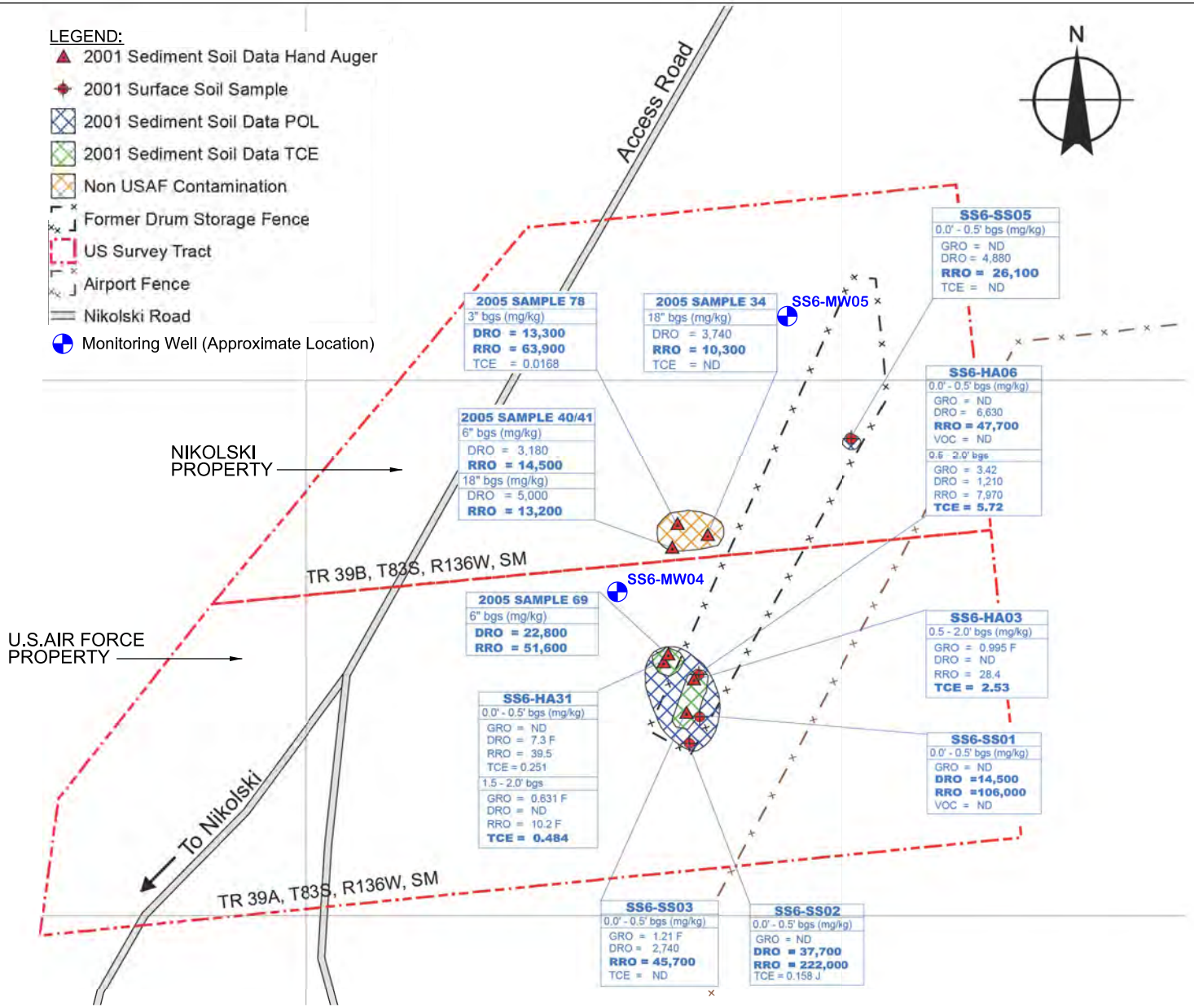
ERP Site SS006 is one of 13 ERP Sites located at the former Nikolski RRS. Environmental restoration at Nikolski RRS is being conducted under the authority of CERCLA. In addition, certain closure activities (e.g., petroleum sites, UST closures, and septic tank closures) are being conducted in accordance with State of Alaska regulations (18 AAC 75 and 78) or guidance (ADEC, 2000).

2.5 SITE CHARACTERISTICS

The Former Drum Storage Area (SS006), also known as Site SA593, is situated on the eastern shore of Nikolski Bay, approximately 250 feet inland from the gravelly shoreline (Figure 2-2). The site was historically used as a drum storage area, and contamination is primarily the result of drum leaks and spills. Approximately 200 drums were initially observed in 1995 during the PA/SI, and were subsequently removed during a 1997 drum removal action.

2.5.1 Physiography and Climate

Umnak Island is a part of the Aleutian Island Chain (Figure 2-1). The island is composed of volcanic, volcaniclastic sedimentary, and intrusive rocks. The southwestern portion of the island, which includes the Nikolski RRS site, is relatively flat. Umnak Island has a cold maritime climate characterized by high humidity, considerable cloudiness, frequent fog, and abundant rain and snow. The wet weather in the area is caused by a number of factors, including the Aleutian low pressure cell, the impacts of the Pacific Ocean and Bering Sea, and orthographic precipitation.



Source: JACOBS
FORMER DRUM STORAGE AREA (SS006)
PROPOSED PLAN, SEPTEMBER 2012

FIGURE 2-4

U.S. AIR FORCE - NIKOLSKI RRS, ALASKA
RECORD OF DECISION FOR ERP SITE SS006

ERP SITE SS006
SOIL SAMPLE RESULTS

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2.5.2 Geology

In general, the geology of the Nikolski RRS is typified by a relatively thin layer of sandy, silty, peaty overburden, overlying a fractured "top of rock" zone, and underlain by competent andesite or mudstone bedrock. Within areas that have not been filled, natural overburden ranges from a few inches up to approximately 15 feet in thickness. Bedrock is exposed at the ground surface in many areas. The bedrock beneath SS006 is composed of shale/mudstone.

2.5.3 Hydrogeology

Out of the 10 soil borings constructed at SS006 during the 2002 RI, only two locations had sufficient groundwater to enable construction of monitoring wells. Bedrock is present at depths of 1.5 to 5 feet below ground surface. The immediate area of the two wells is a slight depression in the bedrock surface that collects local groundwater when it is present. Available data indicates that site groundwater flows toward the bay. There are no private or public drinking water systems at SS006, and the public water supply for the village is located 1 mile away from the site.

2.5.4 Surface Water Hydrology

There are surface water features at SS006 consisting of fresh water. The site topography consists of depressions that collect water at various times of the year.

The Village of Nikolski is not in the same watershed as the former Nikolski RRS facility (USAF, 1994). A community water supply currently supplies the Village of Nikolski with its water. The water comes from a seep located approximately 1 mile southwest of the airstrip.

2.5.5 Ecology

Umnak Island provides habitat for diverse marine mammals and fish species, including spawning habitat for coho, sockeye, and pink salmon (USAF, 1994). Several sea bird colonies have been identified within the Umnak Island area, and various duck and goose species are known to inhabit this area. In addition, bald eagles have been known to inhabit areas around Cape Udak. Three pairs of bald eagles were observed near Nikolski RRS during the RI (USAF, 2002a). Sea lions have been documented in the nearby Aleutian Islands Wilderness (USAF, 1994).

2.5.6 Nature and Extent of Contamination

Environmental media affected by contamination at SS006 are surface and subsurface soil. Potential receptors are current and future human recreational visitors at all sites. Potential exposure pathways for humans are soil ingestion and dermal exposure, as well as groundwater consumption.

Consumption of subsistence resources poses minimal risk to human health, because SS006 soils are too rocky to support substantive vegetative cover or optimal habitat for terrestrial omnivores.

Based on analytical data collected at SS006, DRO, RRO, and TCE were detected in soil at levels exceeding applicable ADEC regulatory limits. Since groundwater was detected at SS006, the analytical results for soil samples were compared to the more stringent Method Two limits for inhalation, ingestion, and migration-to-groundwater pathways. Two areas of petroleum contamination exist where DRO and RRO levels are as high as 37,700 milligrams per kilogram (mg/Kg) and 22,000 mg/Kg, respectively. TCE was also detected in soil above applicable regulatory limits at levels as high as 5.72 mg/Kg. Approximately 200 cubic yards of soil are impacted by these contaminants.

In 1997, nine groundwater samples were collected from nine monitoring wells. TCE was detected in every groundwater sample, ranging from 2.23 to 14.5 milligrams per liter (mg/L). GRO and DRO were also detected in most groundwater samples, with GRO ranging from not detected to 4.54 mg/L and DRO ranging from 0.102 to 14.1 mg/L.

The protection of marine waters is required under 18 AAC 70, which state that individual substances may not exceed criteria in EPA Quality Criteria for Water. Analytical results from two monitoring wells situated between Nikolski Bay and the area in which drums were formerly stored were compared to the aforementioned EPA criteria, and all results were below the criteria, as well as applicable ADEC regulatory limits. Given these results, the 2001 RI concluded that Nikolski Bay was not being adversely impacted by site contamination at SS006.

