Decision Document
Gasoline Storage Area (ST008)

Final

Oliktok LRRS, Alaska

Prepared By

United States Air Force
Pacific Air Forces Command
611 CES, Alaska

March 2008

PART 1: THE DECLARATION

SITE NAME AND LOCATION: This Environmental Restoration Program (ERP) site is known as the Gasoline Storage Area (ST008). It is located at Oliktok Long Range Radar Station (LRRS), 30 miles northeast of the Village of Nuiqsut on Alaska's Arctic Coastal Plain. The Alaska Department of Environmental Conservation (ADEC) Record Key number for this site is 198931X102558. The site is located at 70° 15' 21.36"N latitude and 140° 38' 14.42" W longitude, the location of sample ST8SS005, which is the approximate center of site ST008. The Oliktok LRRS is not listed on the National Priorities List (NPL).

STATEMENT OF BASIS AND PURPOSE: This Decision Document presents the USAF's decision that no action is necessary under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). No CERCLA action is being be proposed or selected. This Decision Document was developed in accordance with the Defense Environmental Restoration Program, 10 United States Code (USC) 2701, consistent with 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 Section 101(14): "petroleum, including crude or any fraction thereof," are substances excluded from CERCLA. At ST008, petroleum (or fuel-related) compounds are the sole contaminants; therefore, the cleanup and closure of the site is being addressed in accordance with State of Alaska laws and regulations.

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. A website with the Administrative Record current up through 2003 is also available to the public at : http://www.adminrec.com/PACAF.asp?Location=Alaska.

The United States Air Force (USAF) and the State of Alaska, through the ADEC, agree with the decision of no further action under CERCLA. The United States Environmental Protection Agency (USEPA) has deferred regulatory authority at the Oliktok LRRS to the ADEC.

DESCRIPTION OF THE SELECTED REMEDY UNDER CERCLA: No remedy has been proposed or selected under CERCLA, as releases at the site are exclusively petroleum and are excluded from the CERCLA definitions of hazardous substances, pollutants, or contaminants.

STATUTORY DETERMINATIONS: Because only fuel and related substances are associated with this site, no action is required under CERCLA. Petroleum is excluded from the definition of hazardous substances and pollutants and contaminants under 42 USC § 9601 (14) and (33). The releases of petroleum products at this site are being addressed under State of Alaska laws and regulations.

DESCRIPTION OF THE SELECTED REMEDY UNDER STATE LAW: The risk attributed to the concentrations of petroleum and related substances detected at ST008 has been determined to be insignificant to human health and the environment. No contaminants remain above ADEC Method Two Soil cleanup levels for the Arctic Zone (*18 AAC 75.341, Tables B1 and B2*).

However, residual levels of gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO) and benzene remain at ST008 above the most stringent Method Two soil cleanup levels (*18 AAC 75.341, Table B2, Over 40-inch Zone, Migration to Groundwater*); therefore, the site is appropriate for conditional closure. In accordance with 18 AAC 75.325(i), the landowner of a site granted conditional closure shall obtain approval from ADEC prior to disposing (or transporting) soil from the site. In addition, soil may not be disposed in surface water or other environmentally sensitive areas. The following is the selected remedy for site ST008 under state law:

- Site boundaries will be surveyed to provide a description of the location where soil has a concentration of GRO above 260 mg/Kg, DRO above 230 mg/Kg, RRO above 8,300 mg/Kg or benzene above 0.020 mg/Kg;

- The Base Master Plan for Oliktok LRRS will include a statement that ADEC approval is required prior to off-site transportation or disposal of site ST008 soil containing GRO 260 mg/Kg, DRO above 230 mg/Kg, RRO above 8,300 mg/Kg or benzene above 0.020 mg/Kg; and

- If the site is transferred, the statement that ADEC approval is required prior to off-site transportation or disposal of site ST008 soil containing GRO above 260 mg/Kg, DRO above 230 mg/Kg, RRO above 8,300 mg/Kg or benzene above 0.020 mg/Kg will be included in the property transfer documents.

The site status will be listed as "conditional closure" in the ADEC contaminated sites database. The site will be granted closure without conditions when contaminant concentrations in the soil are determined to be below the levels provided above.

AUTHORIZING SIGNATURE: These signatures document the USAF and ADEC approval of the remedy selected in this Record of Decision for site ST008 at the Oliktok LRRS.

