PROPOSED PLAN

FINAL REMEDIAL ACTIONS FOR ERP SITES SS013 AND SS015

CAPE ROMANZOF LRRS

COMMENT PERIOD: 15 May to 15 June 2010

611 CES/CEAR Environmental Restoration Program, 10471 20th Street, Suite 302, Elmendorf Air Force Base, Alaska 99506-2200

INTRODUCTION

This ***Proposed Plan***[1] presents the Preferred Alternatives for the following *United States Air Force* (***USAF***) *Environmental Restoration Program* (***ERP***[2]) sites located at the Cape Romanzof *Long-Range Radar Site* (***LRRS***):

- Diesel Seep Area (SS013) and
- UST Spill Area (SS015).

Sampling results at these two sites show no *Comprehensive Environmental Restoration, Compensation, and Liability Act* (***CERCLA***) ***hazardous*** substances as contaminants of concern. Therefore, the USAF is proposing no action at these two sites under its ***CERCLA*** authority.

However, petroleum, which is excluded from CERCLA (as discussed in the Regulatory Basis box on page 2) but regulated under Alaska State Law, has been detected at the sites above cleanup levels protective of unrestricted land use established in Alaska regulations. *Institutional controls* (***ICs***) are the preferred alternative to restrict land use at Site SS013, and *Monitored Natural Attenuation* (***MNA***) and ***ICs*** are the preferred alternative to address residual petroleum contamination at Site SS015.

The preferred alternatives proposed as final remedies for SS013 and SS015 are consistent with interim remedies implemented in a 2002 Interim *Record of Decision* (***ROD***) and recommendations from the 2008 Five-Year Review of the interim remedies.

The State of Alaska has .participated in the development of this Plan. The State of Alaska's final decision on the preferred alternative will not be made until all comments submitted during the public comment period have been reviewed and considered.

HOW YOU CAN PARTICIPATE

You are encouraged to comment on this Proposed Plan. The public comment period begins on May 15, 2010, and ends on June 15, 2010.

If there is sufficient interest for a public meeting on this Proposed Plan, and a meeting is requested before June 15, 2010, an acceptable meeting date will be scheduled before August 6, 2010 and the comment period extended.

A pre-addressed comment form is included at the end of the plan. You can mail or email your comments to the USAF Community Relations Coordinator at the following address:

Mr. Tommie Baker
611 CES/CEAR
10471 20th Street, Suite 302
Elmendorf AFB, Alaska 99506-2200
1-907-552-4506, or
Toll Free: 1-800-222-4137
email: Tommie.Baker@ELMENDORF.af.mil

PURPOSE OF PROPOSED PLAN

USAF, in coordination with the Alaska Department of Environmental Conservation (***ADEC***), has issued this Proposed Plan in accordance with CERCLA and *National Contingency Plan* (***NCP***) requirements. The Proposed Plan has the following purposes:

- Provide basic background information;
- Identify the preferred alternatives for

[1] For convenience to the reader, the terms in ***bold italic*** are defined in the Glossary at the end of this publication.

[2] The ERP is the USAF's program modeled after the EPA's Superfund environmental cleanup program.

remedial action at the subject sites and explain the reasons for the preference; and

- Provide information on how the public can be involved in the remedy selection process.

The preferred alternative may be modified if public comments or additional data indicate that such a change would result in a more appropriate solution. Therefore, the public is encouraged to review and comment on this Proposed Plan.

Following consideration of public comments, USAF will prepare a *Record of Decision* (***ROD)*** to document the final remedies selected for Sites SS013 and SS015. The ROD will contain a summary of responses to public comments received (***Responsiveness Summary).***

ORGANIZATION OF PROPOSED PLAN

The rest of this Proposed Plan discusses how the USAF decided on the final actions proposed for these sites (i.e. no action under CERCLA; and MNA/ICs under Alaska's contaminated site regulations). General information about Cape Romanzof is followed by individual information summaries for Sites SS013 and SS015.

CAPE ROMANZOF BACKGROUND

LOCATION

Cape Romanzof LRRS is located within the Yukon Delta National Wildlife Refuge in western Alaska, approximately 540 miles west of Anchorage (**Figure 1**). It sits on a small peninsula extending into the Bering Sea. The nearest towns to Cape Romanzof are Scammon Bay and Hooper Bay, which are about 15 miles east and south, respectively. The communities are not connected to Cape Romanzof by road.

Cape Romanzof LRRS includes 4,900 acres of land that has been divided into two areas, the Lower Camp and the Upper Camp. The Lower Camp lies at the head of a valley next to tundra fields and intermittent streams, which drain into a perennial stream, Fowler (Nilumat) Creek. The Upper Camp is situated on a high ridge directly above the head of the valley.

Sites SS013 and SS015 are both in Lower Camp (**Figure 2**).

ENVIRONMENTAL SETTING

Cape Romanzof LRRS is located in the Yukon-Kuskokwim Coastal Lowland region at the western end of the Askinuk Mountains. Cape Romanzof lies within the Alaskan Transitional Climatic Zone, with an approximate average annual precipitation of 27 inches, average wind speed of 12 miles per hour, summer average high temperatures in the 40s and 50s, and winter average high temperatures in the teens. Permafrost is not known to exist at Cape Romanzof.

REGULATORY BASIS

THIS PLAN IS ISSUED IN ACCORDANCE WITH AND SATISFIES THE REQUIREMENTS OF THE COMPREHENSIVE ENVIRONMENTAL RESTORATION, COMPENSATION AND LIABILITY ACT (CERCLA, AT 42 USC §§ 9601 *ET. SEQ.*), AS FURTHER IMPLEMENTED BY THE NATIONAL CONTINGENCY PLAN (NCP, AT 40 CFR PART 300). THE ERP IS AUTHORIZED IN THE DEFENSE ENVIRONMENTAL RESTORATION PROGRAM (10 USC §§ 2701 *ET.SEQ.)* AS THE ENVIRONMENTAL RESTORATION PROGRAM THE AIR FORCE USES TO TAKE CERCLA RESPONSE ACTIONS AND SATISFY ITS CERCLA LEAD AGENCY FUNCTIONS AS DELEGATED BY EXECUTIVE ORDER 12580.

PETROLEUM, INCLUDING CRUDE OIL OR ANY FRACTION THEREOF, IS SPECIFICALLY EXCLUDED FROM CERCLA. CONTAMINATION FROM PETROLEUM IS REGULATED UNDER ALASKA STATE LAW AND REGULATIONS.

THE PLAN ALSO MEETS ALL REQUIREMENTS OF ALASKA STATE LAW AND REGULATIONS, INCLUDING BUT NOT LIMITED TO TITLE 46 OF THE ALASKA STATUTES AND REGULATIONS PROMULGATED THEREUNDER.

