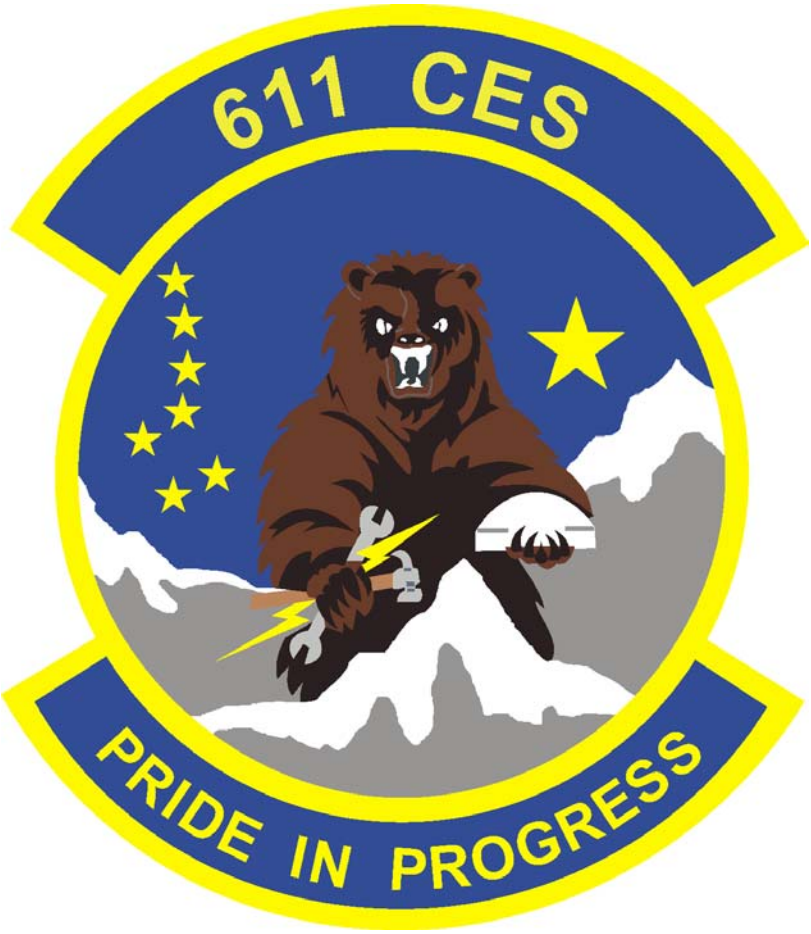

INSTALLATION RESTORATION PROGRAM

Decision Document for Interim Remedial Action
Four IRP Sites at the Big Mountain
Radio Relay Station, Alaska

Sites: 42,400-Gallon Fuel Oil AST (ST001)
1,000-Gallon Fuel Oil AST (SS002)
Dual AST System (SS014)
Landfill (LF005)

November 26, 2002

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November 26, 2002

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TECHNICAL DOCUMENT TO SUPPORT INSTALLATION RESTORATION INTERIM DECISION

PART I

DECLARATION

SITE NAMES AND LOCATIONS

Four (4) Installation Restoration Program (IRP) Sites located at the Upper Camp communication facility and the Lower Camp support base at the Big Mountain Radio Relay Station (RRS), Alaska.

- ST001 – The 42,400-gallon above ground storage tank (AST) fuel oil tank system
- SS002 – The 1,000-gallon AST fuel oil tank system
- SS014 – The dual AST system
- LF005 – The Lower Camp Landfill

STATEMENT OF BASIS

This Decision Document (DD) presents the selected interim remedies for ST001, SS002, SS014, and LF005. The interim remedies address soil contamination at these sites; additional characterization is necessary to evaluate groundwater contamination and determine final site remedies. This document has been developed in accordance with the Defense Environmental Restoration Program, 10 *United States Code* (USC) 2701, consistent with ADEC Oil and Hazardous Substances Pollution Control Regulations [18 Alaska Administrative Code (AAC) 75], the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601 and Executive Order 12580 (52 *Federal Register* 2923), and to the extent practicable with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) [40 *Code of Federal Regulations* (CFR) 300].

The decisions are based upon previous site characterization information contained in the Administrative Record, which includes findings from the February 2001 Remedial Investigation (RI) and Feasibility Study (FS) Report, and the remedial recommendations presented in the Proposed Plan.