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.

6/2/08

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Federal Facilities Environmental Restoration
Alaska Department of Environmental Conservation

Date

30 MAY 2008

BRENT A. JOHNSON
Colonel, USAF
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Date

PART 2: THE DECISION SUMMARY

SITE NAME, LOCATION, AND DESCRIPTION: The Gasoline Storage Area is designated as ST008. ST008 is part of Oliktok LRRS, located on the shore of the Beaufort Sea and east of the Colville River (Figure 2-1). ST008 is located directly northwest of the Oliktok LRRS garage which is constructed on the south pad (Figure 2-2). The primary site features of ST008 are two gravel pads (north and south) (Figure 2-3). Two aboveground storage tanks (ASTs) containing diesel fuel formerly occupied the northwest corner of the southern pad where an active gasoline AST is currently located. The northern pad contained a number of temporary structures in the 1970s that were removed prior to the 1990s. The two gravel pads create the greatest relief at the site. The edges of the gravel pads have not been well maintained in recent years and appeared to be sloughing into the tundra in August 2004.

The Oliktok facility presently consists of a 22-unit module train containing living quarters, a power generation plant, sewage and water systems, and an incinerator. The module train is attached to the radome tower. The radome tower houses the rotating radar, which is supported on a steel-framed platform straddling the modular train. A 4,020-foot long lighted gravel runway is also part of the facility.

The CERCLA lead agency addressing ST008 is the United States Air Force (USAF), and the support agency is the State of Alaska Department of Environmental Conservation.

SITE HISTORY AND ENFORCEMENT ACTIVITIES: Oliktok LRRS, also known as POW-2, was one of the many Distant Early Warning (DEW) Line stations located across the arctic region of North America and Greenland. The installation was originally constructed as an auxiliary station by the USAF between 1954 and 1955. It has been operated by contractors since 1957. In the mid-1980s, a Minimally Attended Radar was installed, which reduced the number of workers required to operate the facility. Generally, two contractor personnel are stationed at the Oliktok LRRS installation year-round. 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. Clean Sweep Program activities were accomplished at the site in 2007.

Some of the contaminants encountered during investigations at Oliktok LRRS are gasoline range organics (GRO); polynuclear aromatic hydrocarbons (PAHs); polychlorinated biphenyls (PCBs); petroleum, oil, and lubricants (POL); diesel range organics (DRO); residual range organics (RRO); semivolatile organic compounds (SVOCs); metals; and volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene and xylene (BTEX), and solvents. These contaminants are the result of fuel or oil spills.

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

- Spills during the transfer of fuels in and out of storage tanks;

- Leaks from fuel lines, tanks, and drums;
- Spills or leaks of fuel, lubricants, or solvents during vehicle and equipment maintenance activities;
- Spills or leaks from transformers or other electrical equipment containing (PCBs); and
- Disposal of wastes and other discarded material containing hazardous substances.

ST008 was investigated in 1993 and 2004. These investigations concluded that ST008 was impacted from past releases of petroleum contamination, predominantly diesel fuel. The primary COC is DRO in the soil (gravel pad). The highest concentration of DRO is located in the subsurface gravels. In 2004, no contaminants exceeded the ADEC Method Two soil cleanup levels for the Arctic Zone (*18 AAC 75.341 Tables B1 and B2*). The overall risk posed by this site to human health or the environment is low. The Gasoline Storage site is recommended for no further action. All ST008 investigations and actions from 1993 to 2004 are summarized or documented in the *Oliktok, Remedial Investigation/Feasibility Study Report for 8 Sites* (HCG 2005).

COMMUNITY PARTICIPATION: A Proposed Plan that presented the cleanup alternatives proposed by the USAF for Oliktok LRRS was submitted for public review at a public meeting in Nuiqsut on June 25, 2007. The public comment period for the Proposed Plan was June 25, 2007 to July 24, 2007. The USAF received no requests to extend the public comment period, and no written or verbal comments were received regarding the Proposed Plan.