Figure 1: Cape Romanzof Location Map

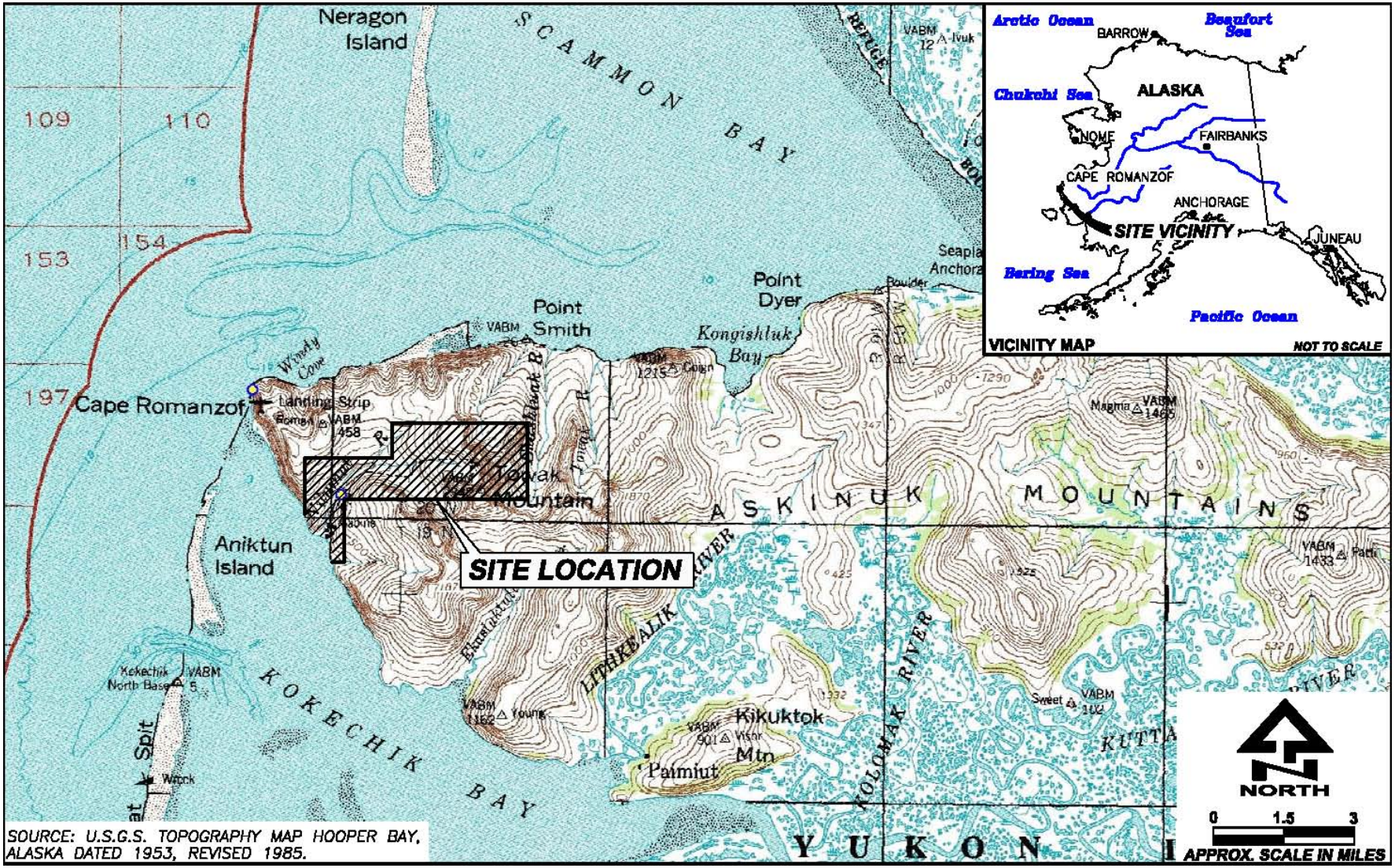
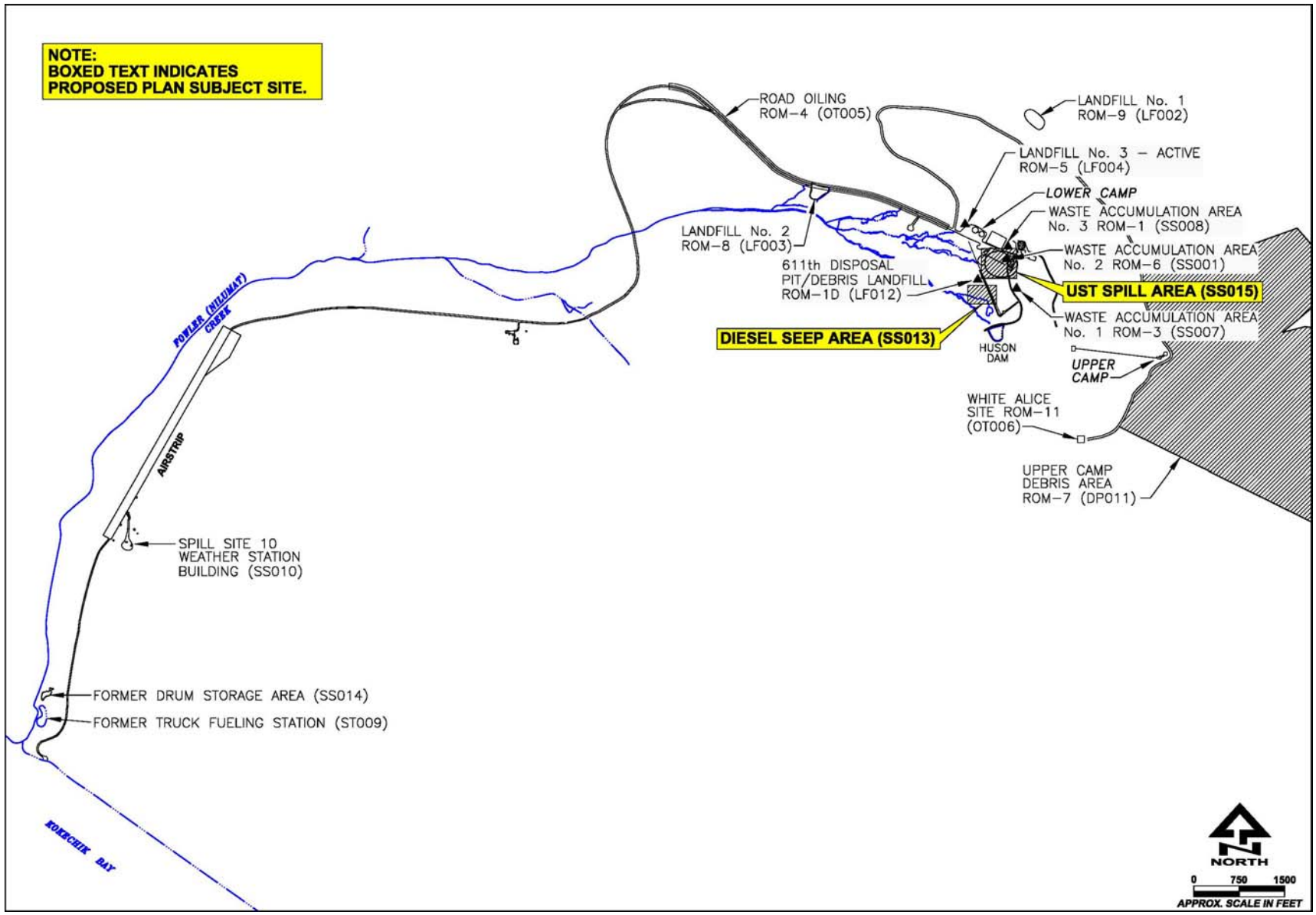


Figure 2: Cape Romanzof LRRS ERP Sites



Fowler (Nilumat) Creek drains the main Cape Romanzof LRRS valley. It flows four miles from a constructed reservoir (behind Huson Dam) at the head of the valley to Kokechik Bay (**Figure 2**). Fowler (Nilumat) Creek supports several species of fish, including Dolly Varden and pink salmon.

The Upper Camp geology is characterized by a thin layer of soil overlying bedrock. The Lower Camp is underlain by deposits of talus and other colluvial materials that form an apron at the base of the steep slope. Further down the valley, alluvial/glacial deposits make up the surface geology.

Groundwater has been identified in three different geologic units at Cape Romanzof LRRS. The most significant water-bearing units appear to be the alluvial/glacial deposits and fractures in the weathered and fresh bedrock. Groundwater is also present in the colluvium on the steep valley sides and adjacent valley floor. Groundwater has not been encountered at Upper Camp, and the presence of a permanent groundwater aquifer is considered unlikely.

Groundwater recharge is from infiltration of precipitation within the drainage basin. Little or no regional flow exists across drainage boundaries. Surface runoff and groundwater flow follow the downward slopes of the valley and exit the main valley to the west.

HISTORICAL USE

Cape Romanzof LRRS was one of ten original *Aircraft Control and Warning* (***AC&W***) sites in the Alaska air defense system. Installation construction was finished in 1952, and operations began in 1953. In 1958, Cape Romanzof was established as a *White Alice Communications System* (***WACS***), replacing the AC&W. In 1979, a commercially owned-and-operated communications system (Alascom) used a satellite earth terminal to replace the White Alice operations.

Cape Romanzof LRRS has been operated by a government contractor since 1977. After the *minimally-attended radar system* (***MARS***) was completed in the mid-1980s, the staffing level dropped to approximately six people (now four), who live at the site year-round. Additional personnel stay at Cape Romanzof LRRS on a seasonal basis.

At Upper Camp, all of the White Alice buildings have been demolished; only the MARS radar dome and tram station remain. At Lower Camp, almost all of the original buildings have been demolished; what now remain are the power plant, a bulk fuel storage area, and a dry storage building. A new composite facility, consisting of two dome buildings, was installed in 1984 at Lower Camp and provides the industrial and living facilities for on-site personnel. There is also a small building at the end of the airstrip that is used as a weather station.

Hazardous and potentially ***hazardous substances*** have historically been used or stored at Cape Romanzof LRRS to support base activities.

SITE RESTORATION HISTORY

In 1985, a Phase I records search identified 11 potentially contaminated sites at Cape Romanzof LRRS. Subsequently, site ROM-1 was subdivided into three sites, and several additional sites were identified. A total of 15 ERP sites have been identified at Cape Romanzof LRRS (**Figure 2**). **Table 1** provides an overview of all environmental restoration issues at Cape Romanzof LRRS; restoration of the two subject sites of this Proposed Plan does not affect the other 13 ERP sites listed in **Table 1**.

Table 1: Cape Romanzof LRRS ERP Sites

Site	Name	Status
SS013 (ROM 1S)	**Seep Area and Spill Location 5**	**No Action (CERCLA); ICs (Alaska) Preferred Alternative** **2002 Interim ROD; MNA and ICs**
SS015	**Spill Site 15**	**No Action (CERCLA); ICs and MNA (Alaska) Preferred Alternative** **2002 Interim ROD; MNA and ICs**
SS007 (ROM 3)	Waste Accumulation Area No. 1	Final ROD 2008. No Action (CERCLA); Unconditional Closure (Alaska)
DP011 (ROM 7)	Debris Area	Final ROD 2008. No Action (CERCLA); Conditional Closure (Alaska)
ST009 (ROM 10)	Former Truck Fueling Station near beach	Final ROD 2008. No Action (CERCLA); Conditional Closure (Alaska)
SS014 (ROM 1S)	Drum Storage Area	Final ROD 2008. No Action (CERCLA); Conditional Closure (Alaska)
SS001 (ROM 6)	Waste Accumulation Area No. 2	Final ROD 2007. No Action (CERLCA and Alaska)
SS008 (ROM 1)	Waste Accumulation Area No. 3	Final ROD 2007. No Action (CERLCA and Alaska)
LF002 (ROM 9)	Landfill No. 1	Final ROD 2007. No Action (CERLCA and Alaska)
LF012	611th/Disposal Pit/Debris Landfill	Final ROD 2007. No Action (CERLCA and Alaska)
OT005 (ROM 4)	Road Oiling	Final ROD 2007. No Action (CERLCA and Alaska)
OT006 (ROM 11)	White Alice	Final ROD 2007. No Action (CERLCA and Alaska)
LF03 (ROM 8)	Landfill No. 2	2002 Interim Record of Decision (***ROD***); long-term monitoring
LF04 (ROM 5)	Landfill No. 3	Active landfill
SS10 (ROM 2)	Spill Site 10 (Weather Station Building)	RI/FS/ROD planned for 2008/2010/2012
SS016	Upper Tram Area	RI completed 2009; FS/ROD planned for 2010/2012
SS017	Lower Tram Area	RI completed 2009; FS/ROD planned for 2010/2012

Note: Subject sites of this Plan are shown in blue, bold font.

