UNITED STATES AIR FORCE
BARTER ISLAND LONG RANGE RADAR STATION, ALASKA

INSTALLATION RESTORATION PROGRAM

DECISION DOCUMENT FOR
OLD DUMP AREA NORTHWEST (LF009)

FINAL

August 2006

Part I
DECLARATION

SITE NAME AND LOCATION

Old Dump Area Northwest (LF009) – Non-CERCLA Site
Barter Island Long Range Radar Station, Alaska
Region X

Barter Island Long Range Radar Station (LRRS) is located adjacent to the village of Kaktovik on the Arctic Coastal Plain at 70°07'49"N latitude and 143°38'03"W longitude (NAD83). The Old Dump Area Northwest is one of 15 sites located at the Barter Island LRRS being addressed under the U.S. Air Force (USAF) Environmental Restoration Program (ERP). The Alaska Department of Environmental Conservation (ADEC) record key (reckey) number is 200331X121303. LF009 is not included in the ADEC contaminated sites database as no contaminants were detected above the risk-based screening criteria. Barter Island LRRS is not listed on the National Priorities List.

LF009 was reportedly used briefly for the disposal of crushed drums and steel from a burned building. The site is less than one acre in size. LF009 is located less than a mile west of the installation at the end of the road, adjacent to the Beaufort Sea at 70°05'49"N latitude, 143°20'54"W longitude. LF009 is not located within the USAF installation; the current landowner is the Kaktovik Inupiat Corporation. Tundra at the sites is typical of the region, with small ponds and well-established vegetation. LF009 is near the mouth of a drainage discharging into the Beaufort Sea.

POINT OF CONTACT

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STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedy for the ERP site Old Dump Area Northwest (LF009). This decision document was developed in accordance with the Defense Environmental Restoration Program, 10 United States Code 2701, consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601 (*et seq.*); Executive Order 12580, 52 Federal Register 2923, and to the extent practicable, with Title 40, Part 300 of the Code of Federal Regulations (CFR): National Oil and Hazardous Substances Pollution Contingency Plan (NCP). Under CERCLA §120(a)(4), cleanup of non-NPL sites must comply with state law. Only specified hazardous substances are covered under these federal laws. At LF009, there were not releases of hazardous substances regulated by CERCLA; therefore, CERCLA is not applicable and cleanup and closure of the site is regulated by state requirements.

This decision is based on the Administrative Record file for this site. The Administrative Record can be accessed by the public by contacting the Community Relations Coordinator at (907) 552-8166 or (800) 222-4137, or at the following web site:
http://www.adminrec.com/PACAF.asp?Location=Alaska

The final decision put forth in this document is also in accordance with the requirements of Title 18, Chapter 75, Article 3, of the Alaska Administrative Code (AAC) Discharge Reporting, Cleanup, and Disposal of Oil and Other Hazardous Substances regulations, Title 18, Chapter 70, Article 1, of the AAC Water Quality Standards, and Title 18, Chapter 60, of the AAC Solid Waste Regulations.

The USAF and the State of Alaska, through the ADEC, agree with the selected no further action remedy. Under the no further action alternative, implementation, monitoring and enforcement of remedies by the USAF are not applicable.

ASSESSMENT OF THE SITE

Environmental investigations have been occurring at site LF009 since 1981. A variety of assessment and investigations were performed including a preliminary assessment in 1981, site assessment in 1986, and remedial investigations in 1993 and 2003.

DESCRIPTION OF SELECTED REMEDY

The selected remedy for this site is no further action and closure under CERCLA and Alaska State laws and regulations. Under the no further action alternative, no further investigations, sampling or CERCLA remedial actions are necessary at LF009. The site does not pose an unacceptable risk to human health or the environment. No contaminants remain at this site above ADEC 18 AAC 70 Water Quality Standards or the National Oceanic and Atmospheric Administration's Screening Quick Reference Tables Probable Effects Levels for freshwater or marine sediments. The sediment concentrations also do not exceed ADEC 18 AAC 75 Method Two soil cleanup levels for the Arctic Zone. These cleanup levels meet the risk management standards of 18 AAC 75.325(h), (i.e., the risk from hazardous substances do not exceed a cumulative carcinogenic risk of 1 in 100,000 and a cumulative non-carcinogenic hazard index of 1.0). The site conditions are protective of human health under all current and projected site uses, including unrestricted residential land use. Land use controls (institutional controls) are not applicable at LF009.

STATUTORY DETERMINATIONS

The U.S. Environmental Protection Agency has deferred regulatory authority to the ADEC. ADEC is the lead regulator for the Barter Island LRRS ERP sites and the Air Force is the lead cleanup agency. The applicable statutes include Alaska State Statute Title 46, Water, Air, Energy and Environmental Conservation which is consistent with CERCLA and the NCP. No action at LF009 is necessary to ensure protection of human health and the environment. The remedy will result in no hazardous substances or contaminants remaining at LF009 above levels that allow for unlimited use and unrestricted exposure; therefore, no five-year review is required.