Additional community involvement activities for Oliktok LRRS include Restoration Advisory Board (RAB) meetings. The Oliktok LRRS is part of the Nuiqsut RAB. It meets typically meets annually, occasionally semi anually. A mailing list of interested parties is maintained and updated regularly by the Air Force Community Relations Coordinator. The administrative record for the Oliktok LRRS contains the information used to support this decision and is accessible to the public. 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. Four information repositories are located in Nuiqsut: the city manager's office, the Nuiqsut High School library, the Native Village of Nuiqsut, and with the RAB community co-chair. The most recent Management Action Plan was published in 2002 (USAF 2002).

SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION: The site is not part of an operable unit. There are 10 sites at Oliktok LRRS being addressed under the Air Force Environmental Restoration Program. There is no anticipated migration of contaminants or chemical interaction between this site and the other sites, and therefore, there is no potential for a response action at this site to affect response action at any other site.

SITE CHARACTERISTICS: During the 1993 RI, soil, sediment, and surface water was sampled to determine the extent of contamination at ST008. Soil samples were

analyzed for GRO, DRO, RRO, VOCs (including BTEX), PAHs (only naphthalene detected) and metals. Sediment samples were analyzed for GRO, DRO, RRO, BTEX, and PAHs and metals. Surface water samples were analyzed for VOCs and PAHs (Table 2-1). Analytical results indicated the presence of petroleum contamination from constituents commonly associated with gasoline or diesel fuel. GRO and DRO were found above ADEC Method Two cleanup levels for the Arctic Zone at values of 2,200 mg/Kg and 61,500 mg/Kg, respectively.

In 2004, an RI was conducted at ST008 to characterize the extent of petroleum-related compounds in the soil, sediment, and surface water and to evaluate natural attenuation. Soil samples were analyzed for GRO, DRO, RRO, BTEX, and PAHs (Table 2-1). The primary COC identified at ST008 during the 2004 RI was DRO in the soil (gravel pad). The highest concentration of DRO is located in the subsurface gravels. GRO and RRO were also determined to be contaminants of concern (COCs), with concentrations above ADEC Method One cleanup levels. Total xylenes exceeded one-tenth the Method Two soil cleanup level. However, cumulative risk calculations resulted in a cumulative human cancer risk of zero (xylenes are not known to be cancerous) and a hazard index (HI) of 0.41. The risk calculations did not exceed ADEC risk management standards (*18 AAC 75.325[h]*), and indicate that the contaminants in the soils do not pose a risk to human health even in a residential scenario. Therefore, xylenes were not considered a COC. Under current site conditions, all or the majority of contaminants adheres to fine grained material in the pad (primarily organic carbon) and are trapped as immobile residual hydrocarbon. In addition, there is little likelihood that the fuels will leach from the pad as the gradient at the site is flat and there is little precipitation in the region to leach fuels into the active zone. Sediment samples were analyzed for BTEX and PAHs. Surface water samples were analyzed for PAHs. Although petroleum-contaminated soils may erode into the adjacent wetlands, the impact will be localized with negligible effects to human or ecological receptors. In addition, contaminant levels in the soil and in the downgradient wetland areas will decrease through natural attenuation. Therefore, the overall risk posed by this site to human health or the environment is considered low. No CERCLA hazardous substances are associated with the site. The ADEC has indicated that the remedial investigation report has met the requirements of Alaska State regulations in regards to the investigation of ST008. The site was recommended for NFA and closure (HCG 2005).

Based on the current concentrations of petroleum contaminants remaining at ST008, the site has been selected for NFA and conditional closure under State of Alaska laws and regulations. No comments were received, therefore there were no changes required in response to public comment. The site boundaries shall be surveyed and included in the Base Master Plan along with a statement that ADEC approval is required prior to off-site transportation or disposal of soil containing residual contaminants. Details may be found in the Administrative Record File or the Information Repository.

STATUTORY AUTHORITY FINDING: Because only fuel and related substances are associated with this site, no action is necessary under CERCLA. Releases of petroleum and related substances identified at ST008 will be addressed in accordance

with State of Alaska laws and regulations. The release of fuel and related substances in Alaska are regulated by Alaska State Statute Title 46, Water, Air, Energy and Environmental Conservation which is consistent with CERCLA and the NCP. No action at site ST008 is necessary to ensure protection of human health. However, restrictions on the relocation of soils are necessary to ensure protection of the environment, specifically water quality. The remedy will result in no hazardous substances or contaminants remaining at site ST008 above levels that allow for unlimited use and unrestricted exposure; therefore, no five-year review is required.