Reports documenting key historical site restoration events at Sites SS013 and SS015 are summarized below; investigation results are summarized on pages 8 to 21 of this Plan. All of the reports are available in the ***Administrative Record*** (access information is provided on page 22 of this Plan.

- ***Final RI/FS Technical Report Cape Romanzof LRRS, Alaska,*** USAF [Woodward-Clyde], 1992. The field work reported in the 1992 RI/FS was performed during 1989 and 1990.
- ***Final RI/FS Spill Site SS15, Cape Romanzof LRRS, Alaska***. USAF [ENSR], 1993.
- ***Final Report Investigation, Delineation, and Excavation of Contaminated Soil from Stockpile Near SS15 Site, Waste Accumulation Area 3 (SS08), Drum Storage Area (SS14), Petroleum, Oil, and Lubricants Fill Stand (ST09), Construction of Cells for Contaminated Soil, Capping of Landfill-2 (LF03), and Geology/Water Resources of Nilumat Valley***, USAF, 1995.
- ***SS15 Technical Report. Final***. USAF, 1998.
- ***Remedial Investigation/Feasibility Study Report for SS13. Final.*** USAF, 1998.
- ***Proposed Plan for Cleanup, Landfill (LFO3), Spill Site SS13, and Spill Site SS15, Cape Romanzof LRRS, Alaska.*** USAF, 2001.
- ***Record of Decision for Interim Remedial Action, Sites: Spill Site SS013, Spill Site SS015 and Landfill Site LFOO3, Cape Romanzof LRRS, Alaska.*** USAF, 2002.
- ***Final First Five-Year Review Cape Romanzof Sites LF003, SS013, and SS015,*** USAF, 2008.
- Long-Term Monitoring Reports for LF003, SS013, and SS015 for 1999, 2000, 2003, 2004, 2006, 2007, and 2008. USAF.

CURRENT AND FUTURE LAND USE

Cape Romanzof LRRS is currently used as an active MARS facility. It contains one residential structure for approximately four year-round workers and additional seasonal workers. There is no road access from nearby villages to Cape Romanzof LRRS; therefore, frequent use by community members is not anticipated. However, members of nearby villages use the surrounding lands and oceans for subsistence purposes.

The land surrounding Cape Romanzof LRRS is a federally protected environment, the Yukon Delta National Wildlife Refuge.

The reasonably-anticipated future land use of Cape Romanzof LRRS and the surrounding land is the same as the current land use. There are no plans for residential use at Sites SS013 and SS015.

GROUNDWATER USE

Groundwater is used as the drinking water source for Cape Romanzof LRRS. The water supply well, Well No. 1 at Lower Camp, produces groundwater from confined water-bearing zones at 82 to 102 feet deep and 146 to 148 feet deep. Well No. 1 is located approximately 250 feet upgradient of Site SS013 and 900 feet up- or cross-gradient of Site SS015.

There are no other known groundwater intakes in use within the Cape Romanzof watershed.

SURFACE WATER USE

Surface water drainage at Lower Camp is generally by overland flow to intermittently-flowing streams feeding into Fowler (Nilumat) Creek, which then flows westward into Kokechik Bay. Fowler (Nilumat) Creek supports several species of fish, including Dolly Varden and pink salmon.

Fowler (Nilumat) Creek is used by Cape Romanzof workers for recreational fishing. Kokechik Bay is used by nearby communities for subsistence purposes.

OVERALL SITE RESTORATION OBJECTIVES

The overall objectives of Cape Romanzof environmental site restoration are to ensure that conditions at each site are protective of human health and the environment and to comply with federal and state regulations. Federal and state regulations that are potentially relevant to establishing remediation goals and cleanup levels are summarized below.

FEDERAL REGULATIONS

The NCP states that remediation goals must establish acceptable exposure levels that are protective of human health and the environment.

ALASKA'S CONTAMINATED SITE REGULATIONS

Soil and Groundwater

The state of Alaska has promulgated ***cleanup levels*** in 18 AAC 75 (Oil and Hazardous Substances Pollution Control Regulations, as amended through October 9, 2008). Tabulated soil cleanup levels are provided in ADEC 18 AAC 75.341 Method Two Table B1 and B2 (Under 40-inch zone)[3] for three exposure pathways: migration to groundwater, inhalation, and direct contact[4]. The ADEC Method Two soil cleanup levels may be applied at any contaminated site in Alaska and are considered protective of human health. Tabulated groundwater cleanup levels are provided in ADEC 18 AAC 75.345 Table C[5]. The ADEC Table C groundwater cleanup levels apply to all groundwater in Alaska that is or may be a potential drinking water source and are considered protective for drinking water.

[3] Throughout this Plan, these cleanup levels are referred to as ADEC Method Two soil cleanup levels.

[4] For bulk hydrocarbons (i.e., GRO, DRO, and RRO), Method Two cleanup levels are provided for the migration to groundwater, inhalation, and ingestion pathways.

[5] Throughout this Plan, these cleanup levels are referred to as ADEC Table C groundwater cleanup levels.

ADEC Table C cleanup levels are appropriate for use as cleanup levels for SS015 groundwater.

ADEC 18 AAC 75.341 Method Three (hereinafter referred to as ADEC Method Three) allows calculation of site-specific cleanup levels that are considered protective of human health and the environment.

Method Three cleanup levels were calculated for soil at Site SS013. The Method Three cleanup levels (205,000 mg/Kg *diesel-range organics* [***DRO***] and 204,000 mg/Kg *residual-range organics* [***RRO***]) are based on the ingestion pathway and are protective of commercial/industrial land use at the site. The cleanup levels are considered protective of the migration to groundwater pathway, because groundwater is no longer being impacted above Table C from soil contamination.

When multiple chemicals are detected at a site, Alaska's contaminated site regulations require evaluating the cumulative risk. Alaska's Cumulative Risk Guidance states that the potential for cumulative risk must be evaluated for any chemicals detected above 1/10 of the lowest of the direct contact/ingestion or inhalation Method Two soil cleanup level or Table C groundwater cleanup level. In accordance with ADEC's Cumulative Risk Guidance, bulk hydrocarbons (DRO, *gasoline-range organics* [***GRO***], and RRO) are not included in cumulative risk calculations.

To establish compliance with cleanup levels and cumulative risk requirements, screening levels for soil were established as the lower of Method Two migration to groundwater cleanup levels or 1/10 of the lower of the Method Two direct contact/ingestion or inhalation cleanup levels. Screening levels for groundwater were established as 1/10 of Table C cleanup levels. However, screening levels for bulk hydrocarbons are set at the lowest of the Method Two migration to groundwater, inhalation, or ingestion cleanup levels and Table C groundwater cleanup levels, because bulk hydrocarbons are not included in cumulative risk calculations.

Surface Water and Sediments

Surface water criteria for the state of Alaska are provided in 18 AAC 70 (Water Quality Standards, as amended through September 19, 2009). Tabulated water quality criteria (in 18 AAC 70.020) are appropriate for surface water at Site SS013. These levels are protective of human health (water supply and water recreation uses) and the environment (aquatic life and wildlife propagation).

No surface water criteria have been established for bulk hydrocarbons (i.e., DRO, GRO, and RRO); instead, surface water criteria were established for *total aromatic hydrocarbons* (***TAH***) and *total aqueous hydrocarbons* (***TAqH***).

With respect to cleanup levels, sediments are distinguished from soil by the degree to which they are submerged in water. The substrate in wetlands or streambeds that is submerged more than half of the year is considered sediment; the substrate in areas that are never or only occasionally submerged is considered soil. According to this distinction, the sediment sample locations in SS013 are considered soil, and soil cleanup levels are appropriate for these samples.