AUTHORIZING SIGNATURES

This signature sheet documents the USAF and the ADEC agreement on the selection of no further action and authorization of the record of decision for the Old Dump Area Northwest (LF009), Barter Island LRRS, Alaska.

This decision may be reviewed and modified in the future if new information becomes available which indicates the presence of contamination or exposure that may cause a risk to human health or the environment.

JENNIFER ROBERTS
Federal Facilities Environmental Restoration
Program Manager
Alaska Department of Environmental Conservation

Date

LOYD S. UTTERBACK
Major General, USAF
Deputy Commander, Pacific Air Forces

Date

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PART II

DECISION SUMMARY

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Part II
DECISION SUMMARY

This decision summary provides an overview of Environmental Restoration Program (ERP) site LF009 (Old Dump Area Northwest) located at Barter Island Long Range Radar Station (LRRS), Alaska. The site description, history, regulatory activities, contamination, risk evaluation, summary of investigations and remedial actions, and the selected cleanup remedy are summarized in this section. It also explains the rationale for selecting the remedy and how the selected remedy satisfies the requirements of the Defense Environmental Restoration Program, 10 United States Code (USC) 2701, consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601 (*et seq*.), Executive Order 12580, the National Contingency Plan (NCP), the State of Alaska 18 Alaska Administrative Code (AAC) 75, Article 3 regulations, and Title 18, Chapter 60, of the AAC Solid Waste Regulations. The Alaska Department of Environmental Conservation (ADEC) is the lead regulatory agency for the Barter Island ERP sites and the U.S. Air Force (USAF) is the lead cleanup agency.