Site characterization activities included an IRP Records Search, 1998 Site Investigation, Conceptual Site Models (CSM) development, and an engineering and cost evaluation for potential remedial alternatives (2001 Remedial Investigation/Feasibility Study).

The United States Air Force (USAF) is the lead agency working in cooperation with the Alaska Department of Environmental Conservation (ADEC). ADEC environmental

regulations serve as the primary applicable or relevant and appropriate requirements (ARARs) for this program.

ASSESSMENT OF SITE

The Big Mountain RRS installation and operational mission were decommissioned in 1979, and most of the facilities were abandoned and left in place at that time. During the time when the installation was active, hazardous and potentially hazardous substances were used and stored there to support base activities. These substances included diesel fuel and gasoline, oils, antifreeze, solvents, lead-acid and nickel-cadmium batteries, asbestos, and electrical transformers containing polychlorinated biphenyls (PCBs).

The DD addresses interim actions for the following four sites at Big Mountain RRS:

- ST001 – The 42,400-gallon fuel oil above ground storage tank (AST) is located north of the airstrip near the access road that leads to the Upper Camp area. A pipeline (mostly aboveground) runs from the AST to the airstrip.

- SS002 – The 1,000-gallon fuel oil AST was located next to the Flight Operations Building, adjacent to the access road. The tank has been removed, and only the concrete saddle and a short length of pipe remain on the site.

- SS014 – The dual AST system consists of two 126,000-gallon tanks located on the western end of the Upper Camp area, directly west of the access road near the dormitory.

- LF005 – The landfill was used during the operation of the Big Mountain RRS. The landfill area, which has been covered and graded over, is located adjacent to the creek north of the runway.

Petroleum hydrocarbon contamination above soil cleanup levels remains at ST001, SS002, and SS014. The estimated total volume of soil contaminated by diesel-range organics (DRO) above cleanup levels at these three sites is 13,600 cubic yards, which includes 800 cubic yards at ST001, 300 cubic yards at SS002, and 12,500 cubic yards at SS014.

Groundwater, surface water, and sediment at ST001, SS002, SS014, and LF005 have not been adequately characterized. These media will be addressed in a future DD. Results of the characterization activities to-date are summarized below.

- DRO were detected at concentrations equal to or greater than its groundwater cleanup level in samples from ST001, SS002, and SS014.
- Contaminants were detected in groundwater at LF005 at levels above cleanup levels.
- No free product was found at any of the sites.

- A risk evaluation concluded that potential carcinogenic and noncarcinogenic risks above threshold levels may be present due to exposure to metals and 1,4-dichlorobenzene in groundwater at LF005.
- In a sediment sample from ST001, chromium was detected at a concentration above its ecological benchmark screening level.
- Contaminants were detected above ecological benchmark values in various Ecological Assessment (EA) surface water and sediment samples.

REMEDIAL ACTION OBJECTIVES

The selected interim remedies will address soil contamination above cleanup levels at the subject sites. Assessment activities will be used to evaluate whether groundwater remediation is necessary to meet regulatory requirements or reduce potential risk to human health or the environment.

Preliminary remedial action objectives (RAOs) for soil at the four subject sites are provided in the following table. All contaminants of concern (COCs) that exceed a regulatory cleanup level are provided in the table.

Preliminary Remedial Action Objectives for Four Sites at Big Mountain RRS

Media	Contaminants of Concern	Maximum Concentration (sample location)	Proposed Cleanup Levels (ppm)	Basis for Proposed Cleanup Levels
Site: ST001 (42,400-gallon AST)				
Surface Soil (mg/kg)	DRO	17,000 (L8)	250	18 AAC 75
Subsurface Soil (mg/kg)	DRO	17,000 (L8)	250	18 AAC 75
Site: SS002 (1,000-gallon AST)				
Surface Soil (mg/kg)	DRO	18,000 (L2)	250	18 AAC 75
	GRO	640 (L2)	300	18 AAC 75
Subsurface Soil (mg/kg)	DRO	14,000 (L2)	250	18 AAC 75
	GRO	570 (L2)	300	18 AAC 75
	Benzene	0.86 (L2)	0.02	18 AAC 75
	Toluene	7.5 (L2)	5.4	18 AAC 75
Site: SS014 (Dual AST System)				
Surface Soil (mg/kg)	DRO	19,000 (L23)	250	18 AAC 75
	Naphthalene (2 ft bgs)	66 (L1)	43	18 AAC 75
Subsurface Soil (mg/kg)	DRO	11,000 (L4)	250	18 AAC 75

Definitions:
18 AAC 75 - Oil and Hazardous Substances Pollution Control Regulations Cleanup Levels

Although the need for RAOs to address potential groundwater, surface water, and sediment contamination has not yet been established, the following table presents all contaminants of potential concern (COPCs) in these media that exceed ADEC regulatory criteria or ecological screening benchmarks.