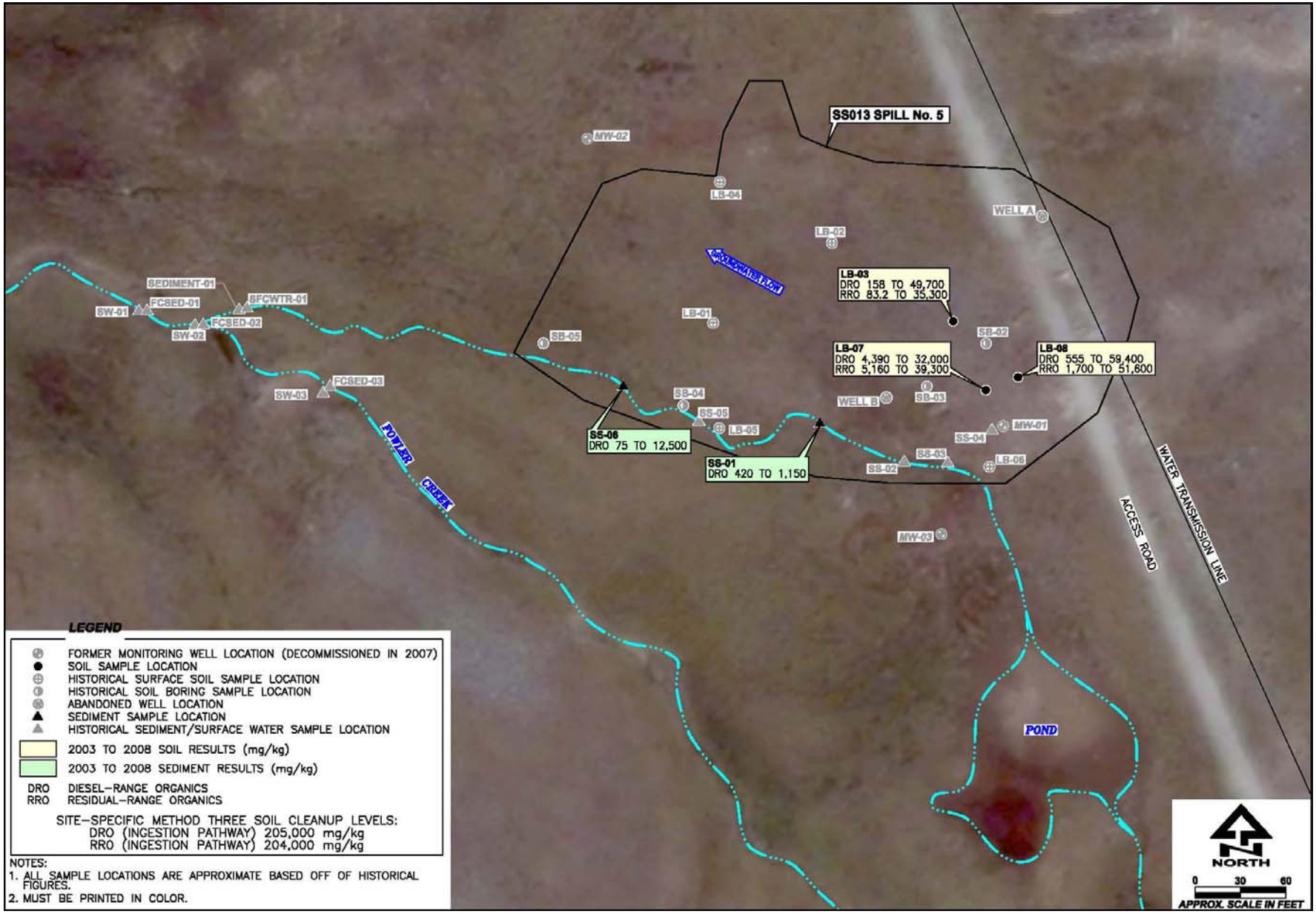
INDIVIDUAL SITE SUMMARIES

DIESEL SEEP AREA (SS013)

Site Description

Diesel Seep Area (SS013; formerly known as ROM-1S) is located 800 feet south of the Lower Camp composite facility (**Figure 3**). A tributary of Fowler (Nilumat) Creek runs along the south side of Site SS013. Depth to groundwater measured at the site varies from near ground surface (MW-02) to approximately 20 feet *below ground surface* (***bgs***) (MW-01). Groundwater depth shows large seasonal fluctuations; the depth to water at MW-01 has been measured between approximately 3 feet bgs and 20 feet bgs. Groundwater flow is to the northwest.

Figure 3: Diesel Seep Area (SS013)



The site is the result of a 14,000-gallon diesel fuel spill in 1979. The spill apparently ran overground and contaminated near surface soil material over a large area. The contamination also migrated down the water table in some areas.

Petroleum hydrocarbons (DRO, GRO, RRO, and benzene) were determined to be the *chemicals of potential concern* (***COPCs***) at Site SS013.

Cleanup Actions To-Date

A 2002 Interim Record of Decision selected *Monitored Natural Attenuation* (***MNA***) and *Institutional Controls* (***ICs***) as an interim remedy for Site SS013.

MNA monitoring was performed at SS013 in 1999, 2000, 2003, 2004, 2006, 2007, and 2008 (sample scope is shown in **Table 2**).

A five-year review of the interim remedy prepared in 2008 concluded that the remedy is functioning as intended. Monitoring data indicate that hydrocarbon impacts are primarily limited to the spill site with no evidence of impact to surface water. The review recommended a continuation of long-term monitoring activities and ICs.

During preparation of the Proposed Plan, Method Three cleanup levels were calculated for DRO and RRO in Site SS013 soil (presented on page 8).

Summary of Site Conditions

Current Site Conditions: Based on the 2003 through 2008 monitoring results, DRO and RRO are not present in soil at concentrations above the ADEC Method Three cleanup levels calculated for the site.

Investigation Summary: Soil, sediment, surface water, and/or groundwater samples were collected from SS013 during the environmental investigations summarized briefly below. Analytical results for chemicals detected above screening levels (discussed on page 8) are summarized in **Table 3** (groundwater), **Table 4** (soil), and **Table 5** (sediment).

In 1989, four soil samples were collected from Site SS013 (called ROM-1S at the time) and analyzed for *total petroleum hydrocarbons* (***TPH***) and benzene, toluene, ethylbenzene, and xylenes (***BTEX***). Groundwater samples were collected from two existing water wells (Wells A and B) and also analyzed for TPH and BTEX.

In 1990, groundwater samples were collected from Wells A and B and analyzed for TPH and BTEX.

In 1997, a sampling grid was established over the site, and a total of 55 surface soil samples were field-screened for TPH. Based on the field-screening results, eight surface soil samples were collected for laboratory analysis. Six soil borings were advanced, and 19 surface and subsurface samples were collected for field-screening and 11 samples for laboratory analysis.

Two soil borings were converted into monitoring wells MW-01 and MW-02 and sampled.

Fifteen sediment samples were collected for field-screening, and ten were submitted for laboratory analysis. Eight surface water samples were collected for field-screening, and four were submitted for laboratory analysis.

The laboratory analytical suite for the soil, sediment, groundwater, and surface water samples included GRO, DRO, RRO, BTEX and *trimethylbenzenes* (***TMB***), and *semi-volatile organic compounds* (***SVOCs***). Results are summarized below.

- In groundwater, all results were below screening levels except DRO. DRO was detected in MW-01 at a concentration exceeding the 1.5 milligram per liter (mg/L) Table C cleanup level.
- In surface water, all results were non-detect, except for one SVOC[6].

[6] One SVOC, bis(2-ethylhexyl)phthalate, was detected above the water quality criteria in one surface water sample. Bis(2-ethylhexyl)phthalate is a common plasticizer that was not detected in subsequent surface water samples and is not considered a COPC at the site.

Table 2: SS013 MNA/LTM Monitoring Scope (1999-2008)

	1999	2000	2003	2004	2006	2007	2008
Groundwater	MW-01, MW-02			MW-01, MW-02, MW-03	*discontinued*		
Surface Water	SW-01, SW-02, SW-03		*None: frozen*	SW-01, SW-02, SW-03	*discontinued*		
Soil	LB-03, LB-07, LB-08						
Sediment	SS01, SS06						
Analyses:	**DRO, GRO, RRO, BTEX, SVOC**			**DRO, RRO, BTEX, PAH**	**Soil: DRO and RRO; Sediment: DRO**		

Notes:

DRO: *Diesel-range organics*
GRO: *Gasoline-range organics*
RRO: *Residual-range organics*
PAH: *Polyaromatic hydrocarbons*
BTEX: *Benzene, toluene, ethylbenzene, and xylenes*
SVOC: *Semi-volatile organic compounds*

Table 3: SS013 Summary of Groundwater Sample Results Above Screening Levels

	Table C Cleanup Level (mg/L)	Sample Locations (Number of Samples)	Range of Detected Values (mg/L)	2nd Highest Detection (mg/L)	Location of Maximum Detection	Number Above Table C Cleanup Level
	2004 MNA Monitoring					
DRO	1.5	3 Locs (3)	0.142-0.233	0.175	MW-02	0
	1999-2003 MNA Monitoring					
DRO	1.5	2 Locs (6)	0.114-**2.7**	2.22	MW-01	3
	1997 RI/FS Sampling					
DRO	1.5	2 Locs (2)	0.213-**2.47**	0.213	MW-01	1
	1989-1990 RI/FS Sampling					
TPH	na	2 Locs (4)	0.3-4	1.6	Well B	na

Notes:

MNA: *Monitored Natural Attenuation*
DRO: *Diesel-range organics*
RI/FS: *Remedial Investigation/Feasibility Study*
TPH: *Total petroleum hydrocarbons*
na: *Not applicable*
mg/L: *Milligrams per liter*

Results in bold font exceed the Table C cleanup level.