1 SITE DESCRIPTION

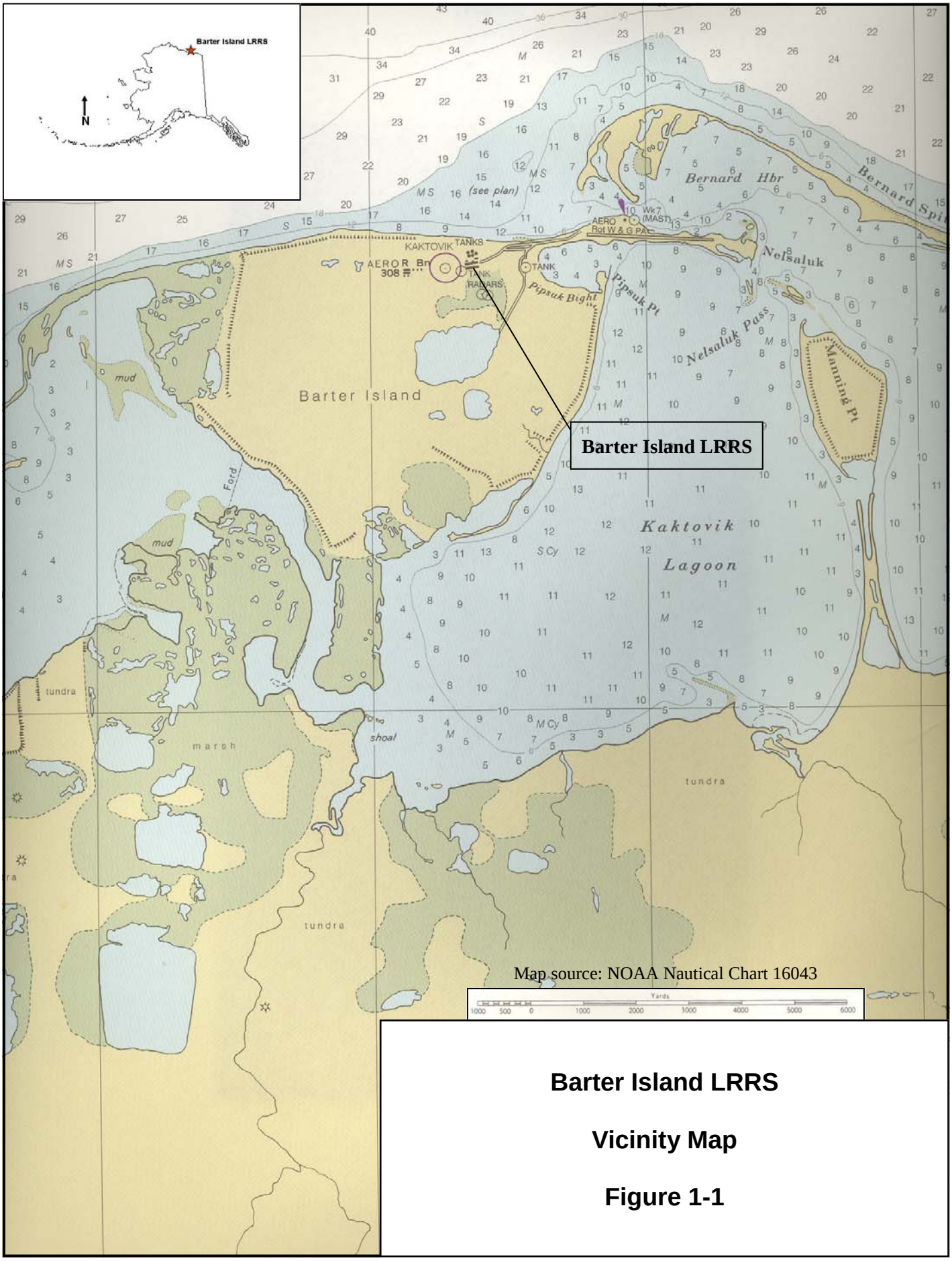
1.1 Regional Setting

Barter Island LRRS is located at latitude 70°07'49"N, longitude 143°38'03"W (NAD83), approximately 75 miles west of the Canadian border on the Arctic Coastal Plain adjacent to the village of Kaktovik, Alaska (Figure 1-1). The installation consists of 641 acres of low-lying tundra on the northern boundary of the Arctic National Wildlife Refuge. It is located approximately 646 miles north of Anchorage and 389 miles north of Fairbanks. Air travel provides the only year-round access while marine travel provides late summer access. The general location of the Barter Island LRRS is shown on the inset in Figure 1-1.

The average annual precipitation recorded at Barter Island from 1949 to 1988 was 6.19 inches per year, and 41.8 inches of snowfall (Western Regional Climate Center 2003). Average daily minimum and maximum temperatures in July were 34.8 degrees Fahrenheit (°F) and 45.4°F, respectively. In December, these average temperatures were -18.3°F and -5.8°F, respectively. The extreme recorded temperatures are -56°F and 78°F. Low cloud cover and fog are common in the summer.

Barter Island is predominately covered by a thin layer of peaty, organic soil (tundra mat). The tundra vegetation is typical of the region and characterized by low growing plants including mosses, lichens, sedges and grasses. Beneath the tundra mat is approximately 2 to 3 feet of sand and loess (wind-blown silt). Underlying these deposits are lenses and layers of marine and alluvial clay, silt, sand, and sandy gravel of the Meade River Unit of the Gubik Formation. Coastal erosion rates reportedly average between 5 and 8 feet per year (Grantz et al. 1980, 1982; U.S. Army Corps of Engineers [USACE] 1998; and Hoefler Consulting Group [HCG] 2004). Permafrost in the station area is up to 1,300 feet thick (Osterkamp and Payne 1981). The seasonal active zone layer typically varies between 2 to 5 feet in thickness.

Small streams, discharging into the Beaufort Sea, drain the lakes and wetlands surrounding the Barter Island LRRS. The largest lake on the island, Fresh Water Lake, is approximately 0.8 miles south of the station. This 9-foot-deep lake, which freezes to approximately 8 feet in winter, is used as a year-round potable water source (NPRA Task Force 1978a, 1978b; Alaska Department of Community and Economic Development 2003).



Map source: NOAA Nautical Chart 16043

Barter Island LRRS

Vicinity Map

Figure 1-1

Land uses at Barter Island LRRS include industrial activities associated with the operation and maintenance of a radar installation and aircraft runway. Portions of the installation, in particular the beach and roads, may be used for subsistence or recreation (or both), by residents of the nearby City of Kaktovik, or the occasional tourist. Current land uses on surrounding properties include industrial and residential activities associated with the City of Kaktovik, as well as subsistence and recreational activities. Future land use is anticipated to be similar with potentially less industrial use and greater recreational or subsistence activities as the installation reduces in size. Residential use is also possible at some sites if the USAF transfers a portion of the property to another party. The village of Kaktovik used to be located on a portion of the installation.

1.2 Facility History

Barter Island LRRS, also known as BAR-M, was the prototype Distant Early Warning (DEW) Line station with a White Alice Communications System (WACS). In 1947, the U.S. Navy constructed the airfield. The main installation was constructed between 1952 and 1953. In 1957, the site was activated and put into operation by the U.S. Air Force. The WACS was deactivated in 1979, and a contractor operated an earth station at the facility. In the mid-1980s, a Minimally Attended Radar was installed, which still operates today. Two contract personnel are currently stationed at Barter Island LRRS. The contract personnel are responsible for maintenance and management of real property facilities, which include the buildings, roads, grounds, aircraft facilities, antenna structures, and utility plants.

The Barter Island facility consists of four module trains, a rotating radar, and facilities to provide full logistical support for the rest of its sector. The main section of A-Train houses the electronic equipment work areas; the radar tower (radome); personnel quarters; administration offices; a mechanical room with emergency boiler and associated fuel storage; and a personnel support module with water storage, shower, and toilets. Adjacent to this structure, and connected by corridors, are the power plant and vehicle maintenance building. B-Train, now deactivated, was the main living and personnel support area through the 1970s. The inactive structures at Barter Island LRRS are scheduled for demolition under the Clean Sweep Program in 2006.

Under the USAF ERP and its predecessor the Installation Restoration Program, environmental investigations have been conducted at the Barter Island LRRS since 1981. These investigations included a preliminary assessment in 1981 and a site assessment in 1986. Environmental samples were collected at Barter Island LRRS in 1993 as part of a Remedial Investigation/Feasibility Study (RI/FS) at 14 sites (ICF 1993). Based on this previous work, the USAF conducted a second RI/FS at 15 ERP sites in 2003. These sampling activities and results were published in the *Final Remedial Investigation/Feasibility Study Report for 15 Sites, Barter Island LRRS* (HCG 2004). Additional environmental sampling occurred in 2004 to fill data gaps at six sites on Barter Island (HCG 2005a). Only 9 of the 15 ERP sites were included in the proposed plan and Decision Document processes. The remaining sites are still under evaluation.