REFERENCES:

ICF, 1996a. *Decision Document for No Further Response Action Planned, Oliktok Point Radar Installation, Alaska.* April.

ICF, 1996b. *Remedial Investigation and Feasibility Study, Oliktok Point Radar Installation, Alaska.* April.

HCG. 2005. *Remedial Investigation/Feasibility Study for Eight Sites, Oliktok LRRS, Alaska.* October.

USAF. 2002. *Final Management Action Plan Oliktok Point Long Range Radar Station, Alaska.* Prepared for the USAF and the Army.

Table 2-1 - ST008 Summary of Detected Contaminants in Soil, Sediment, and Water

Media	Analyte	Screening Criteria				1993 RI/FS Maximum Concentration (ICF 1996a)[5,6]	2004 RI/FS Maximum Concentration (HCG 2005)[5,6]	2004 RI/FS Frequency of Detection (HCG 2004)[6]
		18 AAC 75 Cleanup Level (Arctic Zone) for Soil[1]	NOAA SQuiRT for Sediment[2]	18 AAC 70 for Surface Water[3]	NOAA SQuiRT for Surface Water[4]			
Soil (mg/Kg)	**Fuels**							
	GRO (AK101)/GRPH[a]	1,400 (100)	--	--	--	2,200 J	905 J	14/14
	DRO (AK102)/DRPH[a]	12,500 (200/500)	--	--	--	61,500 J	11,600	16/16
	RRO (AK103)/RRPH[a]	13,700 (2,000)	--	--	--	ND (<100)	13,100 J	16/16
	VOCs							
	Benzene	13	--	--	--	0.03 J	0.441 J	8/14
	Ethylbenzene	89	--	--	--	7.1	4.31 J	12/14
	total Xylenes	81	--	--	--	22.2	32.8 J	13/14
	Toluene	180	--	--	--	2.4	3.39 J	13/14
	sec-Butylbenzene	--	--	--	--	0.348	NS	NS
	Isopropylbenzene	--	--	--	--	0.525	NS	NS
	p-Isopropyltoluene	--	--	--	--	0.273	NS	NS
	n-Propylbenzene	--	--	--	--	2.19 B	NS	NS
	1,2,4-trimethylbenzene	--	--	--	--	27.4	NS	NS
	1,3,5-trimethylbenzene	--	--	--	--	24.7	NS	NS
	PAHs							
	Acenaphthene	8,200	--	--	--	NS	0.41	1/3
	Anthracene	41,000	--	--	--	NS	0.0788	1/3
	Chrysene	1,500	--	--	--	NS	0.0324 M,F	1/3
	Fluoranthene	5,500	--	--	--	NS	0.0794 M	2/3
	Fluorene	5,500	--	--	--	NS	0.651 M	3/3
	Naphthalene	180	--	--	--	1.99	11.7 M	3/3
	Phenanthrene	--	--	--	--	NS	0.573 M	3/3
	Pyrene	4,100	--	--	--	NS	0.057 M	2/3
	RCRA Metals							
	Barium	9,600	--	--	--	130	NS	NS
	Chromium	410	--	--	--	7.2	NS	NS
Sediment (mg/Kg)	**Fuels**							
	GRO (AK101)/GRPH[a]	--	--	--	--	520 J	NS	NS
	DRO (AK102)/DRPH[a]	--	--	--	--	300,000 J	NS	NS
	RRO (AK103)/RRPH[a]	--	--	--	--	15,000	NS	NS
	VOCs							
	Benzene	--	--	--	--	12.9 J	0.0107 F	1/3
	Ethylbenzene	--	--	--	--	34	0.172	1/3
	Total Xylenes	--	--	--	--	37	2.43	1/3
	Toluene	--	--	--	--	12.9 J	0.0378 F	1/3
	1,2,4-trimethylbenzene	--	--	--	--	0.245	NS	NS
	1,3,5-trimethylbenzene	--	--	--	--	0.507	NS	NS
	PAHs							
	Acenaphthene	--	-- (0.088)	--	--	ND (<3 J)	2.28	2/3
	Anthracene	--	-- (0.245)	--	--	ND (<3 J)	0.271	2/3
	Chrysene	--	0.862 (0.846)	--	--	ND (<3 J)	0.254 F	2/3
	Fluoranthene	--	2.355 (1.49)	--	--	ND (<3 J)	0.312 F	3/3
	Fluorene	--	-- (0.144)	--	--	ND (<3 J)	3.56 M	2/3
	Naphthalene	--	-- (0.391)	--	--	ND (<3 J)	36.4 M	2/3
	Phenanthrene	--	0.515 (0.544)	--	--	ND (<3 J)	1.98	2/3
	Pyrene	--	0.875 (1.39)	--	--	ND (<3 J)	0.445 F	3/3
	RCRA Metals							
	Barium	--	--	--	--	220	NS	NS
	Chromium	--	90 (160)	--	--	8.3 J	NS	NS
	Lead	--	91.3 (112)	--	--	26	NS	NS
Surface Water (ug/L)	**VOCs**							
	1,2-dichloroethane	--	--	5	20,000 (113,000[CMC])	1	NS	NS
	Methylene chloride	--	--	5	11,000[CMC] (6,400)	1 B	NS	NS
	bis (2-ethylhexyl) phthalate	--	--	6	--	4 B	NS	NS
	PAHs							
	Naphthalene[7]	--	--	700	620 (2,350[CMC])	NS	0.774 B	3/3