Table 4: SS013 Summary of Soil Results Above Screening Levels

	Proposed Cleanup Level* (mg/Kg)	Sample Locations (Number of Samples)	Range of Detected Values (mg/Kg)	2nd Highest Detection (mg/Kg)	Location of Maximum Detection	Number Above Proposed Cleanup Level*
	2003-2008 MNA Monitoring					
DRO	205,000	3 Locs (15)	150-59,400	49,700	LB-08 (2003)	0
RRO	204,000	3 Locs (15)	83.2-51,600	39,300	LB-08 (2003)	0
	1999-2000 MNA Monitoring					
DRO	205,000	3 Locs (6)	48-8,900	5,870	LB-07 (2000)	0
RRO	204,000	3 Locs (6)	140-6,800	3,440	LB-07 (2000)	0
	1997 RI/FS Sampling					
GRO	1,400	22 Locs (22)	7-900	140	SB-04-02	0
DRO	205,000	22 Locs (22)	8-110,000	60,000	LB-08	0
RRO	204,000	22 Locs (22)	63-35,000	11,000	LB-08	0
Xylenes	63	22 Locs (22)	0.05-17	1.17	SB-04-02	0
1,2,4-Trimethyl-benzene	49	22 Locs (22)	0.01-16.6	5.08	SB-04-02	0
1,3,5-Trimethyl-benzene	42	22 Locs (22)	0.01-33.5	10.81	SB-04-02	0
Benzo(a)pyrene	0.49	22 Locs (22)	0.2	na	LB-08	0
Dibenzo(a,h) anthracene	0.49	22 Locs (22)	0.008-0.3	0.01	LB-08	0
Indeno(1,2,3-cd) pyrene	4.9	22 Locs (22)	0.005-0.5	0.04	LB-08	0
2-Methyl-naphthalene	280	22 Locs (22)	0.002-13	2	SB-04-02	0
	1989 RI/FS Sampling					
TPH	na	4 Locs (4)	1,500-17,000	9,100	1S-6	na

Notes:

* *ADEC Method Three Cleanup Levels (ingestion pathway) for DRO and RRO; Method Two Table B1 Cleanup Levels (lower of ingestion or inhalation pathways) for all other analytes*

MNA: Monitored Natural Attenuation *RI/FS: Remedial Investigation/Feasibility Study*

DRO: Diesel-range organics *GRO: Gasoline-range organics*

RRO: Residual-range organics *TPH: Total petroleum hydrocarbons*

na: Not applicable *mg/Kg: Milligrams per kilogram*

Table 5: SS013 Summary of Sediment Results Above Screening Levels

	Proposed Cleanup Level* (mg/Kg)	Sample Locations (Number of Samples)	Range of Detected Values (mg/Kg)	2nd Highest Detection (mg/Kg)	Location of Maximum Detection	Number Above Proposed Cleanup Level*
	2003-2008 MNA Monitoring					
DRO	205,000	2 (10)	75-12,500	1,680	SS-06 (2007)	0
Benzene	11	2 (10)	0.409	na	SS-01 (2003)	0
Ethylbenzene	110	2 (10)	0.127-19.7	0.127	SS-01 (2003)	0
Toluene	220	2 (10)	0.366-3.4	0.366	SS-01 (2003)	0
Xylenes	63	2 (10)	0.0569-37.8	0.0569	SS-01 (2003)	0
	1999-2000 MNA Monitoring					
DRO	205,000	2 (4)	154-55,800	52,000	SS-01 (1999)	0
RRO	204,000	2 (4)	421-7,250	4,300	SS-01 (1999)	0
	1997 RI/FS Sampling					
DRO	205,000	10 Locs (10)	56-27,000	8,700	SS-05	0
RRO	204,000	10 Locs (10)	83-5,400	2,470	SS-04	0
Benzo(a)pyrene	0.49	10 Locs (10)	0.01-0.08	0.01	FCSED-02	0
Dibenzo(a,h) anthracene	0.49	10 Locs (10)	0.002-0.2	0.01	SS-04	0
Indeno (1,2,3-cd) pyrene	4.9	10 Locs (10)	0.005-0.9	0.05	SS-04	0
bis(2-ethyl-hexyl)phthalate	220	10 Locs (10)	0.02-**59**	0.9	SS-04	0

Notes:

* *ADEC Method Three Cleanup Levels (ingestion pathway) for DRO and RRO; Method Two Table B1 Cleanup Levels (lower of ingestion or inhalation pathways) for all other analytes*

MNA: Monitored Natural Attenuation *RI/FS: Remedial Investigation/Feasibility Study*

DRO: Diesel-range organics *GRO: Gasoline-range organics*

RRO: Residual-range organics *mg/Kg: Milligrams per kilogram*

na: Not applicable

- In soil, GRO, DRO, and RRO were not detected above the proposed cleanup levels.
- In sediment, DRO was not detected above its proposed cleanup level.

In 1999, 2000, 2003, 2004, 2006, 2007, and 2008, long-term monitoring was performed at Site SS013. The monitoring scope is summarized in **Table 2**.

There are no upward or downward trends in the soil and sediment bulk hydrocarbon data. However, some BTEX, TMB, and SVOC concentrations appear to have decreased, from above screening levels in 1997 to generally below screening levels in subsequent events[7]. Soil and sediment are inherently inhomogeneous, making comparisons between analytical results difficult.

Cleanup Objectives

The cleanup objective for Site SS013 is to:

- Restrict use of the site to commercial/industrial use.

Preferred Alternative

Under CERCLA, no further action is proposed at the Diesel Seep Area (SS013), because there are no CERCLA hazardous substances identified as contaminants of concern at the site.

Under Alaska's contaminated site regulations, ICs are proposed for Site SS013 to restrict use of the site to commercial/industrial land use.

Interim reports will be prepared no less often than once every five years to ensure that ICs are still protective of human health and the environment. ICs will remain as required by 18 AAC 75.375.

ICs for both sites SS013 and SS015 are detailed on page 21 of this Plan.

UST SPILL AREA (SS015)

UST Spill Area (SS015) is located north of Site SS013, approximately 200 feet south of the Lower Camp composite facility (**Figure 4**). There is no surface water at Site SS015. Depth to groundwater measured at the site varies from approximately 3 feet bgs at the western edge of the site to approximately 50 feet bgs at the eastern edge of the site. Groundwater depth shows large seasonal fluctuations; depth to water at WW-02 has been measured between approximately 30 feet bgs and 60 feet bgs. Groundwater flow direction has been measured to the west-northwest and north-northwest but generally follows surface topography.

The site is the result of a diesel fuel spill that occurred from two USTs. The USTs (reportedly 5,000-gallons and 15,000-gallons) were discovered in 1991 during an excavation of fuel-contaminated soils from an adjacent AST.

Petroleum hydrocarbons were determined to be the COPCs at Site SS015.

Cleanup Actions To-Date

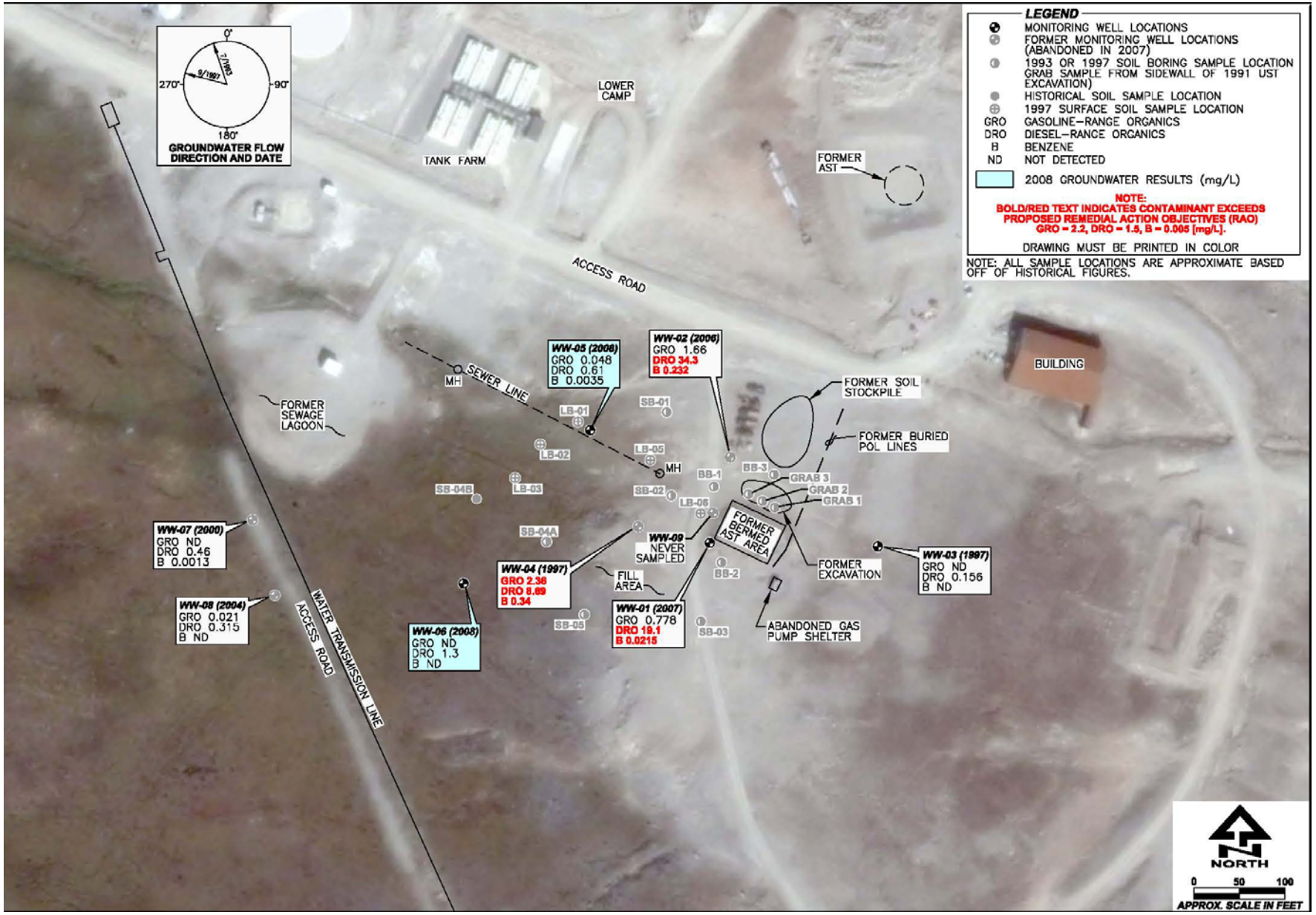
In 1991, the two USTs were removed from the site along with approximately 900 cubic yards of contaminated soil. Diesel was also recovered from three test pits excavated downgradient of the primary excavation. A fuel-resistant liner was placed into the excavation before it was backfilled.