Past activities potentially resulting in contaminant release at the Barter Island LRRS include:

- Spills during the transfer of fuels in and out of storage tanks;
- Leaks from fuel lines and tanks;
- Spills or leaks of fuel, lubricants, or solvents during vehicle and equipment maintenance activities;

- Spills or leaks from transformers or other electrical equipment containing polychlorinated biphenyls (PCBs); and
- Disposal of wastes and other discarded material containing hazardous substances.

Some of the contaminants encountered during investigations at Barter Island LRRS are benzene, toluene, ethylbenzene, and total xylenes compounds (BTEX); diesel range organics (DRO); gasoline range organics (GRO); polynuclear aromatic hydrocarbons (PAHs); PCBs; residual range organics (RRO); semivolatile organic compounds (SVOCs); metals; and volatile organic compounds (VOCs). Most of these contaminants are the result of fuel or oil spills.

2 SITE HISTORY AND ENVIRONMENTAL ACTIVITIES

The following subsections describe the site history of LF009, including environmental investigations and regulatory activities.

2.1 Site Background

LF009 is located less than a mile west of the installation boundary, adjacent to the Beaufort Sea at 70°07'57"N latitude, 143°40'10"W longitude (NAD 83) (Figure 2-1). It is approximately 2.5 miles from Kaktovik. The site is not located on USAF property. The current landowner is Kaktovik Inupiat Corporation. LF009 consists of a gully used briefly by the USAF for the disposal of crushed drums and steel from a burned building. The site is less than 1 acre in size. In 1979 approximately 15 tons of scrap metal were removed from the site (CH2M Hill 1981). Additional investigations were conducted at the site in 1986 and 2003 to verify the presence or absence of contaminants of concern (COCs) in the sediment and surface water in the drainage.

2.2 Site Description

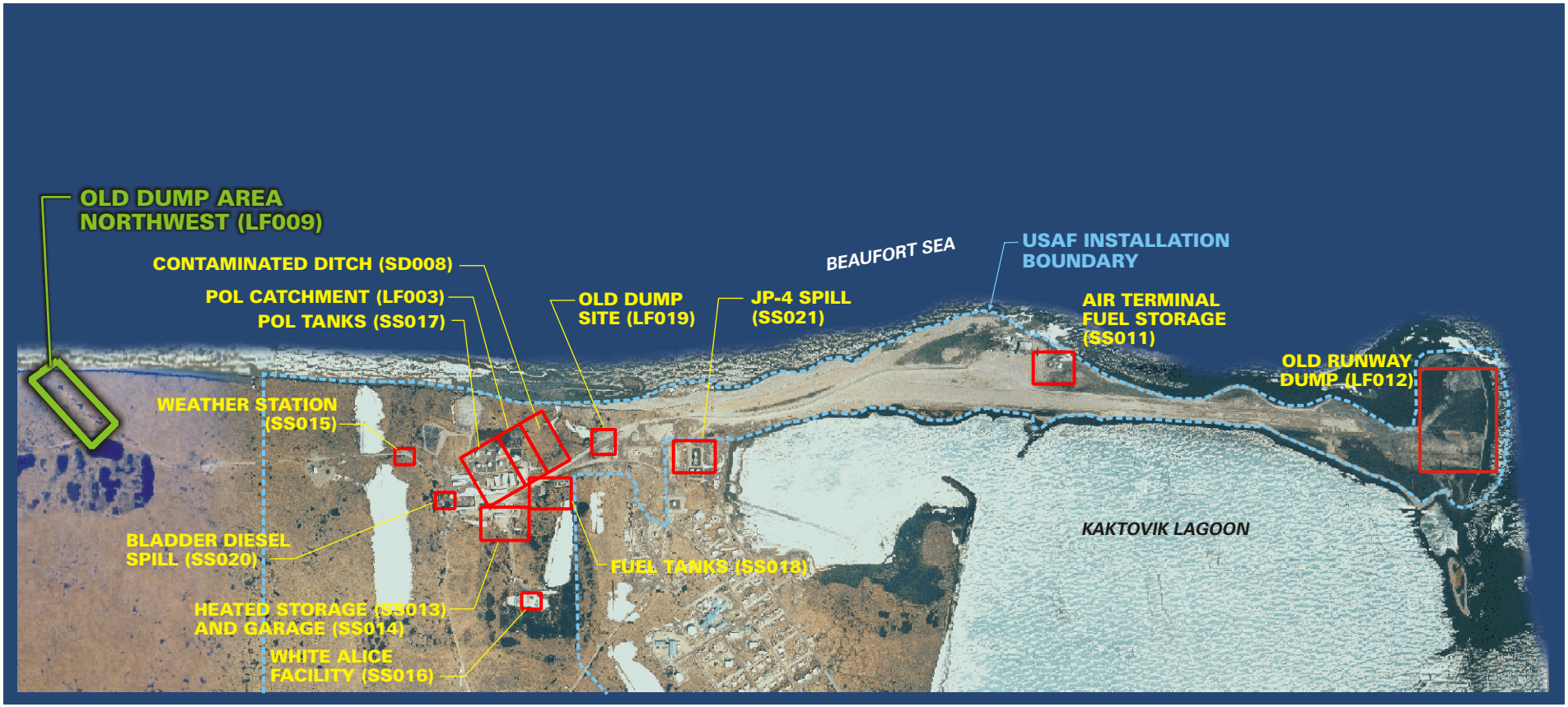
LF009 is located near the mouth of a drainage discharging into the Beaufort Sea (Figure 2-2). The site is in an undeveloped area of the tundra. The site is accessible by an unmaintained gravel road. A trail leads from the road, toward the mouth of a gully.