Contaminants of Potential Concern Exceeding Proposed Cleanup Levels or Ecological Screening Levels Four Sites at Big Mountain RRS				
Media	**Contaminants of Potential Concern**	**Maximum Concentration (sample location)**	**Proposed Cleanup Levels (ppm)**	**Basis for Proposed Cleanup Levels**
Site: ST001 (42,400-gallon AST)				
Groundwater (mg/L)	DRO	1.5 (L1)	1.5	18 AAC 75
Site: SS002 (1,000-gallon AST)				
Groundwater (mg/L)	DRO	1.8 (L3)	1.5	18 AAC 75
Site: SS014 (Dual AST System)				
Groundwater (mg/L)	DRO	150 (L1)	1.5	18 AAC 75
Site: LF005 (Lower Camp Landfill)[a]				
Groundwater	1,3-Dichlorobenzene	0.091 (L2)	0.03	ADEC Tech Memo 01-007
(mg/L)	1,4-Dichlorobenzene	0.075 (L2)	0.075	18 AAC 75
	Aluminum	390 (L5)	37	EPA Region III Tap Water RBC
	Barium	2.7 (L5)	2	18 AAC 75
	Beryllium	0.007 (L5)	0.004	18 AAC 75
	Chromium	0.31 (L5)	0.1	18 AAC 75
	Iron	550 (L5)	11	EPA Region III Tap Water RBC
	Lead	0.099 (L5)	0.015	18 AAC 75
	Manganese	15 (L5)	0.73	EPA Region III Tap Water RBC
	Nickel	0.2 (L5)	0.1	18 AAC 75
	Vanadium	1.4 (L5)	0.26	18 AAC 75
EA Samples Across Big Mountain RRS[c]				
Surface Water (mg/L)	Copper	0.027 (EA5L2)	0.0029	18 AAC 70[b]
	Iron	400 (EA5L1)	1	18 AAC 70
	Lead	0.0035 (EA8L2)	0.00054	18 AAC 70[b]
	Zinc	0.088 (EA5L2)	0.047	18 AAC 70
	Aluminum	29 (EA5L2)	0.087	NOAA

Table continued on next page

Contaminants of Potential Concern Exceeding Proposed Cleanup Levels or Ecological Screening Levels Four Sites at Big Mountain RRS				
Media	**Contaminants of Potential Concern**	**Maximum Concentration (sample location)**	**Proposed Cleanup Levels (ppm)**	**Basis for Proposed Cleanup Levels**
Sediment (mg/Kg)	Aluminum	27,000 (EA8L1)	25,500	NOAA
	Benzo(a)pyrene	2.8 (EA5L2)	0.032	NOAA
	Chromium	330 (EA8L1)	36.3	NOAA
	Copper	100 (EA8L1)	28.0	NOAA
	Di-n-butyl phthalate	1.2 (EA8L3)	0.11	NOAA
	Lead	110 (EA8L2)	35	NOAA
	Manganese	2,000 (EA8L1)	630	NOAA
	Mercury	0.29 (EA8L1)	0.17	NOAA
	Nickel	230 (EA8L1)	18.0	NOAA
	p,p'-DDD	0.26 (EA5L1)	0.0035	NOAA
	p.p'-DDE	0.034 (EA5L1)	0.0014	NOAA
	Pyrene	0.075 (EA4L2)	0.044	NOAA
	Total PCBs	0.71 (EA4L1)	0.026	NOAA

Notes:
a: Groundwater cleanup levels provided for LF005 may not meet the cumulative risk target levels and are considered preliminary. Final cleanup levels for the LF005 landfill will be determined after the additional monitoring and the ecological risk assessment better define the risks due to groundwater contamination at this site.
b: Water criteria are hardness-dependent. Proposed cleanup levels calculated using a hardness of 25 mg/L as $CaCO_3$.
c: DRO were not detected in surface water and were detected in four of 24 sediment samples, at a maximum concentration of 100 mg/kg (EA2L3). There are no cleanup levels applicable for bulk hydrocarbons in surface water or sediments.
Definitions:
18 AAC 75 - Oil and Hazardous Substances Pollution Control Regulations Cleanup Levels
18 AAC 70 – ADEC Water Quality Standards
Environmental Protection Agency (EPA) Region III Tap Water RBC – Risk-Based Concentrations Recommended for Tap Water by EPA Region III (USEPA, 2002)
EA – Environmental Assessment
NOAA - National Oceanic and Atmospheric Administration Screening Quick Reference Tables, Updated September, 1999 (NOAA SQuiRTS).