A 2002 Interim Record of Decision selected MNA and ICs as an interim remedy for Site SS015 groundwater.

MNA monitoring of SS015 groundwater occurred in 1999, 2000, 2003, 2004, 2006, 2007, and 2008 (sample scope is shown in **Table 6**).

[7] Elevated BTEX concentrations were detected in the 2003 sample from SS-01. These concentrations are considered anomalous and not reflective of SS013 contamination.

Figure 4: SS015 Site Layout and Most Recent Groundwater Sample Results



A five-year review of the interim remedy prepared in 2008 concluded that the remedy is functioning as intended. The stable to shrinking groundwater plume size provides evidence for natural attenuation at the site. The review recommended a continuation of long-term monitoring activities and ICs.

Summary of Site Conditions

Current Site Conditions: Based on the 2003 through 2008 monitoring results, benzene, GRO, and DRO remain in groundwater at concentrations above the ADEC Table C cleanup levels protective of drinking water.

Investigation Summary: Groundwater and/or soil samples were collected from SS015 during the environmental investigations summarized briefly below. Analytical results for chemicals detected above screening levels (discussed on page 8) are summarized in **Table 7** (soil) and **Table 8** (groundwater).

In 1991, three soil samples were collected from the south wall of the UST excavation and analyzed for TPH.

In 1993, 56 subsurface soil samples were collected for DRO analysis from nine soil borings (depth range from 2.5 feet bgs to 54 feet bgs). Thirteen samples were also analyzed for GRO. In addition, five test pits were excavated along a sewer line trench. Three soil samples from the test pits were analyzed for DRO.

Six soil borings were converted into monitoring wells (WW-01 through WW-06). Groundwater samples were collected from the monitoring wells and analyzed for DRO and BTEX.

Sample results showed soil was impacted by DRO above the Method Two migration to groundwater cleanup level (250 mg/Kg) in surface and subsurface soil samples, although none of the results exceeded inhalation or ingestion pathway cleanup levels. Groundwater was impacted by DRO and benzene above Table C cleanup levels.

In 1997, an environmental investigation was performed to delineate the contamination at SS015. Eight soil borings were advanced, 39 samples were field-screened, and 20 soil boring samples plus six additional surface soil samples were collected for laboratory analysis.

Two soil borings were converted into monitoring wells WW-07 and WW-08. Groundwater samples were collected from all eight monitoring wells at the site.

The soil and groundwater samples were analyzed for GRO, DRO, RRO, BTEX and TMB, and SVOCs.

Sample results showed widespread soil impact by DRO above the Method Two migration to groundwater cleanup level, although no results exceed the inhalation or ingestion pathway cleanup levels. Groundwater was impacted by DRO, GRO, and 2-methylnaphthalene above Table C cleanup levels. The downgradient monitoring wells (WW-05 through WW-08) did not contain any contamination above cleanup levels.

In 1999, 2000, 2003, 2004, 2006, 2007, and 2008, long-term monitoring was performed at Site SS015. The monitoring scope is summarized in **Table 6.**

There are insufficient data for trend analysis at any of the monitoring wells. However, the long-term monitoring data suggests a stable groundwater plume. BTEX concentrations in the source area (WW-02) appear to have declined.

Cleanup Objectives

The cleanup objectives for Site SS015 are to:

- Clean up contaminated groundwater to the proposed ***cleanup levels*** (ADEC Table C cleanup levels summarized in **Table 8**); and
- Restrict access to contaminated groundwater until it is cleaned up.

Table 6: SS015 MNA Monitoring Scope

	1999	2000	2003	2004	2006	2007	2008
Groundwater	WW-02[1], WW-07, WW-08		WW-02, WW-08[2]		WW-02[3]	WW-01, WW-05, WW-06[4]	WW-05, WW-06
Analyses:	DRO, GRO, RRO, BTEX, SVOC[5], plus MNA parameters						

Notes:

(1) In 1999, no GRO or BTEX analysis in WW-02, no SVOC analysis in WW-07 or WW-08.

(2) Monitoring well WW-07 was dry and could not be sampled.

(3) Monitoring wells WW-07 and WW-08 were dry and could not be sampled.

(4) Monitoring wells WW-02, WW-07, and WW-08 were dry or damaged and could not be sampled. WW-02, -04, -07, -08, and -09 were decommissioned in 2007. Attempts to replace WW-02 were unsuccessful.

(5) 2004 SVOC analysis had lower detection limits than 1999-2003 SVOC analyses. No SVOC Analysis in 2006 or 2008.

Table 7: SS015 Soil Results Above Screening Levels

	Method Two Cleanup Level (mg/Kg) HHRBC	Method Two Cleanup Level (mg/Kg) Mig to GW	Sample Locations (Number of Samples)	Range of Detected Values (mg/Kg)	Number of Detections	2nd Highest Detection (mg/Kg)	Location of Maximum Detection	Number Above Method Two Cleanup Level (HHRBC)	Number Above Method Two Cleanup Level (Mig to GW)
	1997 RI/FS Sampling								
DRO	10,250	250	8 Borings (20); 6 Surface (6)	5-**5,800**	20	**5,300**	LB-05	0	7
RRO	10,000	11,000	8 Borings (20); 6 Surface (6)	33-4,500	18	1,500	SB-03-01	0	0
	1993 Sampling								
DRO	10,250	250	9 Borings (56); 3 Test pits (3)	2-**8,000**	59	**6,800**	WW-01 (5' bgs)	0	17
GRO	1,400	300	7 Borings (13)	16-**440**	4	45	BB-1 (2.5' bgs)	0	1
	1991 Excavation Wall Sampling								
TPH	na	na	3 Locs (3)	20,000-26,000	3	25,000	Grab 1 (7' bgs)	na	na

Notes:

HHRBC: Human health risk-based concentration (lower of 18 AAC 75.341 inhalation or ingestion/direct contact pathway cleanup levels)

Mig to GW: 18 AAC 75.341 Migration to Groundwater Pathway cleanup level

DRO: Diesel-range organics — *RRO: Residual-range organics*

GRO: Gasoline-range organics — *TPH: Total petroleum hydrocarbons*

mg/Kg: milligrams per kilogram — *bgs: below ground surface*

na: Not applicable — ***Results in bold font exceed the lowest cleanup level.***

Table 8: SS015 Groundwater Results Above Screening Levels

	Table C Cleanup Level (mg/L)	Sample Locations (Number of Samples)	Range of Detected Values (mg/L)	2nd Highest Detection (mg/L)	Location of Maximum Detection	Number Above Table C Cleanup Level
	2007-2008 MNA Monitoring (WW-05 and WW-06; WW-01 in 2007 only)					
DRO	1.5	3 Locs (5)	0.61-**19.1**	1.3	WW-01	1
GRO	2.2	3 Locs (5)	0.048-0.788	0.048	WW-01	0
RRO	1.1	3 Locs (5)	0.164-0.804	0.406	WW-01	0
Benzene	0.005	3 Locs (5)	0.0035-**0.0215**	0.0035	WW-01	1
Naphthalene	0.73	3 Locs (3)	0.0001-0.148	0.0001	WW-01	0
	2003, 2004, and 2006 MNA Monitoring (WW-02; WW-08 in 2003 and 2004 only)					
DRO	1.5	2 Locs (5)	0.129-**387**	**50.4**	WW-02	3
GRO	2.2	2 Locs (5)	0.0212-**8.38**	**3.16**	WW-02	3
RRO	1.1	2 Locs (5)	0.223-0.995	0.628	WW-02	0
Benzene	0.005	2 Locs (5)	0.232-**0.563**	**0.311**	WW-02	3
Ethylbenzene	0.7	2 Locs (5)	0.00116-0.304	0.063	WW-02	0
Toluene	1	2 Locs (5)	0.00131-0.144	0.0392	WW-02	0
Benzo(a)pyrene	0.0002	2 Locs (4)	**0.000434**	na	WW-02	1
Benzo(a)anthracene	0.0012	2 Locs (4)	0.000631	na	WW-02	0
Benzo(b)fluoranthene	0.0012	2 Locs (4)	0.000438	na	WW-02	0
2-methylnaphthalene	0.15	2 Locs (2)	0.11	na	WW-02	0
Naphthalene	0.73	2 Locs (4)	0.0005-**0.967**	0.19	WW-02	1
	1999-2000 MNA Monitoring (WW-02, WW-07 and WW-08)					
DRO	1.5	3 Locs (6)	0.16-**7.23**	**3.2**	WW-02	2
GRO	2.2	3 Locs (5)	**4.4**	na	WW-02	1
RRO	1.1	3 Locs (5)	0.23-0.69	0.23	WW-02	0
Benzene	0.005	3 Locs (5)	0.001-**0.7**	0.001	WW-02	1
Ethylbenzene	0.7	3 Locs (5)	0.14	na	WW-02	0
Toluene	1	3 Locs (5)	0.0011-0.17	0.0011	WW-02	0
2-methylnaphthalene	0.15	3 Locs (4)	0.011-0.0352	0.011	WW-02	0
Naphthalene	0.73	3 Locs (4)	0.04-0.083	0.04	WW-02	0
	1997 (WW-01 through WW-08)					
DRO	1.5	8 Locs (8)	0.063-**400**	**59**	WW-02	3
GRO	2.2	8 Locs (8)	2.35-**7.95**	**2.53**	WW-02	3
RRO	1.1	8 Locs (8)	0.119-**1.38**	0.537	WW-02	1
Benzene	0.005	8 Locs (8)	0.31-**1.113**	**0.34**	WW-02	3
Ethylbenzene	0.7	8 Locs (8)	0.0611-0.31	0.0826	WW-02	0
Benzo(a)pyrene	0.0002	8 Locs (8)	0.0002	na	WW-02	0
Benzo(a)anthracene	0.0012	8 Locs (8)	0.0002	na	WW-02	0
Benzo(b)fluoranthene	0.0012	8 Locs (8)	0.0003	na	WW-02	0
Bis(2-ethylhexyl)phthalate	0.006	8 Locs (8)	0.0002-0.006	0.005	WW-02	0