Notes

1- Lowest value of ingestion or inhalation shown from 18 AAC 75, Tables B1 and B2, referred to as "Method Two Cleanup Levels" for th Arctic Zone.
Method Two cleanup levels are considered protective of surface water. Method One Cleanup Levels for GRO, DRO and RRO in parenthesis.
The cleanup level for DRO may be 500 mg/Kg for diesel spills to gravel pads if total BTEX concentrations are less than 15 mg/Kg and benzene is less than 0.5 mg/Kg.

2- NOAA SQuiRT values shown is the probable effects level (PEL) for freshwater sediment followed by marine sediment in ( ).

3- 18 AAC 70 Maximum Contaminant Levels (MCLs).

4- NOAA SQuiRT values shown for fresh water criteria continuous concentration (CCC) unless otherwise indicated (NOAA 1999). Marine criteria in ( ).

5- All detections shown. Only the highest historically detected values shown, if multiple detections.

6- 1993 data taken from *RI/FS, Oliktok Point Radar Installation* (ICF 1996a). 2004 data from *RI/FS Report for Eight Sites* (HCG 2005).

7- The Alaska groundwater cleanup standard for naphthalene (18 AAC 75.341, Table C) is 700 ug/L. The EPA has not published a drinking water MCL.

a - Methods used in 1993 were GRPH, DRPH and RRPH, which are comparable to current AK Methods for GRO, DRO and RRO.

Abbreviations

" -- "	Screening criteria did not exist for this compound.	M	Compound exhibited a matrix effect
" = "	A detected compound.	NS	Not sampled
F	Estimated quantity below the PQL.	PQL	Practical Quantitation Limit
ND	Compound not detected (with PQL in adjacent parentheses).	MDL	Method Detection Limit
J	Estimated value	CMC	Criteria maximum concentration
B	Compound detected in the blank.		

Shaded result indicates an exceedance of the corresponding media-specific screening criteria (soil =Method Two Cleanup Levels; sediment =NOAA SQuiRT values; water = 18 AAC 70 criteria or NOAA SQuiRT values)

Table 2-2 ST008 Cumulative Risk Calculation - Soil

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Point	Chemical of Concern	Carcinogenic Risk			
			Ingestion[1]	Inhalation[1]	Dermal	Cumulative Risk
Soil	Soil - Direct Contact	Xylenes	0	0	N/A	0
					Soil risk total =	**0**
Groundwater	N/A	N/A	N/A	N/A	N/A	
					Ground-water risk total =	**N/A**
					Total Risk =	**0**

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Point	Chemical of Concern	Primary Target Organ	Non-Carcinogenic Hazard Quotient			
				Ingestion	Inhalation	Dermal	Cumulative Hazard Index
Soil	Soil - Direct Contact	Xylenes	CNS, Skin, Eyes	0.00	0.40	N/A	0.40
						Soil Hazard Index Total =	**0. 40**
Groundwater	N/A	N/A	N/A	N/A	N/A	N/A	**N/A**
						Ground-Water Hazard Index Total =	**N/A**
						Receptor Hazard Index =	**0.40**