2.5.7 Conceptual Site Model

A conceptual site model was developed to depict the potential relationship or exposure pathway between chemical sources and receptors. An exposure pathway describes the means by which a receptor (human or ecological) can be exposed to contaminants in environmental media. These pathways are presented on **Figure 2-5**, based upon current and reasonably likely future land uses.

2.6 CURRENT AND POTENTIAL FUTURE LAND AND WATER USES

2.6.1 Land Use

When the installation was active, the land at the former Nikolski RRS was used for military purposes. Current land use of the Nikolski RRS land, including the top of High Hill, appears to be primarily for recreational purposes. After considering public comment on the Proposed Plans, and based on subsequent discussions between Chaluka Corporation and the Air Force, it is unlikely that there will be future residential land use of High Hill.

Public Land Order 2374, issued in 1961 by the U.S. Department of the Interior (DOI), withdrew public domain lands in the vicinity of the Native Village of Nikolski on Umnak Island, Alaska, for use by the Air Force as the Nikolski RRS. Subtitle D of Public Law 108-136, dated 24 November 2003, contains provisions for land conveyance between the Air Force and Native corporations established under the Alaska Native Claims Settlement Act (ANCSA). Specifically, Section 2862 of Public Law 108-136 contains an offer of conveyance of the surface and subsurface estates in the former Nikolski RRS to the Chaluka Corporation and Aleut Corporation, respectively, by the Secretary of the Interior. Environmental restoration of specific parcels of lands defined as Phase II lands in Public Law 108-136 are the responsibility of the Air Force. Upon completion of environmental restoration of parcels of Phase II lands by the Air Force, the lands are to be conveyed to the Native corporations in accordance with applicable law.

Upon conveyance of a parcel of land under Section 2862 of Public Law 108-136, the Secretary of the Interior will terminate the corresponding portion of Public Land Order 2374 relating to the parcel conveyed. Upon conveyance of all lands subject to conveyance under Section 2862 of Public Law 108-136, the Secretary of the Interior will terminate all remaining portions of Public Land Order 2374 as it pertains to Umnak Island, Alaska.

2.6.2 Groundwater and Surface Water Uses

A community water supply currently supplies the Village of Nikolski with its water. The water comes from a seep located approximately 1 mile southwest of the airstrip.

Surface water drains from High Hill in all directions: into Sheep Creek to the south and east, and into the Bering Sea to the north and west. Surface water from the Nikolski RRS travels over a drainage area of about 100 acres to the point of probable entry into Nikolski Bay, or over a drainage area of roughly 250 acres to the point of probable entry into Sheep Creek. Drinking water for the facility during its years of operation was obtained from a lake about half of a mile south of AOC01. This lake, about 300 feet above sea level (USAF, 1994), is the headwater of Sheep Creek, which flows westward into Nikolski Bay and discharges about 800 feet north of SS004 (USAF, 1997a). The Village of Nikolski is not in the same watershed as the former Nikolski RRS facility (USAF, 1994).

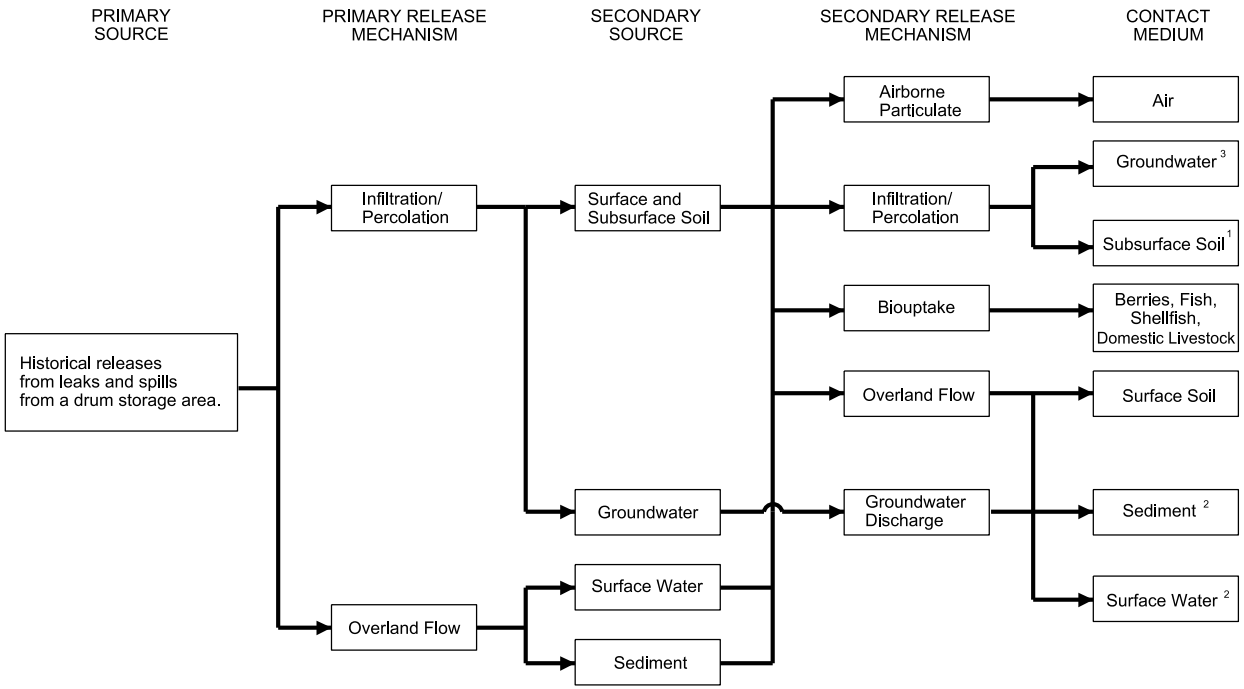
Groundwater is not a current or reasonably expected future source of drinking water at Nikolski RRS, and groundwater at SS006 will not be transported so that it impacts a current or reasonably expected future source of drinking water. A groundwater use determination has been made for SS006, per 18 AAC 75.350 (**Appendix B**). The major permanent surface water feature in the vicinity of SS006 is Nikolski Bay. Data collected in the 2001 RI indicates that Nikolski Bay is not impacted by site contaminants and the groundwater use determination concluded that the site contamination poses no threat to current or reasonably expected future sources of drinking water.

2.7 SUMMARY OF SITE RISKS

This section summarizes the human health and ecological risk evaluations that have been performed for ERP Site SS006. The COCs associated with unacceptable site risk are identified, as well as the potentially exposed populations and exposure pathways of primary concern. A summary of the findings of the ecological risk are also presented. Figure 2-5 shows the conceptual site model for Nikolski RRS.

2.7.1 Summary of Human Health Risks

Current contaminant concentrations at SS006 pose a potential risk to human health due to the potential contact with DRO-, RRO-, and TCE-contaminated soil.



POTENTIAL RECEPTORS					
	HUMAN		ECOLOGICAL		
Exposure Route	Current or Future Recreational Visitor	Current or Future Resident/ Seasonal Worker	Freshwater Aquatic	Marine Aquatic	Terrestrial [4]
Inhalation	X	X	–	–	–
Inhalation	–	X	–	–	–
Ingestion	–	X	–	–	–
Dermal	–	X	–	–	–
Inhalation	–	X	–	–	–
Ingestion	–	X	–	–	–
Dermal	–	X	–	–	–
Ingestion	X	X	X	X	X
Inhalation	X	X	–	–	X
Ingestion	X	X	–	–	X
Dermal	X	X	–	–	X
Ingestion	–	–	X	X	X
Dermal	–	–	X	X	X
Ingestion	X	X	X	X	X
Dermal	X	X	X	X	X

Notes:

1. The possibility exists that subsurface contamination may be brought to the surface as a result of future construction or excavation activities.
2. The marine environment may be potentially impacted by contaminant transport and discharge via groundwater. This pathway is dependent on source proximity to the marine environments. Fresh surface water and sediments may be impacted by disposal of debris or other sources via overland flow or groundwater discharge. Groundwater may be in hydraulic communication with surface waters associated with several creeks in the area.
3. Vapor sources include groundwater contamination.
4. Terrestrial ecological receptors include domestic cattle and horses, and avian and burrowing animals.

Source:
USAF. 2001. Remedial Investigation/Feasibility Study Work Plan
Prepared for USAF 611 Air Support Group, 611 Civil Engineer Squadron, JBER. June.

FIGURE 2-5

U.S. AIR FORCE - NIKOLSKI RRS, ALASKA
RECORD OF DECISION FOR ERP SITE SS006

CONCEPTUAL SITE MODEL

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Current land use in the area appears to be light industrial storage. There are no residential structures on the site. Groundwater is not a current or reasonably expected future source of drinking water at Nikolski RRS, and groundwater at the site will not be transported so that it impacts a current or reasonably expected future source of drinking water. A groundwater use determination has been made for SS006, per 18 AAC 75.350. The major permanent surface water feature in the vicinity of SS006 is Nikolski Bay. Data collected in the 2001 RI indicates that Nikolski Bay is not impacted by site contaminants and the groundwater use determination concluded that site contamination poses no threat to current or reasonably expected future sources of drinking water.