	Table C Cleanup Level (mg/L)	Sample Locations (Number of Samples)	Range of Detected Values (mg/L)	2nd Highest Detection (mg/L)	Location of Maximum Detection	Number Above Table C Cleanup Level
2-methylnaphthalene	0.15	8 Locs (8)	0.0005-**0.53**	0.073	WW-02	1
Naphthalene	0.73	8 Locs (8)	0.0002-0.45	0.26	WW-02	0
	1993 (WW-01 through WW-06)					
DRO	1.5	6 Locs (6)	0.32-**33**	**26**	WW-06	3
Benzene	0.005	6 Locs (5)	0.27-**1.3**	**0.27**	WW-02	2
Toluene	1	6 Locs (5)	0.016-0.18	0.016	WW-02	0
Ethylbenzene	0.7	6 Locs (5)	0.045-0.18	0.045	WW-02	0

Notes:

DRO: DRO - Diesel-range organics
GRO: Gasoline-range organics
RRO: RRO - Residual-range organics
mg/L: milligrams per liter
na: Not analyzed
Results exceeding Table C cleanup levels shown in bold

Summary of Alternatives

The following three remedial alternatives were developed to address SS015 groundwater contaminated by petroleum hydrocarbons.

1. No Action;
2. ICs with Cap Maintenance and Periodic Reporting; and
3. Excavation.

Alternative 1: No Action

Evaluation of the No Action alternative is required by CERCLA as a baseline to reflect current conditions without remediation. This alternative does not include any treatment, containment, or monitoring.

Alternative #2: MNA

This alternative consists of MNA and ICs. Natural attenuation will continue to occur and will be enhanced by wetland vegetation. Groundwater monitoring would be performed periodically to monitor the natural degradation of the diesel fuel within the affected media. ICs would be used to decrease human or wildlife exposure to contaminants and could include one or more of the following: deed restrictions, restrictions on groundwater well installations, site access restrictions, and fencing.

Periodic inspections and maintenance of the institutional controls would be required.

Alternative #3: Monitored Natural Attenuation with Hot Spot Removal:

This alternative is identical to Alternative #2 with the addition of Hot Spot removal of contaminated soil. This additional option would immediately reduce the amount of contamination in the soils, but the act of accessing and removing these soils would severely damage the wetlands within and adjacent to the spill sites.

Evaluation Criteria

In accordance with the NCP, the remedial alternatives were evaluated against seven of the nine criteria described in Section 121(b) of CERCLA and the NCP §300.430(f)(5)(i); i.e., threshold criteria and balancing criteria, as described below. The final two criteria, modifying criteria, address public and state acceptance and are evaluated after completion of

the FS during the public comment period for the Proposed Plan.

Threshold criteria are standards that an alternative must meet to be unacceptable. The two threshold criteria are described below:

- **Overall protection of human health and the environment**: Will the alternative protect human health and plant and animal life?
- **Compliance with *Applicable or Relevant and Appropriate Requirements* (*ARARs*).** Does the alternative meet all pertinent federal, state, and local environmental statutes, regulations, and requirements?

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 criterion can offset a low rating on another balancing criterion. Five of the nine criteria are considered balancing criteria:

- **Long-term effectiveness and permanence:** How reliable is the alternative for protection in the long-run? Does it permanently address risk?
- **Reduction of toxicity, mobility, and volume through treatment:** Does the alternative use treatment to reduce the amount and/or harmful effects of the contamination?
- **Short-term effectiveness:** How soon will risks be reduced? Are there short-term hazards that could occur during the cleanup?
- **Implementability:** Is the alternative technically and administratively feasible?
- **Cost:** How much does it cost to implement the alternative?

Modifying criteria evaluate public acceptance and can therefore only be fully considered after public comment is received on the Proposed Plan. In the final analysis, modifying criteria and balancing criteria are of equal importance. The final two criteria are considered modifying criteria:

- **Community acceptance:** Do residents of the community accept the alternative? What comments are offered during the comment period?
- **State acceptance:** Does ADEC agree with the alternative?

Evaluation Results

Alternative #1 is unacceptable because it would not be protective of human health or the environment.

Alternatives #2 and #3 are both protective of human health and the environment and comply with applicable regulations. Contamination at the site would continue to naturally degrade, and monitoring would verify that contaminant migration is not occurring.

Both alternatives have adequate long-term effectiveness and reduction of toxicity, mobility, and volume through treatment. Natural attenuation is considered a permanent remedy. Alternative #3 is more protective of human health in the short-term, because it immediately removes contamination. However, it is considerably less protective of the environment, because wetland and tundra areas of the sites would be irreparably damaged by heavy equipment. In addition, the act of removing sediments from wetlands presents a possibility that the contaminants will become mobile and be released to the environment.

Alternative #3 would not be as cost effective as Alternative #2.

Preferred Alternative

Under CERCLA, no further action is proposed at the UST Spill Area (SS015), because there are no CERCLA hazardous substances identified as contaminants of concern at the site.

Under Alaska's contaminated site regulations, Alternative #2 (MNA/ICs) is the preferred alternative to address residual petroleum in Site SS015 groundwater above the ADEC Table C cleanup levels. This alternative will effectively reduce risk to human health and the environment utilizing naturally-occurring

processes. It will not have negative impacts on the vegetation that would be incurred by Alternative #3.

Interim reports will be prepared no less often than once every five years to ensure that MNA/ICs are still protective of human health and the environment. ICs will remain as required by 18 AAC 75.375.

Monitoring of one source area monitoring well (WW-01) and two downgradient monitoring wells (WW-05 and WW-06) is proposed no less often than once every five years. Groundwater samples will be analyzed for DRO, GRO, and BTEX. Monitoring will continue until cleanup levels are reached and cumulative risk is below Alaska threshold levels or until the groundwater plume is steady state or shrinking, contaminant concentrations are decreasing, and concentrations meet applicable cleanup levels at an approved alternative point of compliance.

ICs for both subject sites are detailed below.

INSTITUTIONAL CONTROLS

USAF will implement, monitor, maintain, and enforce the ICs identified below in accordance with Alaska's contaminated site regulations. The purpose of the ICs is to help prevent inappropriate handling of groundwater contaminated above ADEC Table C cleanup levels at SS015 and help prevent the future handling of petroleum-contaminated soil inconsistent with State of Alaska's contaminated site regulations.

The specific ICs proposed for SS013 and SS015 are listed below.

- At SS013 and SS015, the presence of soil impact above levels allowing unrestricted use will be documented. Any excavation within these areas must include procedures to screen any excavated soils and provide for soil remediation contingency scenarios. Any contaminated groundwater that is encountered (i.e. dewatering for construction within an area of groundwater contamination) will be managed properly.
- At SS013, future land use will be restricted to commercial/industrial land use.
- At SS015, the installation of water supply wells will be prohibited within the site boundaries as long as the aquifer fails ADEC Table C cleanup levels protective of drinking water.

USAF proposes to implement the ICs by taking the following actions.

- Delineate the boundaries of Site SS013 to obtain a property description suitable for recording purposes.
- At Site SS015, delineate the boundaries of soil with DRO or RRO above Method Two cleanup levels and groundwater with DRO, GRO, or benzene above ADEC Table C cleanup levels to obtain a property description suitable for recording purposes.
- Use USAF's dig permit and construction review system or similar system developed by the *Base Operation Support* (***BOS***) contractor to restrict incompatible activities from Sites SS013 and SS015.
- Document the ICs in USAF's Real Property records and in the Record of Decision for SS013 and SS015 (which will be available in the Administrative Record). The Real Property records will contain a map indicating IC locations. Appropriate notice will be filed with the U.S. Fish and Wildlife Service.

- Notify ADEC prior to making any major changes to the ICs. The 611th Civil Engineer Squadron/Civil Engineer (CES/CE) is the point of contact for the ICs.