DESCRIPTION OF SELECTED REMEDIES

Sites ST001, SS002, and SS014

The interim remedy for sites ST001, SS002, and SS014 is excavation and thermal treatment of the DRO-contaminated soil. The interim remedy includes the following components:

Soil

- Contaminated soil from the three sites will be excavated and treated in a thermal desorption unit. Field screening and excavation sampling will confirm that contaminated soils are completely removed from each site. Treated soils will be returned to the removal site.

- The estimated total volume of DRO-contaminated soil at the three sites is 13,600 cubic yards, which includes 800 cubic yards at ST001, 300 cubic yards at SS002, and 12,500 cubic yards at SS014. However, most of this "soil" material is very rocky, and screening is expected to greatly reduce the volume of material to be

treated. The 611 CES estimates that approximately 10- to 20-percent of the contaminated soil volume at SS014 will require treatment, because the remaining 80- to 90-percent of the soil volume is anticipated to be greater than 2-inches in diameter.

Groundwater

- Groundwater monitoring wells will be installed to delineate potential groundwater impacts at the three sites.
    - ST001 (42,500-gallon tank area): 3-5 monitoring wells;
    - SS002 (1,000-gallon fuel oil AST): 3-5 monitoring wells; and
    - SS014 (Dual AST system): 5-10 monitoring wells
- Final groundwater remedies will be identified after the additional monitoring results have been evaluated. Since soil removal is expected to remove the source of any potential future groundwater contamination, monitored natural attenuation may be adequate to address potential groundwater impacts.

Surface Water/Sediments

- Sampling will be performed to evaluate potential contamination in the surface water and sediments of a wetland area located northwest of site ST001.

Site LF005

A limited landfill cap and additional assessment activities is the interim remedy selected for site LF005. The interim remedy includes the following components:

- The landfill cap repair will include removal or covering of debris evident at the surface, placing of additional soil where the cover material is thin, grading the cover to minimize ponding, and revegetation of the cover.
- Three to five additional groundwater monitoring wells will be installed to monitor any potential groundwater impacts from possible leachate from buried debris at the landfill. A final groundwater remedy, if necessary, will be identified after the additional monitoring results have been evaluated.
- An ecological risk assessment will be performed near the landfill. A minimum of three additional surface water and sediment samples will be collected in conjunction with the ecological risk assessment. A final surface water/sediment remedy, if necessary, will be identified after the ecological risk assessment results have been evaluated.
- Long-term annual groundwater, surface water, and sediment monitoring with a five-year review (consistent with 42 United States Code [USC] 9621(c)) will be performed.

- Institutional controls will be used to restrict excavations and other subsurface activities in the landfill.

STATUTORY DETERMINATIONS

The interim actions are protective of human health and the environment in the short term and are intended to provide adequate protection until a final DD is signed. The actions are cost-effective and comply with those federal and state requirements that are applicable or relevant and appropriate for this limited-scope action. Although the interim action is not intended to address fully the statutory preference for permanence and treatment to the maximum extent practicable, this interim action does utilize treatment and thus supports that statutory preference. Soil contamination above cleanup levels is not expected to remain on-site after completion of the interim actions; however, groundwater, surface water, and/or sediment concentrations may exceed cleanup levels. Because the interim remedies may result in hazardous substances remaining on-site above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within five years after commencement of the remedial action. Because this is an interim action DD, review of this site and remedy will be ongoing as USAF continues to develop remedial alternatives for the site.

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

This signature sheet documents USAF and ADEC acceptance of the DD for the Big Mountain RRS, Alaska. This DD satisfies requirements of the National Environmental Policy Act that apply to CERCLA response actions.

James C. Chamberlain, Colonel, USAF
Commander, 611th Air Support Group
United States Air Force

16 Dec 02
Date

Jennifer Roberts, Contaminated Sites Program
DoD Section Manager
Alaska Department of Environmental Conservation

Nov 29 2002
Date