2.7.2 Summary of Ecological Risks

Sediment and surface water samples were collected during the 2001 RI to assess ecological risks. Two surface water samples were taken from ponded water on and around SS006 and analyzed for GRO, DRO, RRO, PCBs, VOCs, and heavy metals. One sample had a detection of TCE, but was below the National Oceanic and Atmospheric Administration's Screening Quick Reference Tables (SQuiRT) for organics in water. Three sediment samples were collected between SS006 and Nikolski Bay and analyzed for GRO, DRO, RRO, VOCs, and heavy metals. Analytical results were all nondetect, except for a 14.1 mg/Kg detection of RRO. Analysis of the sample indicated the presence of biogenic organics rather than fuel. Based on these comparisons of SS006 surface water and sediment data to the criteria, the site does not pose unacceptable ecological risks.

2.7.3 Basis for Action

ERP Site SS006 has contamination that is above Method Two cleanup levels for TCE, DRO, and RRO. It is the current judgment of the Air Force that the preferred alternative of Excavation and Offsite Disposal of the contaminated soil and groundwater monitoring is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

2.8 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) provide a general description of what remedial action will accomplish. These goals typically serve as the design basis for remedial alternatives, which are described in greater detail in the FS (USAF, 2003). Historical investigations,

including the RI (USAF, 2002a), concluded that environmental contaminants remain at Nikolski RRS at several ERP sites, including SS006. The RAOs for ERP sites at Nikolski RRS sites are protection of human health and the environment. Site-specific RAOs exist for SS006, including:

- Prevent ingestion or inhalation of soil containing DRO in excess of 8,250 mg/Kg and RRO in excess of 8,300 mg/Kg.
- Prevent ingestion or inhalation of soil containing TCE in excess of 0.42 mg/Kg.

2.9 DESCRIPTION OF ALTERNATIVES

The FS (USAF, 2003) described the evaluation of remedial technologies and the alternatives to address environmental contamination at Nikolski RRS ERP sites. The PA/SI (USAF, 1995) found approximately 200 drums on the site and the drum removal activity (USAF, 1997b) concluded the environmental contaminants at SS006 are present at concentrations above applicable regulatory criteria. The remedial alternatives for soil contamination at SS006 are:

- **Alternative 1 – No Action.** With the No Action alternative, no remedial activities would be undertaken to treat DRO-, RRO-, and TCE-contaminated soils to prevent exposure to the soil where concentrations exceed 18 AAC 75 cleanup levels. The No Action alternative is required for consideration by the NCP, and provides a baseline against which the other alternatives can be compared.
- **Alternative 2 – Excavation and Offsite Disposal.** With the Excavation and Offsite Disposal alternative, DRO-, RRO-, and TCE-contaminated soils exceeding the cleanup levels in 18 AAC 75 would be excavated, containerized, and shipped offsite to a permitted facility for land disposal. The quantity of contaminated soils excavated is expected to be in the range of 200 cubic yards. The soil would be placed in containers meeting the requirements of the U.S. Department of Transportation (DOT) Hazardous Materials Regulations at 49 CFR 171 through 180. As part of this alternative, groundwater would be monitored following source removal. Periodic monitoring of the groundwater downgradient of SS006 would continue until the TCE concentration in groundwater is at a steady state, or decreasing, for three consecutive monitoring events to ensure the plume is in a steady state or decreasing. No source materials constituting principal threats exist at SS006. Clean fill would be used for site backfill.
- **Alternative 3 – ICs.** With the ICs alternative, contaminated soil would remain SS006 above 18 AAC 75 soil cleanup levels. The ICs would reduce human or environmental

exposure to contamination, and prevent activities that could result in increased exposure or spread the extent of contamination.

2.10 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

In accordance with the NCP, the alternatives for Nikolski RRS were evaluated using the nine criteria described in Section 121(a) and (b) of CERCLA and 40 CFR 300.430 (e)(9)(i), as cited in NCP Section 300.430(f)(5)(i). These criteria are classified as threshold criteria, balancing criteria, and modifying criteria.

Threshold criteria are standards that an alternative must meet to be eligible for selection as a remedial action. There is little flexibility in meeting the threshold criteria – the alternative must meet them or it is unacceptable. The following are classified as threshold criteria:

- Overall protection of human health and the environment.
- Compliance with, or an applicable waver, of applicable or relevant and appropriate requirements (ARARs).

Balancing criteria weigh the tradeoffs between alternatives. These criteria represent the standards upon which the detailed evaluation and comparative analysis of alternatives are based. In general, a high rating on one balancing criterion can offset a low rating on another balancing criterion. Five of the nine criteria are considered balancing criteria:

- Long-term effectiveness and permanence.
- Reduction of toxicity, mobility, and volume through treatment.
- Short-term effectiveness.
- Implementability.
- Cost.

Modifying criteria, which may be considered to the extent that information is available during the FS, but can be fully considered only after public and regulator comments, are as follows:

- Community acceptance.
- State/support agency acceptance.

This section summarizes how well each alternative satisfies each evaluation criterion and indicates how each alternative compares to the other alternatives under consideration. The three alternatives considered to address petroleum and CERCLA contaminants at SS006 are summarized in **Table 2-1** and the following sections.

Table 2-1 Comparison of Alternatives for Contaminated Soil at SS006

Evaluation Criteria	No Action	Excavation and Offsite Disposal	Institutional Controls
Overall Protection of Human Health and the Environment	No	Yes	Yes
Compliance with applicable or relevant and appropriate requirements (including State of Alaska laws and regulation)	No	Yes	No
Long-Term Effectiveness and Permanence	Below average	Much better than average	Average
Reduction in Toxicity, Mobility, and Volume Through Treatment	Below average	Below average	Below average
Short-Term Effectiveness	Below average	Better than average	Better than average
Implementability	Below average	Better than average	Average
Cost (in millions)[1]	$0	$2.3	$2.8[2]
State Acceptance	No	Yes	No
Community Acceptance	No	Yes	No

Key:
1 – Cost estimates are based on the 2012 Nikolski RRS Site SS006 Proposed Plan
2 – For 30 years of institutional controls.

2.10.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment 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 ICs. The concentrations of DRO, RRO, and TCE at SS006 are above ADEC soil cleanup levels, indicating a potential threat to human health.

With exception to the No Action alternative, the alternatives are considered protective of human health and the environment at SS006. The Excavation and Offsite Disposal alternative would remove contaminated soils and ship them offsite to a permitted facility for land disposal, while the ICs alternative would prevent contact with site contamination.

2.10.2 Compliance with Applicable or Relevant and Appropriate Requirements

Section 121 (d) of CERCLA and NCP §300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites must, at a minimum, meet legally applicable or relevant and appropriate federal and state requirements, standards, criteria, and limitations which are collectively referred to as "ARARs," unless such ARARs are waived under CERCLA Section 121(d)(4). These ARARs meet the applicable Alaska State law requirements.

Applicable requirements refer to the cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility citing laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. State standards that are identified by the State in a timely manner, and that are more stringent than federal requirements, may be applicable.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility citing laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site (relevant) that their use is well-suited (appropriate) to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.

Compliance with ARARs addresses whether a remedy will meet all of the ARARs of other federal and state environmental statutes, or provides a basis for invoking a waiver.

The No Action alternative is not compliant with ARARs or Alaska State laws. The Excavation and Offsite Disposal and IC alternatives are compliant with ARARs and Alaska State laws.

2.10.3 Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain onsite following remediation and the adequacy and reliability of controls.

The No Action alternative would have below average effectiveness or permanence at SS006. With the Excavation and Offsite Disposal alternative, no contamination would remain onsite above applicable cleanup levels. The ICs alternative has average long-term effectiveness and permanence, because contaminants would remain onsite but pathways would be curtailed.

2.10.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy. The No Action alternative would not treat, remove, or immobilize contamination at SS006. The Excavation and Offsite Disposal alternative does not have any treatment component. The ICs alternative does not have any treatment component that would prevent human exposure to contaminants; instead, this alternative relies on administrative requirements to prevent exposure. In summary, none of the alternatives would reduce the toxicity, mobility, or volume of contamination through treatment.

2.10.5 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement a remedy and any adverse impacts that may be posed to workers, the community, or the environment during construction and operation of the remedy until cleanup levels are achieved.

Although the No Action alternative would not achieve a site remedy at SS006, it would not expose workers to adverse impacts. The Excavation and Offsite Disposal alternative poses short-term concerns regarding the potential for human exposure during excavation and onsite management of excavated soils, and the potential environmental impact from shipping contaminated soils offsite. However, risks to site workers can be minimized with use of proper personal protective equipment and safety procedures. This alternative would achieve the site RAOs in a single field season, and is therefore rated better than average. The ICs alternative would have better than average short-term effectiveness since no risk would be posed to workers and the ICs would be in place upon signing of the ROD.

2.10.6 Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability of services and

materials, administrative feasibility, and coordination with other governmental entities are also considered.