PUBLIC PARTICIPATION REQUEST

USAF would like community members to review and comment on the recommendations in this Proposed Plan. The final decision for the sites will be made after the end of the 30-day comment period (May 15 to June 15, 2010).

After consideration of comments, USAF will document the decision for each site in a Record of Decision. All comments received by the USAF will be summarized in the Responsiveness Summary section of the ROD.

You can send comments in writing or by email. If a public meeting is held, comments may also be presented at the public meeting.

For your convenience, a pre-addressed comment form has been included at the end of this publication.

If you have questions or wish to provide comments on this project, please contact one of the following people:

**Mr. Tommie Baker, USAF Community Relations, at (800) 222-4137; or
(email: tommie.baker@elmendorf.af.mil);**

**Mr. Keith Barnack, USAF Project Manager, at (907) 552-5160
(email: keith.barnack@elmendorf.af.mil)**

If you would like more information about this project:

Copies of the documents relied upon for the restoration of Cape Romanzof LRRS are stored in the ***Administrative Record***, located at Elmendorf Air Force Base. The Administrative Record is available on the internet at **www.adminrec.com**. Alternatively, access to the Administrative Record is available by appointment (contact Tommie Baker, USAF Community Relations Coordinator, at (907) 552-4506 or (800) 222-4137 to make an appointment).

Detailed descriptions of site conditions can be found in the 1998 **Remedial Investigation/ Feasibility Study Report for SS013** and the 1998 **SS15 Technical Report**. These reports are available in the Administrative Record.

GLOSSARY OF TERMS

AC&W – Aircraft Control and Warning

Administrative Record – A file that contains information used by the USAF to decide on the cleanup for an ERP site. This file is available for public review.

Alaska Department of Environmental Conservation (ADEC) – the lead regulatory agency for Cape Romanzof LRRS.

AST – Above ground storage tank.

bgs – Below ground surface.

Benzene – A colorless, volatile, inflammable, carcinogenic liquid (C_6H_6) used in a variety of chemical products, including motor fuel. Compounds containing benzene are called aromatic compounds.

BOS – Base Operation Support

BTEX – Benzene, toluene, ethylbenzene, and xylenes Volatile organic chemicals (aromatic compounds) that are constituents of petroleum products.

CERCLA – Comprehensive Environmental Restoration, Compensation and Liability Act

Cleanup level – The concentration of a hazardous substance that may be present within a specified medium (i.e., soil, groundwater, or surface water) without posing an unacceptable risk to human health, safety, welfare, or the environment. ADEC provides tabulated cleanup levels in 18 AAC 75 that are applicable to contaminated soil and groundwater sites in Alaska.

COPC – Chemical of potential concern

Diesel-range organics (DRO) – A mixture of organic compounds found in diesel fuel, jet fuel, and heating oil. Polynuclear aromatic hydrocarbons (PAHs), such as naphthalene, are included in this range. DRO are generally less volatile and less soluble than GRO.

Environmental Restoration Program (ERP) – The USAF's CERCLA program.

EPA – United States Environmental Protection Agency.

Feasibility Study (FS) – An evaluation of potentially applicable remediation goals and remedial actions to address contamination at a site.

Gasoline-range organics (GRO) – A mixture of organic compounds found in gasoline.

Hazardous substance - A chemical that presents an imminent and substantial danger to the public health or welfare if it is released to the atmosphere, surface water, groundwater, or land surface. Regulatory definitions can be found in CERCLA § 101(14) and 102 and in the NCP40 CFR § 300.5, and in Alaska Statute (AS) 46.03.826 and AS 46.09.900. Petroleum hydrocarbons are specifically excluded from the CERCLA definition but included in the Alaska Statute definition.

Institutional Controls (ICs) –Any type of physical, legal, or administrative mechanism to restrict the use of, or limit access to, real property to prevent exposure to contaminants above permissible levels. The intent of the controls is to protect human health, the environment, and the integrity of an engineering remedy by limiting the activities that may occur at a particular site. Common examples of *ICs* include physical barriers to a site (e.g., fences and signs) and land use restrictions (e.g., restricting the installation of drinking water wells).

LRRS – Long-Range Radar Site

MARS – Minimally Attended Radar Station

Milligram per kilogram (mg/kg) – A solid concentration measurement. One milligram of a substance in 1 kilogram of soil, which is also equal to a concentration of 1 ***ppm*** for that substance in soil (see definition for parts per million).

Milligram per liter (mg/L) – A liquid concentration measurement. One milligram of a substance in 1 liter of water.

Monitored Natural Attenuation (MNA) – An environmental cleanup strategy in which naturally occurring processes are allowed to clean up contaminants. Environmental sampling and possibly also modeling are used to monitor the cleanup process.

National Contingency Plan (NCP) – The regulations that provide the structure and procedures for responding to discharges of oil and hazardous substances, as directed by CERCLA.

Parts per million (ppm) - A unit of measure used to express extremely low concentrations of chemicals in media such as soil or water. As an analogy, one ounce of a chemical in a million ounces of soil is 1 ppm and is also equivalent to 1 second of time in a period of 11 1/2 days. Equivalent units for 1 *ppm* can be expressed as 1 mg/Kg (soil).

Polynuclear (or Polycyclic) Aromatic Hydrocarbons (PAHs) – A class of very stable organic molecules made up of only carbon and hydrogen (benzene rings). They occur naturally in crude oil and refined products (such

as diesel fuel) and also occur as products of incomplete combustion. Some PAHs are highly carcinogenic (e.g., benzo(a)pyrene).

Proposed Plan – A document required by section 117(a) of CERCLA that informs the public about alternatives that are considered for cleanup of a contaminated site and identifies a preferred cleanup alternative. The document encourages public comment on all alternatives.

Record of Decision (ROD) – As required by CERCLA section 117(b), a document of the final cleanup decision under the site cleanup rules. The ROD documents the rationale for selection of the cleanup remedy and establishes performance goals for achieving cleanup. A ROD issued by or for ADEC is similar to a USAF Decision Document or an EPA ROD, but its format may differ. The format for an ADEC ROD is specified in the ADEC *Guidance on Decision Documentation Under the Site Cleanup Rules* (July 1999).

Residual Range Organics (RRO) – heavy-range petroleum products such a lubricating oils, with petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of C25 to the beginning of C36 and a boiling point range between approximately 400° C and 500° C (definition from 18AAC75.341).

Responsiveness Summary – A summary of oral and/or written public comments received during a comment period and the responses to those comments. The responsiveness summary is part of the decision document or ROD.

Remedial Investigation (RI) –: An evaluation of site conditions (RI).

SVOCs – Semi-volatile organic chemicals

Total aromatic hydrocarbons (TAH) – The sum of the BTEX concentrations in a surface water sample. The surface water criteria for TAH is 0.01 mg/L.

Total aqueous hydrocarbons (TAqH) – The sum of the BTEX and PAH concentrations in a surface water sample. The surface water criteria for TAqH is 0.015 mg/L.

Trimethylbenzenes (TMB) -- Trimethylbenzene is a clear, colorless liquid that is used as a gasoline additive and is slightly soluble in water. There are three isomers of trimethylbenzene: 1,2,3-trimethylbenzene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene. The isomers have very similar environmental properties.

Total petroleum hydrocarbons (TPH) -- In Alaska, use of TPH as a bulk hydrocarbon measurement became obsolete when the Alaska Methods for measuring ***DRO*** (AK Method 102), ***GRO*** (AK Method 101), and ***RRO*** (AK Method 103) were developed, and Alaska cleanup levels were established for DRO, GRO, and RRO.

USAF – United States Air Force

UST – Underground storage tank

VOCs- Volatile organic chemicals

White Alice Communications System (WACS) – Communications systems built throughout rural Alaska in the 1950s for military and civilian use. White Alice communications systems sent very large signals skyward, and a small fraction of the signal would bounce off the earth's atmosphere to be received by another White Alice site beyond the horizon. The White Alice sites were self-contained outposts that were staffed 24 hours a day, 365 days a year and typically contained dormitories, large generators and associated fuel storage facilities, and airstrips, in addition to the communications equipment. The White Alice sites were gradually replaced by more efficient earth satellite systems; the last White Alice site was deactivated in 1985.

USE THE SPACE BELOW TO WRITE YOUR COMMENTS

Your comments and suggestions in the Proposed Plan for Final Actions at Sites SS013 and SS015 at Cape Romanzof LRRS are important to USAF. Public input provides valuable information in making final restoration decisions for the environmental sites addressed.

Use the space below to provide us your comments. To return your comments, just fold in half with the return address showing, and tape shut (no staples please). Be sure to affix proper postage, and then drop in the mail. **The public review period ends June 15, 2010**. If you would like more information you may contact the USAF Community Coordinator, Mr. Tommie Baker, at (800) 222-4137.

Name _____

Address _____

City _____

State _____ Zip _____

PUBLIC MEETING ANNOUNCEMENT

If there is sufficient interest for a public meeting on this Proposed Plan and requested before June 15, 2010, an acceptable meeting date will be scheduled before August 6, 2010 and the comment period extended.

Name_____
Address_____
City_____
State_____ Zip_____

Post office will not deliver without a stamp (Please affix proper return postage)

MR. TOMMIE BAKER
611 CES/CEAR
10471 20TH STREET, SUITE 302
ELMENDORF AFB, AK 99506-2200