2.2.1 Topography and Stratigraphy

The site is predominately undisturbed tundra except for the gravel road at the south side of the site. The dominant topographical feature is a gully with a small, shallow stream (drainage) that runs from the road toward the Beaufort Sea. The maximum relief is located near the mouth of the drainage where the streambed is incised approximately 20 feet below the surrounding tundra. Slumping and erosion is evident along the banks of the drainage while the adjacent tundra is relatively flat and undisturbed. The site presumably overlies material typical of the Barter Island LRRS, as described in Section 1.1.

2.2.2 Surface and Subsurface Hydrology

Surface water movement at the site is dominated by channelized stream flow within the drainage. Some active zone transport and overland flow may occur on the adjacent tundra. However, it is most likely slow and intermittent due to the low gradient and annual precipitation.



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BARTER ISLAND LRRS

ERP SITES MAP
LF009 (Old Dump Area Northwest)

BARTER ISLAND, ALASKA

PROJECT NO:	9702-032
DATE:	4-6-06
FIGURE NO:	2-1

BEAUFORT SEA

View of LF009, Looking Northwest

STREAM

TRAIL

UNPAVED ROAD

UNPAVED ROAD

FRESH WATER POND

N

SCALE IN FEET

0 150

KEY

- 2003 SEDIMENT SAMPLE
- 2003 SEDIMENT & WATER SAMPLE
- VISIBLE DRUM (2003)

BASE IS 2000 AERIAL PHOTO

611 CES

PRIDE IN PROGRESS

BARTER ISLAND LRRS

OLD DUMP AREA NORTHWEST (LF009)
SUMMARY OF SAMPLE LOCATIONS

BARTER ISLAND, ALASKA

PROJECT NO: 9702-032

DATE: 1-24-06

FIGURE NO: 2-2

2.2.3 Ecology

The Old Dump Area Northwest (LF009) is located in an undeveloped area west of the installation, approximately 2.5 miles from Kaktovik. Tundra at the site is typical of the region, with small ponds and well-established vegetation. The site provides relatively good vegetation and ecological habitat, with sedges and cotton grass prevalent in the wet sedge and moist tussock sedge tundra. The stream within the drainage and the small tundra ponds appear to be good habitat for aquatic invertebrates and waterfowl, but they do not appear capable of supporting year round fish populations, due to their shallow depth. The site is likely utilized by small mammals typical of the region such as arctic fox, shrews, and weasels. Larger mammals such as caribou may occasionally utilize the area.

2.3 Summary of Previous Investigations and Remedial Actions

Metal debris was removed from the site in 1979. Following the debris removal, a preliminary assessment and records search was conducted in 1981 and indicated that further environmental investigation was warranted. A site investigation (SI) was conducted in 1986; analytical results for samples collected from the surface water were below detection limits and the site was recommended for no further investigation (Dames and Moore 1988).

In 2003, a RI was conducted at LF009 (USAF 2004, HCG 2004). Sediment and surface water samples were collected within the drainage and from a stream upgradient and downgradient of the site. The bottom of the drainage gully was considered the area to be most likely impacted if contaminants were present; therefore, sampling was focused on the water and sediment. Soils were not sampled because there was no staining, stressed vegetation or other evidence of spills or leaks observed in the sidewalls of the drainage or in adjacent areas. A total of four sediment samples was collected and analyzed for contaminants of potential concern (COPCs) including: DRO, RRO, GRO, VOCs and PAHs. Two surface water samples were collected and analyzed for DRO, RRO, GRO, VOCs, PAHs, PCBs, pesticides and Resource Conservation and Recovery Act (RCRA) metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver). Barium, toluene, DRO and RRO were the only analytes detected. Based on the results of the 2003 RI, no further action was recommended at LF009. A summary of sampling results is included in Table 2-1.

2.4 Regulatory Enforcement Activities

There are no Federal Facility Agreements or state agreements for the Barter Island LRRS. No sites are listed on the National Priorities List. Hazardous substances regulated under CERCLA have not been detected at LF009. There have been no regulatory enforcement activities at the site.