The No Action alternative has no technical obstacles, but administrative constraints would affect implementability. Due to the remote nature of SS006, the logistical constraints involved with implementing removal and offsite disposal include shipping contaminated soils from an island to a permitted facility for land disposal. However, the Excavation and Offsite Disposal alternative can be completed using known and proven technologies and techniques. The ICs alternative has no technical obstacles, but will require period monitoring and may be problematic to enforce.

2.10.7 Cost

There are no costs associated with the No Action alternative, but this alternative would not achieve RAOs for SS006. The cost of the ICs alternative would be high despite the low intensity aspects of conducting site visits and surveys, due to the length of time these ICs may need to be in place. The cost of the Excavation and Offsite Disposal alternative would be high given the volume of contaminated soil and the cost of excavation and shipping the soil to a permitted facility for land disposal.

2.10.8 State/Support Agency Acceptance

ADEC has expressed its support for the Excavation and Offsite Disposal alternative. ADEC does not support the No Action alternative, and ADEC support of the ICs alternative would depend on landowner concurrence and community acceptance. Air Force responses to ADEC comments are provided in **Appendix C**.

2.10.9 Community Acceptance

During the public comment period, the community did not express support for any of the alternatives. However, the proposed alternative, Excavation and Offsite Disposal, did not receive any negative feedback from the community. The ICs alternative could be hindered by the unwillingness of the Bureau of Land Management to convey the property with contamination remaining in place.

2.11 PRINCIPAL THREAT WASTES

The NCP expects that treatment that reduces the toxicity, mobility, or volume of the principal threat wastes will be used to the extent practicable. The principal threat concept refers to the source materials at a CERCLA site considered highly toxic, or highly mobile, that generally cannot be reliably controlled in place or present a significant risk to human health or the environment should exposure occur. A source material is material that contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air, or that acts as a source for direct exposure. No principal threat wastes are present at SS006.

2.12 SELECTED REMEDY

The primary indicator of remedial action performance will be satisfying the site RAOs and protecting human health and the environment. Remedy selection is based on detailed evaluation of remedial alternatives proposed in the FS (USAF, 2003). It is expected that the remedy will remain in effect for as long as site contaminants pose an unacceptable risk to residents by exposure to contaminants above ADEC Method Two cleanup levels.

The Air Force has selected Excavation and Offsite Disposal as the remedy for ERP Site SS006. This remedy, along with ICs on groundwater and periodic monitoring of the groundwater downgradient of the site until the groundwater contaminant plume(s) is at a steady state or shrinking and contaminant concentrations are decreasing for three consecutive monitoring events, will satisfy CERCLA and State of Alaska regulations, because after the full natural attenuation of TCE in groundwater, contaminants would not remain onsite above 18 AAC 75 cleanup levels.

2.12.1 Summary of the Rationale for the Selected Remedy

The Air Force has determined that the selected remedy meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria:

- Threshold criteria:
  - Protection of human health and environment.
  - Compliance with ARARs.

- Balancing criteria:
  - Long-term effectiveness and permanence.
  - Toxicity, mobility, or volume reduction through treatment.
  - Short-term effectiveness.
  - Implementability.
  - Cost.
- Modifying criteria:
  - State agency acceptance.
  - Community acceptance.

A comparative analysis among alternatives for SS006 found the Excavation and Offsite Disposal alternative described in Section 2.10 to be the best option for addressing contaminants present at the site.

The selected remedial alternative of Excavation and Offsite Disposal, with ICs and groundwater monitoring, is the most readily implementable approach to reduce the risk posed by contaminated soils and, therefore, provides the best balance of tradeoffs with respect to balancing and modifying criteria. Given the remote location of SS006, excavation and offsite transport for disposal at a permitted facility provides superior flexibility, feasibility, and short-term effectiveness relative to in-situ treatment. The No Action alternative was rejected because it failed to meet the threshold criteria of protection of human health and the environment, and compliance with ARARs. Due to the length of time associated with ICs as a stand-alone remedy, the costs would be higher than Excavation and Offsite Disposal activities. Excavation and Offsite Disposal has a better than average rating for long-term effectiveness and permanence, and implementability (Table 2-1).

The ICs will reduce human or environmental exposure to contamination, and prevent activities that may result in increased exposure or spread the extent of contamination. No source materials constituting principal threats exist at SS006. The Air Force will establish ICs in coordination with Chaluka Corporation and in accordance with State of Alaska contaminated site regulations (18 AAC 75). The major components of the ICs include:

- Prepare a property description for the ICs suitable for recording purposes, based on the area described as Tract 39A.

- Document the ICs at the District Recorder's office, including a location map and property description.
- Require notification to ADEC for approval prior to commencing any surface excavation or digging activities within the boundaries of Tract 39A, as required by State of Alaska regulations in 18 AAC 75.325(i).
- Conduct 5-year reviews of the remedy as required by CERCLA Section 1221, since hazardous substances will remain onsite at levels above applicable State of Alaska 18 AAC 75.345 Table C for groundwater; and report on the effectiveness of the ICs.

As part of this remedy, post-excavation groundwater monitoring will continue once a year until the groundwater contaminant plumes are at a steady state, or shrinking, and contaminant concentrations are decreasing, for three consecutive monitoring events. In summary, the Air Force is responsible for implementing, maintaining, monitoring, and reporting on the ICs. In the future, while the Air Force may transfer these procedural responsibilities to the landowner or another party by contract, agreement, or through other means, the Air Force will retain ultimate responsibility for remedy implementation and protectiveness.

The ICs established by CERCLA at SS006 will remain in effect until the COCs at the site are below applicable 18 AAC 75 cleanup levels and ADEC approval is received. In addition, it is anticipated that CERCLA will require 5-year reviews as long as hazardous substances remain in place at SS006 above levels allowing for unlimited use and unrestricted exposure. A report will be provided after each monitoring event.

The Air Force will be responsible for implementing, monitoring, and maintaining the ICs in accordance with State of Alaska Regulations. The Air Force will also provide periodic monitoring reports to ADEC. If the remedy at SS006 is found to be deficient during an inspection, ADEC will be contacted and further corrective action will be planned. ADEC will be notified if the property subject to ICs is transferred, or if any significant changes are made to the use and activity restrictions of the ICs. There are currently no tenants, contractors, or occupants within the property subject to ICs.

2.12.2 Description of the Selected Remedy

The selected remedy for SS006 is Excavation and Offsite Disposal of DRO-, RRO-, and TCE-contaminated soil, along with ICs on groundwater and groundwater monitoring. The Air

Force will be responsible for implementing, maintaining, monitoring, reporting, and enforcing the remedial actions identified for the duration of the remedy selected in this Decision Document. No source materials constituting principal threats exist at SS006. Specific elements of the selected remedy include:

- Excavation of DRO-, RRO-, and TCE-contaminated soils and transport offsite for disposal at an approved facility.
- DRO-, RRO-, and TCE-contaminated soils exceeding the cleanup levels in 18 AAC 75 would be excavated, containerized, and shipped offsite to a permitted facility for land disposal.
- The soil would be placed in containers meeting the requirements of the DOT Hazardous Materials Regulations at 49 CFR 171 through 180.
- As part of this remedy, post-excavation groundwater monitoring will continue once a year until the groundwater contaminant plume(s) is at a steady state, or shrinking and contaminant concentrations are decreasing, for three consecutive monitoring events.

The estimated volume of soil to be excavated at SS006 is approximately 200 cubic yards. Clean fill will be utilized to backfill the site following excavation of contaminated soils.

The Air Force will implement, monitor, maintain, and enforce the ICs identified below in accordance with State of Alaska 18 AAC 75.375 Institutional Controls (ADEC, 2012). The 611th Civil Engineering Squadron will be the point of contact for ICs. The major components of the selected response action will be implemented to restrict current and future access or exposure to contaminated groundwater at SS006. The following proposed ICs will be implemented:

- **Resource Uses, Risk Exposure Assumptions, and Risks Necessitating the ICs.** To assess the need for ICs, contamination present at SS006 was assessed for exposure to remaining site contaminants. Due to the TCE in groundwater that will remain onsite after excavation of soils, ICs will be necessary to restrict use and access to the groundwater.
- **Performance Objectives and Duration.** ICs will be put in place in order to: prevent access or use of the groundwater until cleanup levels are met; maintain the integrity of any current or future remedial or monitoring system, such as monitoring wells; and prohibit the development and use of property for residential housing, elementary and secondary schools, or child care facilities and playgrounds. The ICs will be maintained

until the concentration of hazardous substances in the groundwater plume is shown to be at a steady state, or decreasing, per ADEC concurrence.

- **Description of ICs and Performance Responsibilities.** The specific mechanisms for achieving the performance objectives are:
  - The installation construction review process will prevent damage to existing monitoring wells.
  - All ROD use limitations and exposure restrictions will be entered in the 611th Land Use Control Management Plan and the Geographical Information System.
  - The installation Environmental Impact Analysis Process will be used to assess the potential environmental impact of any action proposed at the site.