Notes
1 – Methodology and Risk Based Concentration (RBC) per Cumulative Risk Guidance (ADEC 2002).
NA – No effects through the specified exposure route
CNS – Central Nervous System

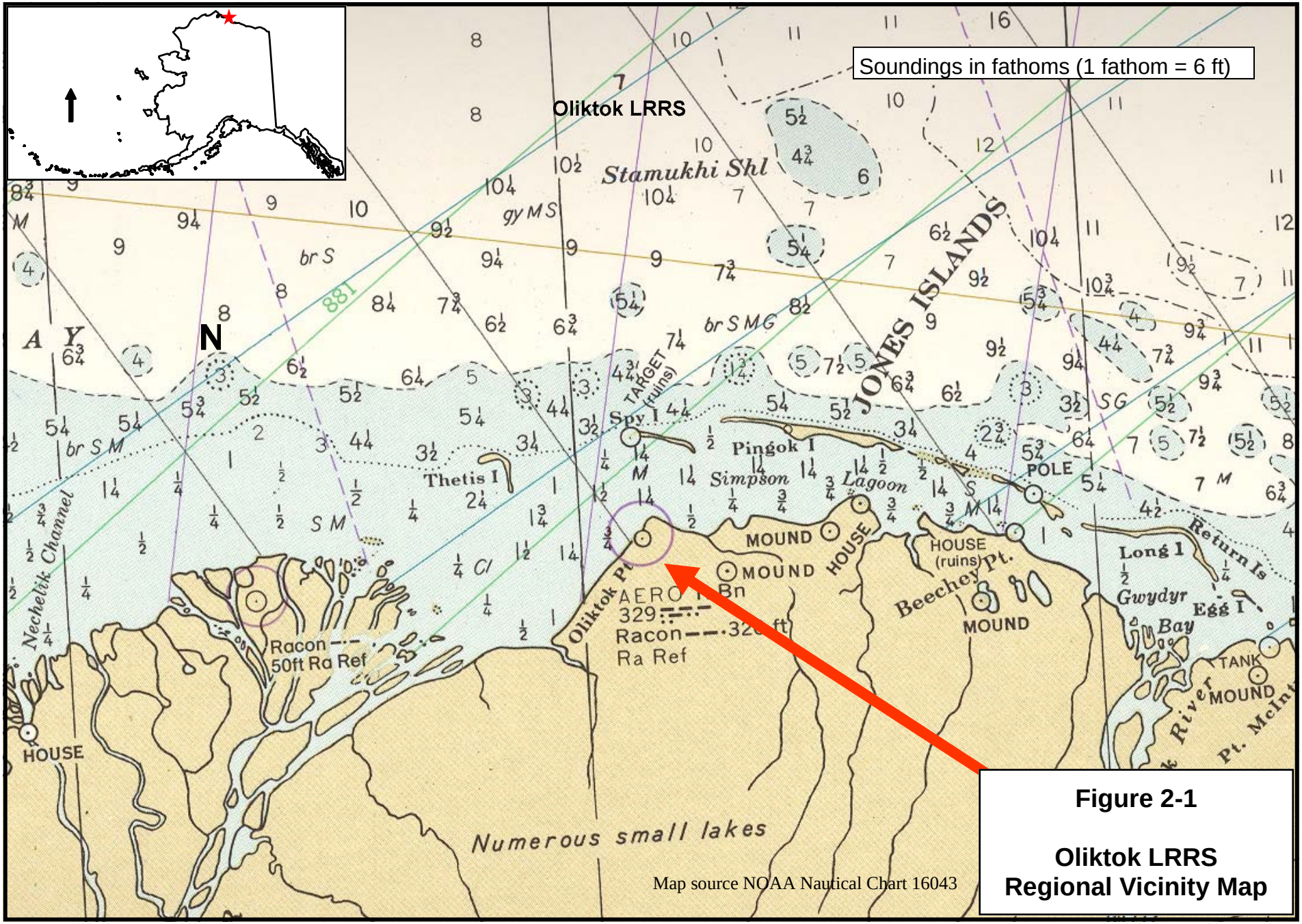
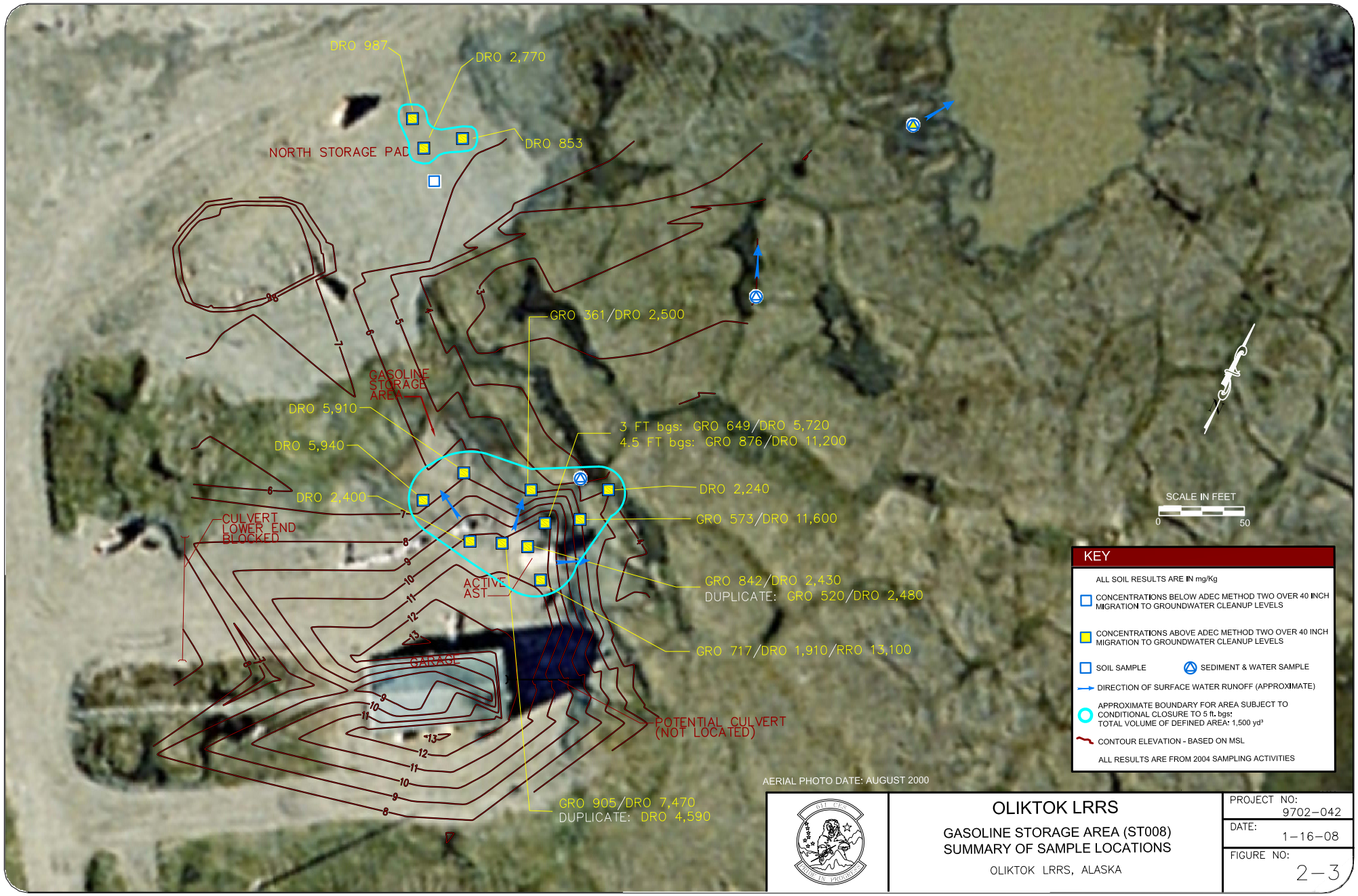


Figure 2-1

Oliktok LRRS
Regional Vicinity Map

Figure 2-2

Oliktok LRRS
IRP Sites



OLIKTOK LRRS

GASOLINE STORAGE AREA (ST008)
SUMMARY OF SAMPLE LOCATIONS

OLIKTOK LRRS, ALASKA

PROJECT NO: 9702-042

DATE: 1-16-08

FIGURE NO: 2-3