Table 2-1 LF009 Summary of Sample Results

Media	Analyte[1]	Screening Criteria			2003 RI/FS Maximum Concentration (USAF 2004)[5]	2003 RI/FS Frequency of Detections[6]
		18 AAC 75 Cleanup Level (Arctic Zone) for Soil[2]	18 AAC 70 MCL for Surface Water[2]	NOAA SQuiRT for Surface Water[3]		
Sediment (mg/Kg)	**Fuels**					
	GRO	1,400	--	--	U (5.28)	0/5
	DRO	12,500	--	--	71.9	1/5
Surface Water (mg/L)	**VOCs**					
	Toluene	--	1	17.5[CMC]	0.002	1/2
	RCRA Metals					
	Barium	--	2	--	0.03	2/2
	Fuels					
	DRO	--	--	--	0.512	2/2
	RRO	--	--	--	0.559	2/2

Notes
1- Sediments were analyzed for GRO, DRO, RRO, VOCs, and PAHs.
Surface water was analyzed for GRO, DRO, RRO, VOCs, PAHs, PCBs, pesticides, and RCRA Metals.
2- Lowest value of ingestion or inhalation shown from 18 AAC 75, Tables B1 and B2, referred to as "Method Two Cleanup Levels" for the Arctic Zone. These cleanup levels are not directly applicable to sediment and are shown for comparison purposes only.
3- 18 AAC 70 Maximum Contaminant Level (ADEC 2003).
4- NOAA SQuiRT values shown for fresh water criteria continuous concentration (CCC) unless otherwise indicated (NOAA 1999). Criteria maximum concentration (CMC) shown if no CCC available. Marine water (M) value shown if no fresh water value available.
5- Maximum concentration is the maximum detection or highest PQL if all samples were below detection limits.
6- The frequency of detections is the number of times the analyte was detected in the samples collected at the site. Frequencies do not include replicate samples collected. Only detected analytes are listed.

Abbreviations

"--"	Screening criteria did not exist for this compound
MCL	Maximum contaminant level
mg/L	Milligrams per liter
PQL	Practical quantitation limit
VOCs	Volatile organic compounds
RCRA Metals	Resource, Conservation and Recovery Act regulated metals include: arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver
U	Compound not detected w/PQL in adjacent parentheses

3 COMMUNITY PARTICIPATION

Public participation has been an important component of the cleanup process at Barter Island LRRS. All decisions made for LF009 were based on information contained in the administrative record. Activities aimed at informing and soliciting public input regarding cleanup activities for the site are as follows:

Proposed Plan. A proposed plan that presented the cleanup alternatives proposed by the Air Force for Barter Island LRRS was submitted for public review on August 16, 2005. A public meeting was also held at that time.

Public Comment Period. The public comment period for the proposed plan was August 16, 2005, to September 14, 2005. A summary of the public comments and responses to public comments are provided in Appendix A.

Public Meetings. The Air Force held a public meeting in Kaktovik on August 16, 2005 to discuss the proposed plan and record verbal comments. Responses to all comments received on the proposed plan are included in Appendix A of this decision document. Additional community involvement activities for Barter Island LRRS include Restoration Advisory Board (RAB) meetings. The RAB consists of representatives from the community, ADEC and the USAF. A RAB was formed in Kaktovik in 1998 and meets quarterly. RABs provide a forum for discussion and exchange of information among federal and state agencies and the community regarding cleanup of a military site. The RAB plays an important role in the decision-making process.

Responsiveness Summary. Appendix A of this decision document summarizes comments on the proposed plan. No specific No comments were received from the public specifically addressing LF009.

Updated Mailing List and Mailing Events. A mailing list of interested parties is maintained and updated regularly by the Air Force Community Relations Coordinator.

Administrative Record. The administrative record, located at the 611 Civil Engineering Squadron (CES) office at Elmendorf Air Force Base, Alaska, is continually updated. The administrative record for the Barter Island LRRS contains the information used to support this decision and is accessible to the public. An index of documents is included in Appendix B. A website with the administrative record current up to 2003 is also available to the public at: http://www.adminrec.com/PACAF.asp?Location=Alaska

Information Repository. The information repository is a file containing newsletters, fact sheets, and community relations documents relating to proposed plans and response actions for all of the ERP sites at Barter Island LRRS. Four information repositories are located in Kaktovik: the mayor's office, the school library, the Native Village of Kaktovik, and the Kaktovik Inupiat Corporation.

Management Action Plan. The Management Action Plan (MAP) is updated periodically and made available to the public in order to provide a summary of all restoration activities in one document. The most recent MAP was published in 2003 (USAF 2003) and is part of the Administrative Record.

4 SITE CONTAMINATION AND CHARACTERISTICS

4.1 Nature and Extent of Contamination

4.1.1 Known or Suspected Sources

The 1986 SI at LF009 indicated that the potential COCs were fuel-related compounds, VOCs, and metals. A site inspection of the area in July 2003 located six crushed drums that contained no product or waste. No staining, stressed vegetation or other evidence of spills or leaks was present near the drums, in the sidewalls of the drainage, or in the surface adjacent to the site. In addition, there was no evidence of any past excavation or burial activities, such as disturbed or mounded tundra. Sheens were not evident in the small creek running through the drainage. Therefore, it appeared that the site had never been used for subsurface burial, and the surface debris was almost entirely removed in 1979.