  These mechanisms will be implemented and overseen by the 611th Civil Engineer Squadron. The Air Force is responsible for implementing, maintaining, monitoring, reporting and enforcing ICs. The Air Force is obligated to inform, monitor, enforce and bind, where appropriate, authorized lessees, tenants, contractors and other authorized occupants of the site of ICs impacting the site.

- **Location and Notice of Environmental Contamination.** The Nikolski RRS comprehensive map and 611th Land Use Control Management Plan will be updated to show the boundaries of SS006 to restrict excavation of soil, as well as to prevent access to groundwater. As part of the update to the Plan, the Air Force will produce maps showing locations of the residual contamination, and will provide these maps to ADEC. The Plan will contain a map indicating site location, with restrictions on any invasive activities that could potentially result in exposure of contaminants. The ICs will be documented in the Air Force Real Property Records, Nikolski RRS General Plan, and 611th Installation Restoration Program (IRP) Records. This will include: information about current land uses and allowed uses (prohibiting future residential land use), geographic boundaries of the ICs, an inspection of the site, and submittal of performance reports. A Notice of Environmental Contamination will be placed in the Alaska Department of Natural Resources' land records.

- **Notification of Transfers and Corrective Measures.** Timely notification to ADEC of planned transfers, to include federal-to-federal transfers, of property subject to ICs. The Air Force must provide notice to ADEC at least six (6) months prior to any transfer or sale of property containing ICs so that ADEC can be involved in discussions to ensure that appropriate provisions are included in the transfer or conveyance documents to maintain effective ICs. If it is not possible for the facility to

notify ADEC at least 6 months prior to any transfer or sale, then the facility will notify ADEC as soon as possible, but no later than 60 days prior, to the transfer or sale of any property subject to ICs. The Air Force agrees to provide ADEC with such notice, within the same time frames, for federal-to-federal transfer of property accountability. The Air Force will provide either access to or a copy of the executed deed or transfer assembly to ADEC.

The Air Force will also notify ADEC of any violation of the ICs or any other activity that is inconsistent with the ICs or IC objectives, as well as any obstacles to correcting the same. The Air Force will notify ADEC as soon as practicable, but no longer than 10 days after discovery, of any activity that violates or is inconsistent with the IC objectives or use restrictions, or any other action that may interfere with the effectiveness of the ICs. The Air Force will take prompt measures to correct the violation or deficiency and prevent its recurrence. In this notification, the Air Force will identify any corrective measures it has taken or any corrective measures it plans to take and the estimated time frame for completing them. For corrective measures taken after the notification, the Air Force will notify ADEC when the measures are complete.

- **Monitoring, Reporting, and Concurrence.** The Air Force will follow the 611th Land Use Control Management Plan to receive ADEC approval for site activities. The Air Force will also include the IC provisions contained in this ROD into the 611th Land Use Control Management Plan. The Air Force will monitor and inspect all site areas subject to ICs and submit a performance and groundwater monitoring report to ADEC every year, for the first 5 years after the date of the signed Decision Document, followed by a 5-year review. The Air Force will also submit a long-term monitoring sampling plan and subsequent sampling reports to ADEC for approval prior to removal of ICs. The Air Force will not modify or terminate ICs or modify land uses that may impact the effectiveness of the ICs or take any anticipated action that may disrupt the effectiveness of the ICs, or any action that may alter or negate the need for ICs, without seeking and obtaining approval and/or review and comment from ADEC 45 days prior to the change of any required ROD modification.

The ICs established in accordance with the State of Alaska regulations will remain in effect, along with 5-year review requirements, until the groundwater contamination plume is shown to be steady or decreasing, at which point the ICs can be eliminated.

2.12.3 Summary of Estimated Remedy Costs

The estimated cost elements of the remedy are:

- Estimated Capital Cost $2,200,000
- Estimated Annual Overhead and Maintenance Cost $135,000
- Estimated Present Worth Cost **$2,335,000**

The information in this cost estimate summary 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 using a technical memorandum in the Administrative record, an Explanation of Significant Difference, or ROD 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.

2.12.4 Expected Outcomes of Selected Remedy

Upon completion of the selected remedy, Nikolski RRS ERP Site SS006 will be in compliance with CERCLA and the State of Alaska environmental statutes. No contamination above ADEC Method Two soil cleanup levels identified in 18 AAC 75.341 will remain onsite. Contamination above ADEC Table C groundwater cleanup levels will remain onsite. Refer to Tables 1-1 and 1-2 for COCs and concentrations. However, the ICs will limit human exposure to contaminants onsite and promote the safety of human health and the environment. The ICs will become effective immediately upon implementation of the ICs. The location of the ICs will be documented according to surveys already completed and will be recorded in the Anchorage Recorder's office under the Aleutian Islands Recording District.

2.13 STATUTORY DETERMINATION

Under CERCLA §121 (as required by NCP §300.430(f)(5)(ii)), the lead agency must select a remedy that is protective of human health and the environment, complies with ARARs, is cost-effective, and uses permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, periodic 5-year reviews are required if, after the remedy, hazardous substances will remain in place above levels allowing for unlimited use and unrestricted exposure. CERCLA also includes:

1) a preference for remedies that employ treatment which permanently and significantly reduces the toxicity, mobility, and volume of hazardous wastes as a principal element; and 2) a bias against offsite disposal of untreated wastes. The following sections discuss how each selected remedy meets these statutory requirements.

2.13.1 Protection of Human Health and the Environment

Current contaminant concentrations at SS006 pose a potential risk to human health due to the potential contact with DRO-, RRO-, and TCE-contaminated soil and TCE-contaminated groundwater. Under the selected remedy, Excavation and Offsite Disposal of soil will remove the contaminated soil from Nikolski RRS. Long-term monitoring and ICs will be used to protect human health and the environment. Implementation of the selected remedy will not pose unacceptable short-term risks or cross-media impacts.

2.13.2 Compliance with Applicable or Relevant and Appropriate Requirements

Remedial actions must comply with both federal and state ARARs. ARARs are legally applicable or relevant and appropriate requirements, standards, criteria, or limitations of federal and state environmental laws and regulations.

ARARs fall into three categories: chemical-specific, location-specific, and action-specific. *Chemical-specific* ARARs are health-based or risk management-based numbers that provide concentration limits for the occurrence of a chemical in the environment at agreed-upon points of compliance. *Location-specific* ARARs restrict activities in certain sensitive environments. *Action-specific* ARARs are activity-based or technology-based, and typically control remedial activities that generate hazardous wastes (such as those covered under the Resource Conservation and Recovery Act [RCRA]). Offsite shipment, treatment, and disposal of excavated contaminated soil invoke action-specific ARARs. Criteria to be considered (TBC), are non-promulgated advisories or guidance issued by federal or state government that are not legally binding and do not have the status of potential ARARs. However, in many circumstances, TBCs are considered along with ARARs. **Table 2-2** summarizes the ARARs for the selected remedy at SS006 and describes how the selected remedy addresses each one at agreed-upon points of compliance.

Table 2-2 Description of ARARs and TBCs

Type	Medium	Authority	Requirement	Synopsis of Requirement	Status	Action to be Taken to Attain Requirement
Chemical-Specific	Soil	State Regulatory Requirement	State of Alaska Method Two Cleanup Criteria Title 18 AAC 75.341, Tables B2 and B2 Title 18 AAC 75.345, Table C	Provides cleanup levels for specific contaminants.	Applicable	The selected remedy will comply with these regulations through the removal of contaminated soil from the site and monitoring of groundwater.
		Federal Regulatory Requirement	40 CFR 761	Provides federal regulations on sampling and analytical protocols.	Applicable	The selected remedy will comply with these regulations through the use of an approved project QAPP and SAP.
Location-Specific	Wetlands	Federal Regulatory Requirement	Clean Water Act Section 404 40 CFR 230 33 CFR 320-330 40 CFR 6, Appendix B	Requires consideration of impacts to wetlands in order to minimize their destruction or degradation and to preserve/ enhance wetland values. Applicable to activities that would impact wetlands.	Applicable	If wetlands are encountered, the selected remedy will comply with these regulations during remedy implementation.
	N/A	Federal Regulatory Requirement	Endangered Species Act 16 USC 1531, 50 CFR 402	Established requirements for the protection of federally listed threatened and endangered species. Potentially applicable to activities that could affect threatened or endangered species or their habitat.	TBC	The selected remedy will not impact endangered or threatened species in the area.