4.1.2 Types of Contamination and the Affected Media

Results of the 2003 RI indicated that the concentrations of all potential COCs were below detection limits or the risk-based screening criteria (Tables 2-1 and 6-1) established for sediments

and surface water at LF009. Figure 2-2 shows the location of samples collected in 2003 at LF009.

Based on these results, there does not appear to be any contaminated media at the site that is a result of human activities. Detected analytes were at concentrations which likely reflect natural conditions. Toluene and barium were detected in the surface water at low concentrations. DRO was detected in one sediment sample at 71 milligrams per kilogram (mg/Kg). No screening criteria has been established for DRO in sediments; however, for comparison purposes, the concentration detected in the sample collected from LF009 was below the most stringent ADEC soil cleanup level (200 mg/Kg, 18 AAC 75 Method One soil cleanup levels for the Arctic Zone). Table 2-1 summarizes the maximum concentration of detected contaminants or highest practical quantitation limit (PQL) if all samples were below detection limits for a given analyte. Method Two cleanup levels were the primary soil screening criteria used for petroleum hydrocarbons at LF009 because they were determined to be protective of migration to surface water based on the site conditions, in accordance with 18 AAC 75.340(c). Water sampling did not indicate impacts to surface water had occurred nor was significant migration to surface water considered probable.

4.1.3 Known or Potential Routes of Migration

The primary contaminant transport mechanism at LF009 is surface water transport in the stream channel. This water flows northwest into the Beaufort Sea. The gully is a low-lying area and intercepts any surface or active zone water flowing across the site. Sampling did not indicate that any significant contamination was present within the drainage, nor was there any evidence of contaminant migration.

4.2 Conceptual Site Model for Human Health and Ecological Receptors

As part of the 2003 RI/FS, conceptual site models were developed for human and ecological exposure pathways for the various contaminated media to illustrate complete and incomplete exposure pathways for each site at Barter Island LRRS. For purposes of evaluating exposure pathways, it was assumed there are no current site residents. There may be occasional use by site workers, and recreational and subsistence users. Future exposure pathways assume the facility is inactive. Future land uses could include subsistence, recreational and residential. Graphical site-specific conceptual site models were not developed for sites with non-detectable or negligible contamination or incomplete exposure pathways, such as LF009. LF009 is not considered to have potential exposure pathways because there are no contaminants at the site. Compounds were below detection limits or considered within the range of natural conditions.

5 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

5.1 Land Uses

LF009 consists of undeveloped tundra. Interviews with local residents did not indicate that any activities (recreational or subsistence) were conducted in the vicinity of LF009. Residents may occasionally walk near or through the site. Site workers do not utilize the site because it is not located near part of the active installation. Future land use at the site is anticipated to be similar to current use. There could be residential land use at portions of the site, although none is planned. The site's distance from the village and its proximity to an eroding shoreline makes this unlikely. However, residential expansion may occur due to the limited space on Barter Island.

5.2 Ground and Surface Water Uses

Groundwater is not a current or future source of drinking water at Barter Island. Interviews with local residents indicated that the surface water at LF009 is not currently used as a drinking water source or for other beneficial purposes. The stream within the drainage is small and shallow and incapable of supporting fish.

6 SITE RISKS

6.1 Site Screening Criteria

The sampling results from the RIs conducted at LF009 were evaluated to determine whether there were COCs that require remedial actions to protect human health and the environment. Table 6-1 contains the primary regulatory and risk-based screening criteria used to identify COCs and evaluate risk. A chemical was considered a COC if it exceeded the screening criteria, unless further evaluation indicated the contaminants posed little risk.

These screening criteria are extra protective of human health and the environment. They were selected in accordance with the current and projected land use at the site as described in Section 5. Criteria protective of people using the site for residential purposes were used to screen the data, even though there is no current or planned residential land use at the site.

Water and sediment sample results were screened against the National Oceanic and Atmospheric Association (NOAA) Screening Quick Reference Tables (SQuiRTs) (NOAA 1999). The SQuiRTs were developed for internal use by the Coastal Protection and Restoration (CPR) Division of NOAA. The CPR Division identifies potential impacts to coastal resources and habitats likely to be affected by hazardous waste sites. The SQuiRT values are intended for screening purposes only; they do not represent official NOAA policy and do not constitute cleanup levels (NOAA 1999). Probable exposure levels (PELs) are criteria that have been developed by NOAA for various contaminants that represent levels above which adverse effects in ecological receptors are expected. Surface water samples were also compared to the 18 AAC 70 Alaska Water Quality Standards, which include criteria protective of human health (referred to as maximum contaminant levels [MCL]) and ecological receptors in both marine and fresh waters.