Table 2-2 (Cont.) Description of ARARs and TBCs

Type	Medium	Authority	Requirement	Synopsis of Requirement	Status	Action to be Taken to Attain Requirement
Action-Specific	N/A	Federal Regulatory Requirement	Migratory Bird Treaty Act of 1972 (16 USC 703-712) 50 CFR, Parts 10, 20, and 21 Bald Eagle and Golden Eagle Protection Act (16 USC 668-668d)	Requires that federal agencies examine proposed actions relative to species impacts pertaining to habitat losses or losses of individual birds. Requires protection of most species of native birds in the U.S. from unregulated "take", which can include poisoning at waste sites.	Applicable	The selected remedy will not impact migratory bird routes.
	N/A	Federal Regulatory Requirements	40 CFR 761	EPA Spill Cleanup Policy. Storage and disposal requirements.	Applicable	All work completed in implementing the selected remedy will comply with these regulations and be enforced by a Quality Control Manager.
		State Regulatory Requirement	18 AAC 75 – Alaska Oil and Hazardous Substances Pollution Control Regulations 18 AAC 60 – Solid Waste Management			

Key:
AAC – Alaska Administrative Code
ARAR – applicable or relevant and appropriate requirements
CFR – Code of Federal Regulations
EPA – U.E. Environmental Protection Agency
N/A – not applicable
QAPP – Quality Assurance Project Plan
SAP – Sampling and Analysis Plan
TBC – To Be Considered
USC – United States Code

The selected remedy for SS006 complies with the chemical-specific, location-specific, and action-specific ARARs. The selected remedy does not require waivers for any ARARs. The implementation of the remedy is required to meet the substantive portions of these requirements at agreed-upon points of compliance and is exempt from administrative requirements – such as permitting and notifications.

2.13.3 Cost Effectiveness

In the judgment of the Air Force, the selected remedy is cost-effective and represents a reasonable value for the money to be spent. In making this decision, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness" (40 CFR 300.430(f)(1)(ii)(D)). 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). The relationship of the overall effectiveness of the selected remedy was determined to be proportional to its cost and, therefore, represents a reasonable value for the money to be spent.

2.13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The proposed remedy represents a permanent solution to address contamination at SS006. Once the criteria listed in the RAOs are attained, no additional actions will be required. In development of the Nikolski FS (USAF, 2003), use of alternative treatment technologies was evaluated. Technologies considered included landfarming, thermal treatment, and bioventing. Due to the remote nature and prevailing site conditions, the use of alternative treatment technologies was not considered practical.

2.13.5 Preference for Treatment as a Principal Element

The NCP establishes the expectation that treatment will be used to address the principal threats posed by a site wherever practicable (40 CFR 300.430(a)(1)(iii)(a)). Both the selected remedy and the remedial process at SS006 were focused on treatment of principal site threats. The selected remedy for SS006 does not satisfy the statutory preference for treatment as a principal element of the remedy, but is preferred because of the greater constraints to implementability.

2.13.6 Five-Year Review Requirements

CERCLA 5-year reviews will be conducted for SS006 until the groundwater plume is shown to be steady or decreasing.

2.14 DOCUMENTATION OF SIGNIFICANT CHANGES

Since the final determination of the proposed action specified in the Proposed Plan for ERP Site SS006, requirements for ICs for groundwater and CERCLA 5-year reviews have been added to the site remedy of Excavation and Offsite Disposal.

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PART 3. RESPONSIVENESS SUMMARY

The Proposed Plan and supporting documents for ERP Site SS006 were made available to the public in September 2012 (USAF, 2012), and the public review and comment period for this proposed plan was 25 September to 25 October 2012. A public meeting was held on the proposed plan for SS006 on 4 October 2012. This section provides a summary of the public comments regarding the Proposed Plan for remedial action at ERP Site SS006 at Nikolski RRS.

3.1 2012 PUBLIC INVOLVEMENT

3.1.1 October 2012 Public Meeting

No public comments were received by the Air Force at the public meeting for SS006.

3.1.2 Public Comment Period

No oral or written comments were received on the Proposed Plan for SS006 from the public during the public comment period that ended on 25 October 2012.

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PART 4. REFERENCES

Alaska Department of Environmental Conservation (ADEC). 2000. Installer's Manual for Conventional Onsite Domestic Wastewater Treatment and Disposal Systems.

ADEC. 2012. Oil and Other Hazardous Substances Pollution Control. 8 April.

U.S. Air Force (USAF). 1988. Nikolski RRS 1988 Site Demolition binder obtained from 611th CES archives. The binder contains an informal collection of historical documents including photographs, the after action report dated 21 June 1988, and daily logs from the site demolition.

USAF. 1994. Preliminary Assessment, Nikolski, Alaska. January.

USAF. 1995. Final Preliminary Assessment/Site Inspection, Radio Relay Station, Nikolski, Alaska. Prepared for USAF 611th Air Support Group, 611th Civil Engineer Squadron, JBER. November.

USAF. 1996. Addendum to the Final Preliminary Assessment/Site Inspection, Radio Relay Station, Nikolski, Alaska, Umnak Island. Prepared for USAF 611th Air Support Group, 611th Civil Engineer Squadron, JBER. June.

USAF. 1997a. Management Action Plan, Nikolski Radio Relay Station, Alaska. Prepared for USAF 611th Air Support Group, 611th Civil Engineer Squadron, JBER. November.

USAF. 1997b. Transportation and Disposal Plan, Nikolski Drum Removal, Nikolski, Alaska. Prepared for USAF 611th Air Support Group, 611th Civil Engineer Squadron, Elmendorf AFB. October.

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USAF. 2000. Site Investigation, Nikolski RRS, Alaska. Prepared for USAF 611th Air Support Group, 611th Civil Engineer Squadron, JBER. June.

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USAF. 2002b. Supplemental Remedial Investigation for Sites AOC07 and SS004, Nikolski RRS, Alaska. Final. Prepared for USAF 611th Air Support Group, 611th Civil Engineer Squadron, JBER. October.

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USAF. 2010. Site Investigation Report for SS005: Runway Lighting Vault UST, Final. March.

USAF. 2012. Proposed Plan for Site SS006: Former Drum Storage Area, Final. September.

APPENDIX A

Site Photographs

Photo 1. Site SS006 – View toward North

Photo 2. Site SS006 – View toward Southwest

Photo 3. Site SS006 – View toward Southwest

Photo 4. Site SS006 – View toward West

Photo 5. Site SS006 – View toward Northwest

Photo 6. Site SS006 – View toward Southwest

Photo 7. Site SS006 – Overview of site looking Northwest

Photo 8. SS006 – Overview of site looking North

APPENDIX B

ADEC Groundwater Determination Letter

APPENDIX M

350 Determinations

INTRODUCTION

In accordance with 18 Alaska Administrative Code (AAC) 75.350, groundwater is considered to be a drinking water source unless (1) a responsible person demonstrates or the department determines that the water is not a current or reasonably-expected future source of drinking water and (2) the groundwater affected by the hazardous substance will not be transported such that it impacts a current or reasonably-expected future source of drinking water. In accordance with 18 AAC 75.345(b)(2), if groundwater is not a suitable source of drinking water, then the applicable groundwater cleanup level is ten times the groundwater cleanup levels listed in Table C, and the soil cleanup level for the migration to groundwater exposure pathway is ten times the concentrations listed under Method Two. The purpose of this appendix is to demonstrate that a 350 Determination is applicable to some of the sites at the Nikolski Radio Relay Station (RRS).

Sites at the Nikolski RRS are spread out over a distance of two miles. Across this area there are marked differences in the presence of groundwater, lithology, slope, and reasonably-expected future land use. Because of these differences, a single 350 Determination would not be applicable to the facility as a whole, and it was necessary to consider distinct areas (groups of sites) to determine the applicability of a 350 Determination.

The first area includes the sites at the top of High Hill:

- OT-001: composite building and White Alice arrays
- AOC-08: composite building septic tank and outfall
- AOC-09: two 20,000-gallon storage tanks
- WP-007: petroleum, oil, and lubricants (POL) outfall area

The second area includes the uplands between where the site access road leaves the shoreline and where it reaches the top of High Hill. This area includes the following site:

- SS-003: POL pipeline (upland portion only)

The third area lies along the shoreline and includes the following site:

- SS-003: POL pipeline (portion along shoreline from gate valve 2 to the upland portion)

The fourth area includes the following site:

- SS-006: former drum storage area

With the exception of the portion of SS-003 that lies along the shoreline, the applicability of a 350 Determination is considered separately for each of these areas in the tables below. The tables present each of the criteria required under 18 AAC 75.350, an explanation of how the criteria applies to the area, and detailed remarks.

For the portion of SS-003 that lies along the shoreline, the case for a 350 Determination is more clear-cut and rests on three facts:

- No groundwater was detected in the area.
- Even if groundwater were to be present, it would be impacted by salt water intrusion.
- The area is not appropriate for construction.

Based on these facts, it is clear that the area is not a current or reasonably-expected future source of groundwater. Any mobile contamination that may be present in this area will tend to migrate toward salt water and will not migrate toward any drinking water source. This portion of the POL pipeline lies in a thin strip of land between the Bering Sea to the west and a series of cliffs to the east. Fourteen soil borings were advanced in this area, and no groundwater was encountered in any of the borings. The area is also strewn with large logs and commercial fishing tackle, both of which were sea-borne debris deposited during storm tides. The same waves that deposited this material also left behind a residue of salt that prevents any groundwater that may be present in the area from being used for drinking water. Finally, as demonstrated by the size of the logs present, future storm tides will be capable of damaging or destroying any structures built at the site.