For comparison purposes only, sediment sample results were also screened against the ADEC 18 AAC 75 Method Two soil cleanup levels for the Arctic Zone. Method Two Cleanup levels exist for specific chemicals listed in 18 AAC 75.341, Tables B1 and B2. These risk based cleanup levels are intended to be protective of human health under a long-term residential land use exposure scenario. Method Two cleanup levels are based on a cancer risk management standard of 1 in 100,000 (1×10^{-5}) and a noncarcinogenic risk standard or hazard index of 1.0, set forth in 18 AAC 75.325(h). Method Two cleanup levels were the primary soil screening criteria used for petroleum hydrocarbons at LF009 because they were determined to be protective of migration to surface water based on the site conditions, in accordance with 18 AAC 75.340(c). Water sampling did not indicate impacts to surface water had occurred nor was significant migration to surface water considered probable.

When applying Method Two cleanup levels for a site, 18 AAC 75.325(g) states that the risk from hazardous substances can not exceed a cumulative carcinogenic risk of 1 in 100,000 and a cumulative noncarcinogenic hazard index of 1.0. Chemicals that are detected at greater than or

equal to 1/10th of the Method Two ingestion or inhalation cleanup levels must be included when calculating cumulative risk. Therefore, as part of the screening process, contaminants exceeding 1/10th the ADEC Method Two cleanup levels were identified and their maximum concentration used to calculate the cumulative human health risk in accordance with ADEC guidelines (ADEC 2002). Per this ADEC guidance, lead, GRO, DRO and RRO are not included in cumulative risk calculations.

Table 6-1 summarizes the screening criteria that were used to identify COCs and evaluate risk at LF009.

Table 6-1 Primary Regulatory and Risk-Based Screening Criteria for LF009

Media	Screening Criteria
Soil (including tundra, beach sands, and gravel pads)	• 18 AAC 75.341, Tables B1 and B2, Arctic Zone (i.e., ADEC Method Two Soil cleanup levels for the Arctic Zone), Ingestion and Inhalation[1]
Sediment (from aquatic habitats)	• National Oceanic and Atmospheric Association SQuiRT Probable Effects Levels for freshwater or marine sediment[2]
Surface Water	• 18 AAC 70 (Alaska Water Quality Standards) • Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances • SQuiRT for aquatic life criteria continuous concentration

Notes:
1. Sediment samples were compared against 18 AAC 75 Method Two soil cleanup levels for comparison purposes only since they do apply to sediments.
2. Samples collected from permanent water bodies or ephemeral drainages judged to be viable aquatic habitat were classified as sediment and screened against sediment criteria. This criterion is also considered secondarily for soils that have a high likelihood to erode into freshwater or marine environments.

6.2 Risk Evaluation

6.2.1 Contaminants of Concern

After evaluating the sampling results obtained during the SI and RI (Dames and Moore 1988 and USAF 2004), there were no COCs identified at LF009. No samples exceeded risk-based screening criteria or other ARARs.

6.2.2 Summary of Site Risks

Based on findings of the previous RI, no remedial action is necessary at LF009 to ensure protection of human health and the environment. No further action and closure under CERCLA and Alaska State laws and regulations is recommended. The following sections detail the basis for this no further action decision.

6.2.2.1 Evaluation of Site Risks

There is no visible evidence of hazardous substances being released or impacting the site. Concentrations of contaminants detected in sediment samples were below detection limits or the applicable NOAA SQuiRT PELs. In addition, all surface water samples were below detection limits, 18 AAC 70 Alaska Water Quality Standards, or NOAA SQuiRT criteria continuous concentrations. Although not directly applicable to sediment, no samples exceeded the ADEC Method Two or One soil cleanup levels for the Arctic Zone. Method Two cleanup levels are protective of human health under a residential exposure scenario, which is more conservative than current site uses. The current and future site conditions are protective of the environment, including surface water. A site specific risk assessment was not necessary to evaluate risk at this

site because most analytes were non detectable and no samples exceeded risk-based screening criteria or other ARARs.

6.2.2.2 ADEC Cumulative Risk Calculation

Sample results from both the SI and RI conducted at LF009 indicated that there were no contaminants exceeding Method Two soil cleanup levels for the Arctic zone, or $1/10^{th}$ the cleanup levels. Therefore, cumulative risk calculations were not necessary to quantify the risk, per 18 AAC 75.340(k). The current site conditions meet the ADEC risk management standards (risk from hazardous substances does not exceed a cumulative carcinogenic risk of 1 in 100,000 and a cumulative noncarcinogenic hazard index of 1.0) for residential land use.

6.3 Conclusion

Investigations have been conducted at LF009 since 1986. Based on the findings of these investigations and the baseline risk assessment, no remedial action or land use controls are necessary to ensure protection of human health and the environment. The site is acceptable for all current and projected future land uses, including residential land use. The selected remedy for LF009 is no further action under CERCLA and Alaska State laws and regulations.

7 DOCUMENTATION OF SIGNIFICANT CHANGES

The proposed plan for nine ERP Sites at Barter Island LRRS including LF009 was released for public comment on August 16, 2005. The proposed plan identified no further action and closure under CERCLA and Alaska State laws and regulations as the proposed action. The USAF and ADEC reviewed all written and verbal comments submitted during the public comment period. It was determined that no significant changes to the proposed action, as originally identified in the proposed plan, were necessary or appropriate.