Protection of Marine Waters at the Former Drums Storage Area and the POL Pipeline. The protection of marine waters is required under 18 AAC 70, which states, "Individual substances may not exceed criteria in EPA *Quality Criteria for Water*," also known as the

ambient water quality criteria (AWQC). Based on the proximity of Nikolski Bay to the former drum storage area (SS-006) and the POL pipeline (SS-003), demonstration of the protection of marine waters will be required at these sites.

At the former drum storage area, analytical results from monitoring wells SS6-MW04 and SS6-MW05—which are located between the area in which drums were stored and Nikolski Bay—were compared to the AWQC for marine surface waters (as well as Alaska Department of Environmental Conservation [ADEC] groundwater standards). Because the results were below these criteria and because of the rapid mixing of waters that occurs at the edge of the bay, it is concluded that Nikolski Bay will not be adversely impacted by contaminants from the former drum storage area.

Although protectiveness is generally demonstrated through analytical results, for the POL pipeline (SS-003) this is impractical for the following reasons: (1) No water was found in any of the 14 borings advanced. Given the geology at the site, there is probably never enough groundwater there to sample. (2) The ground surface at the site drops off rapidly at the edge of the bay. There are only large rocks beyond the drop-off, nothing small enough to use to collect a sediment sample. (3) During most tides, the waters of Nikolski Bay do not come close enough to the site to make collection of a sample possible. The powerful mixing that takes place in this zone would rapidly dilute any contaminants that might make it that far. The low mobility of the contaminants present at the site (diesel-range organics [DRO] and residual-range organics [RRO]) and the long period of time since discharge were also be taken into account in determining that the contamination at SS-003 is not likely to pose a threat to marine waters.

SS-006: Former Drum Storage Area
Considerations for 350 Determination

The State of Alaska *Oil and Other Hazardous Substances Pollution Control* regulations (18 AAC 75.350) state that groundwater is not a source of drinking water so long as the criteria established by the Department of Environmental Conservation are met. It is the intent of this matrix to demonstrate that the criteria set forth in 18 AAC 75.350 are met at SS-006, the former drum storage area.

18 AAC 75.350 Criteria	Application to SS-006	Remarks
Subject to 18 AAC 75.345(c), groundwater at the site is considered to be a drinking water source unless a responsible person demonstrates or the department determines that ***(1) the groundwater is not***		
(A) used for a private or public drinking water system;	• Groundwater in the vicinity of SS-006 is not used for a private or public drinking water system.	• There are no groundwater wells of any sort in the area. • There are no private or public drinking water systems in the area.
(B) within the zone of contribution of an active private or public drinking water system; or	• Groundwater in the area is not directly within the zone of contribution of an active private or public drinking water system.	• The SS-006 site is located approximately 250 feet from the high tide line on the shore of Nikolski Bay. • Data collected at the site indicate that groundwater at the site generally flows toward the bay.
(C) within a recharge area for a private or public drinking water well, a wellhead protection area, or a sole source aquifer;	• Groundwater at SS-006 is not within the recharge area for a private or public drinking water well, a wellhead protection area, or a sole source aquifer.	• The public water supply for the village of Nikolski is southwest of the village, approximately 1 air mile from this area.
Subject to 18 AAC 75.345(c), groundwater at the site is considered to be a drinking water source unless a responsible person demonstrates or the department determines that ***(2) the groundwater is not a reasonably-expected potential future source of drinking water, based on an evaluation of***		

SS-006: Former Drum Storage Area
Considerations for 350 Determination

18 AAC 75.350 Criteria	Application to SS-006	Remarks
(A) the availability of the groundwater as a drinking water source, including depth to groundwater, the storativity and transmissivity of the aquifer, the presence of permafrost, and other relevant information;	• The layer of groundwater found at SS-006 is both thin and discontinuous.	• A thin layer of groundwater was encountered on top of bedrock across a portion of the site. However, of the 10 soil borings constructed at SS-006, only two encountered sufficient groundwater to allow for the construction of monitoring wells. • Bedrock was encountered at depths ranging from 1.5 to 5 feet. • The water column heights at the two monitoring wells were 3.67 feet and 3.65 feet. • It appears that the immediate area surrounding the two monitoring wells is a slight depression in the surface of bedrock that collects local groundwater, when it is present. • Both monitoring wells showed little draw down during well development. • Site data indicate that the depth of groundwater present may change significantly over time and that extraction wells may pump dry.
(B) actual or potential quality of the groundwater, including organic and inorganic substances, and as affected by background, saltwater intrusion, and known or existing areawide contamination;	• Data collected from the two monitoring wells generally indicates the groundwater may be of sufficient quality to be used as drinking water.	• Chloride concentrations detected were 62.6M and 85.5M mg/L, compared to a secondary drinking water standard of 250 mg/L. • Sulfate concentrations detected were 13M and 17.3M mg/L, compared to a secondary drinking water standard of 250 mg/L. • Following purging, turbidity at both wells was relatively low: 18.1 and 15.7 NTU. Soils encountered in the area generally consist of a layer of peat on top of a layer of andesite rubble on top of andesite bedrock. • Because of the shallow nature of the

18 AAC 75.350 Criteria	Application to SS-006	Remarks
		aquifer, filtration and disinfection would likely be required to provide water of a quality sufficient for drinking.
(C) the existence and enforceability of institutional controls described in 18 AAC 75.375 or municipal ordinances or comprehensive plans that either prohibit or limit access to the groundwater for use as drinking water;	• Institutional controls will be considered as part of remedial alternatives during the feasibility study.	• There are no structures in the vicinity of SS-006.
(D) land use of the site and neighboring property, using the factors in EPA's *Land Use in the CERCLA Remedy Selection Process*, adopted by reference in 18 AAC 75.340;	• Surrounding land is unoccupied and will likely remain as such in the foreseeable future.	• OSWER Directive No. 9355.7-04, *Land Use in the CERCLA Remedy Selection Process* (http://www.epa.gov/superfund/resources/landuse.pdf) was reviewed and evaluated with respect to Nikolski. • As discussed in the cited directive, a variety of factors must be considered in determining future land use including current land use, accessibility of the site to existing infrastructure, and proximity of the site to a floodplain. • Currently, there are no structures in the vicinity of SS-006. • A lack of existing infrastructure would make development of the site cost-prohibitive. There is no infrastructure for electricity, natural gas, telephones, drinking water, or septic at the site. • Based on the distribution of sea-borne debris, most of the site appears to be above the storm tide line. However, any subterranean structures would be subject to flooding. It is believed that it would not be possible to secure a loan to construct a building in the area due to the threat of flooding. • The site is directly in line with the runway,

18 AAC 75.350 Criteria	Application to SS-006	Remarks
		and construction in the area could be prohibited due to the presence of the runway.
(E) the need for a drinking water source and the availability of an alternative source; and	• No need for a permanent drinking water source in the vicinity of SS-006 has been identified.	• Based on current and projected future land use, development of the area is considered unlikely. • The village of Nikolski has adequate drinking water resources to meet its needs.
(F) whether the groundwater is exempt under 40 CFR 146.4, revised as of July 1, 1997, and adopted by reference; and	• The site is not exempt under the cited regulation.	• None of the exemptions listed in 40 CFR 146.4 appears to be applicable.
Subject to 18 AAC 75.345(c), groundwater at the site is considered to be a drinking water source unless a responsible person demonstrates or the department determines that ***(3) the groundwater affected by the hazardous substance will not be transported to groundwater that is a source of drinking water, or that is a reasonably expected potential future source of drinking water, in concentrations in the receiving groundwater that exceed the groundwater cleanup levels; in reviewing the demonstration required under this paragraph, the department will consider***		
(A) the areal extent of the affected groundwater;	• Both monitoring wells contained low concentrations of TCE below MCLs set to protect human health.	• The extent of contaminated groundwater is confined by the limited extent of groundwater present at the site.
(B) the distance to any existing or reasonably anticipated future water supply well;	• The only known drinking water well on the eastern end of Umnak Island is the water supply well for the village of Nikolski.	• Drinking water for the village of Nikolski comes from a community water supply. Water is pumped from a seep, which is located approximately 1 air mile from the site. • Year round population in the village is stable or decreasing, as evidenced by the number of unoccupied houses. • The existing water supply appears to be sufficient to meet current and future demands for drinking water.

18 AAC 75.350 Criteria	Application to SS-006	Remarks
(C) the likelihood of an aquifer connection due to well construction practices in the area where the site is located;	• Because of the shallow nature of bedrock in the area, well construction practices will not cause an aquifer connection.	• Bedrock was encountered at depths ranging from 1.5 to 5 feet.
(D) the physical and chemical characteristics of the hazardous substance;	• Based on historical data and recent analytical samples, the primary contaminants of concern at the site are fuel-related compounds and TCE.	• Natural degradation of fuel-related compounds, including DRO and RRO, is a well-documented process. • The mobility of fuel-related compounds in the environment is limited. A study of 42 plumes of fuel-related compounds from leaky USTs found the average plume length to be only 213 feet long, far shorter than the lengths of plumes created by other types of contaminants (Newell and Connor, API). • When dissolved in groundwater, TCE is highly mobile. Analysis of the available data, including the organic carbon – water partitioning coefficient for TCE, the distribution of groundwater at the site, and historical analytical results, indicates that TCE concentrations are rapidly decreasing. In 1997, TCE concentrations as high as 14.5 mg/L were detected in groundwater; the maximum concentration detected in 2001 was 0.0441 mg/L. Although a portion of this decrease may be attributable to different sampling locations and techniques, it is believed that natural attenuation processes have significantly reduced TCE concentrations at the site. The presence of cis-DCE in the groundwater demonstrates that a portion of the decrease in TCE concentrations is due to biodegradation.
(E) the hydrogeological characteristics of the site;	• The layer of groundwater found at SS-006 is both thin and discontinuous.	• Groundwater is limited to a slight depression in the surface of bedrock where local groundwater collects, when it is present.

SS-006: Former Drum Storage Area
Considerations for 350 Determination

18 AAC 75.350 Criteria	Application to SS-006	Remarks
(F) the presence of discontinuities in the affected geologic stratum at the site;	• Bedrock in the area is composed of andesite, an igneous rock. Discontinuities in the bedrock surface appear to be limited to surface fractures. No permeable layers are believed to be present beneath the bedrock surface.	• As evidenced by the distribution of contaminants at the POL outfall area (WP-007) some fractures are present in the andesite bedrock. However, these fractures appear to be surface features that will not allow for long-distance migration of dissolved or non-aqueous phase contaminants. • The bedrock beneath the former drum storage area is composed of shale / mudstone. This sedimentary rock is believed to have formed on top of andesite, prior to uplift of the island. The shale / mudstone is soft compared to the andesite and is composed of layers. Some of the layers in the shale / mudstone may be capable of conducting the flow of water or contaminants. This is not believed to be an important factor for the site, because surrounding features indicate that the shale / mudstone layer is thin. Even if bedding layers below the site are capable of conducting water, and even if they are oriented away from the coastline, the distance that water could travel is limited by the presence of the underlying, impermeable rock.
(G) the local climate;	• Umnak Island has a cold maritime climate characterized by high humidity; considerable cloudiness; frequent fog; and abundant rain, snow, and wind.	• Based on data collected at Dutch Harbor, 100 miles northeast of Nikolski, annual precipitation averages 61 inches. • The area may be subject to periodic flooding due to storm tides.
(H) the degree of confidence in any predictive modeling performed; and	• No predictive modeling was performed for the site.	• The fate and transport attributes of the contaminants present are well understood. • The available data indicate that if contaminants migrate off the site they will discharge to non-potable water sources (Nikolski Bay). Based on the low

18 AAC 75.350 Criteria	Application to SS-006	Remarks
		concentrations of contaminants detected in 2001 and the high degree of mixing that takes place in the intertidal zone, TCE concentrations along the shoreline are expected to be below the detection limit. This was confirmed by sediment samples SS6-SE01, SS6-SE02, and SS6-SE03, all of which were ND for TCE.
(l) other relevant information; the department will request additional information if the department determines that the information is necessary to protect either the environment or human health, safety, or welfare, or. (Eff. 1/22/99, Register 149; am 8/27/2000, Register 155)	• Information will be provided to the ADEC as requested.	Note the following: • Currently, there are no known water supply wells on the western portion of Umnak Island. Historically, drinking water has come from surface water bodies. • The layer of groundwater found at the site is thin and discontinuous. • Natural attenuation of fuel-related compounds is a well-documented and reliable process. The concentration of TCE in the groundwater has decreased sharply since 1997, when a half full drum of chlorinated solvents was removed from the site. • Land use will likely remain unoccupied.

APPENDIX C

Response to Comments

Comments on:
CERCLA Record of Decision: SS006 (Former Drum Storage Area) Nikolski, Draft February 2013

Comment No.	Section	Comment / Recommendation	Response
1.	1.1	Hazard ID is 135	Agree. The hazard ID has been added.
2.	1.3	Pursuant not persuant. Add an explanation for why the groundwater will not require institutional controls.	Agree. The spelling of pursuant has been corrected. ICs have been added to the report as part of the site remedy.
3.	1.4	The remedy should not specify the wells to be sampled and it should include monitoring for the TCE breakdown products. It should also state the groundwater plume will continue until it is at a steady state or decreasing and the contaminant concentrations are decreasing for three consecutive events.	Agree. The text has been modified as requested.
4.	1.5	Five year reviews are required until the groundwater is at unrestricted use.	Agree. The text has been modified to indicate five year reviews will be required.
5.	2.1	The Nikolski Powerhouse Drum Site is Hazard ID 3936, RECKEY 2002250101001 and is on property owned by Chaluka Corp. Nikolski RRS SS-006 Spill/Leak No.6 is Hazard ID 135, RECKEY 198325X918204. Please provide a more generic contact than the PM.	Agree. The Record Key and Hazard ID numbers have been incorporated into this section. The PM has been updated to the current PM. No generic contact information is available.
6.	2.1	In the last sentence Priorities should be capitalized.	Agree. The text has been modified as requested.
7.	2.5.6	Add the extent of the groundwater contamination.	Agree. The following text has been added: “In 1997, nine groundwater samples were collected from nine monitoring wells. TCE was detected in every groundwater sample, ranging from 2.23 mg/L to 14.5 mg/L. GRO and DRO were also detected in most groundwater samples, with GRO ranging from not detected to 4.54 mg/L and DRO ranging from 0.102 mg/L to 14.1 mg/L.“

Comment No.	Section	Comment / Recommendation	Response
8.	2.5.7	The CSM needs to be revised to only discuss SS006	Agree. The CSM will be revised to address the primary source at SS006 as leaks and spills from a drum storage area and to indicate Nikolski Bay is not being adversely impacted by groundwater contamination at SS006.
9.	2.7.3	After "offsite disposal of the contaminated soil" please add and "groundwater monitoring."	Agree. The text has been modified as requested.
10.	2.8	Delete the last sentence, there are no general RAOs.	Agree. The text has been modified as requested.
11.	2.9	The inclusion of the groundwater monitoring to assure the plume is steady state or decreasing is needed.	Agree. The text has been modified as requested.
12.	Table 2-1	The No Action alternative should not have ratings once it is determined not to meet the threshold criteria.	Disagree. The CERCLA criteria are evaluated fully for all alternatives and were presented as such in the Proposed Plan.
13.	2.12	The 2nd paragraph should read: The Air Force has selected Excavation and Offsite Disposal as the remedy for ERP Site SS006. This remedy, along with institutional controls on groundwater and periodic monitoring of the groundwater downgradient of the site until the groundwater contaminant plume(s) is at a steady state or shrinking and contaminant concentrations are decreasing for three consecutive monitoring events, will satisfy CERCLA and State of Alaska regulations, because, after the full natural attenuation of TCE in groundwater, contaminants would not remain onsite above 18 AAC 75 cleanup levels.	Agree. The text has been modified as requested.
14.	2.12.2	The groundwater monitoring must be included in the first sentence.	Agree. The text has been modified as requested.

Comment No.	Section	Comment / Recommendation	Response
15.	2.12.1	The last paragraph should read: The selected remedial alternative of Excavation and Offsite Disposal with ICs and groundwater monitoring is the most readily implementable approach to reduce the risk posed by contaminated soils, and therefore, provides the best balance of tradeoffs with respect to balancing and modifying criteria. Given the remote location of the site, excavation and offsite transport for disposal at a permitted facility provides superior flexibility, feasibility, and short-term effectiveness relative to in-situ treatment. The No Action alternative was rejected because it failed to meet the threshold criteria of protection of human health and the environment, and compliance with ARARs. Due to the length of time associated with ICs as a stand-alone remedy, the costs would be higher than Excavation and Offsite Disposal activities. Excavation and Offsite Disposal has a better than average rating for long-term effectiveness and permanence, and implementability (Table 2-1).	Agree. The text has been modified as requested.
16.	2.12.2	In the first sentence include groundwater monitoring. Please delete the first SS006 in the last paragraph. The statement that no hazardous substances will remain is incorrect, the groundwater is likely to remain contaminated for a while.	Agree. The text has been modified as requested.
17.	2.12.2	The last bullet should read: As part of this remedy, post excavation groundwater monitoring will continue once a year until the groundwater contaminant plumes are at a steady state, or shrinking and contaminant concentrations are decreasing, for three consecutive monitoring events.	Agree. The text has been modified as suggested.
18.	Table 2-2	The Table C groundwater value should be added to the chemical specific.	Agree. The text has been modified as suggested.

Comment No.	Section	Comment / Recommendation	Response
19.	Table 2-2	It seems that these wildlife laws would more appropriately be considered action specific.	Agree. The text has been modified as suggested.
20.	Table 2-2	Add 18 AAC 60 for the soil storage requirements	Agree. The text has been modified as suggested.
21.	2.13.6	Five year reviews will be required until the groundwater plume is shown to be steady or decreasing.	Agree. The text has been modified as suggested.
22.	2.14	Add the requirement for ICs and five year reviews.	Agree. The text has been modified as suggested.
23.	Part 3	There is no need for all of the other sites to be discussed in this section. It is very confusing to talk about the other sites.	Agree. The text has been modified as suggested.