



**Decision Document  
Diesel Storage Area (SS007)**

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 Diesel Storage Area, SS007. 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 is 199631X110601. The site is located at 70° 15' 18.45" N latitude and 140° 38' 42.02" W longitude. These coordinates represent the location of sample SS7SS11, the approximate center of SS007. 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 at SS007 under the Environmental Response, Compensation, and Liability Act (CERCLA). Therefore, no CERCLA action is being proposed or selected. This Decision Document was developed in accordance with the Defense Environmental Restoration Program, 10 United States Code (USC) 2701, consistent 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 oil or any fraction thereof," are substances excluded from CERCLA. At SS007, 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.

**DESCRIPTION OF THE SELECTED REMEDY UNDER CERCLA:** No remedy has been proposed or selected under CERCLA, as releases at the site 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 selected remedy for this site is No Further Action (NFA) and closure under CERCLA and conditional closure under State of Alaska laws and regulations. Under the NFA alternative, no further investigations, sampling or CERCLA remedial actions are necessary at SS007. The risk attributed to the concentrations of petroleum and related substances detected at SS007 has been determined to be insignificant to human health and the environment, including surface water, in its present location. The detected substances were all below screening criteria established by ADEC.

Site SS007 does not pose an unacceptable risk to human health because no contaminants remain at this site above ADEC Method Two Soil cleanup levels for the Arctic Zone (*18 AAC 75.341, Tables B1 and B2*). These cleanup levels meet the risk management

standards of 18 AAC 75.325(h), (i.e., the risk from hazardous substances does not exceed a cumulative carcinogenic risk of 1 in 100,000 and a cumulative non-carcinogenic hazard index of 1.0). The site conditions are protective of human health under all current and future site uses, including unrestricted residential land use.

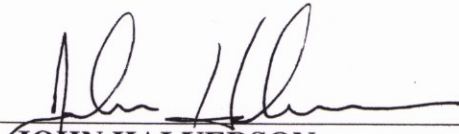
Residual levels of diesel range organics (DRO) remain at SS007 above the most stringent Method Two soil cleanup levels (*18 AAC 75.341, Tables B1 and B2, Over 40-inch Zone, Migration to Groundwater*); therefore the site is appropriate for conditional closure. In accordance with 18 AAC 75.325(i), the 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 SS007 under state law:

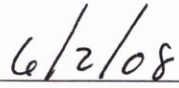
- Site boundaries will be surveyed to provide a description of the locations where soil has concentration of DRO above 230 mg/Kg;
- The Base Master Plan for Oliktok LRRS will include a statement that ADEC approval is required prior to off-site transport or disposal of site SS007 soil containing DRO above 203 mg/Kg;
- If the site is transferred, the statement that ADEC approval is required prior to off-site transportation or disposal of site SS007 soil containing DRO above 203 mg/Kg will be included in the property transfer documents.

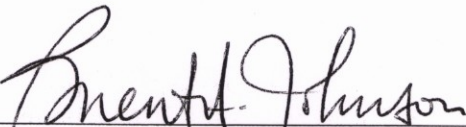
The site status will be listed as “conditional closure” in the ADEC contaminated sites database. The site will be granted closure without conditions when diesel range organics concentrations of contaminants in the soil are determined to be less than the limits provided above.

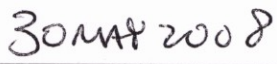
**AUTHORIZING SIGNATURE:** These signatures document the USAF and ADEC approval of the remedy selected in this Record of Decision for site SS007 at the Oliktok LRRS.

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.

  
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**JOHN HALVERSON**  
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Federal Facilities Environmental Restoration  
Alaska Department of Environmental Conservation

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
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Commander, 611<sup>th</sup> Air Support Group

  
\_\_\_\_\_  
Date

## **PART 2: THE DECISION SUMMARY**

**SITE NAME, LOCATION, AND DESCRIPTION:** The Diesel Storage Area is designated as SS007. SS007 is part of the Oliktok LRRS, located on the shore of the Beaufort Sea and east of the Colville River. The general site vicinity is shown in Figure 2-1. The Diesel Storage Area is located at the main installation northwest of the Module Train Spills site (ST006) and southeast of the Old Landfill (LF001) (Figure 2-2). The primary site features at SS007 consist of a gravel pad containing six active water tanks, a gravel access road, and adjacent tundra (Figure 2-3). The site is comprised mostly of tundra with shallow ponds. The wetlands are likely favorable aquatic habitat, with a mix of aquatic vegetation and shallow, open water bodies. The wetlands appear healthy and there is no evidence of stressed vegetation. Iron stained (orange) gravel and sediment are present near the edge of the gravel pad in the vicinity of the water tanks. The remainder of the site is comprised of a gravel pad with little organic material. The pad represents poor ecological habitat in comparison to the adjacent tundra.

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 SS007 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 Line stations located across the arctic region of North America and Greenland. It 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 activities were completed at the Oliktok LRRS in Summer 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); DRO; residual range organics (RRO); semivolatile organic compounds (SVOCs); metals; and volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene and xylene (BTEX). Most of 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.

SS007 was investigated in 1993 and 2004. Based on the 1993 sampling results, the tundra and associated tundra ponds at site SS007 were impacted by contaminants associated with petroleum-related compounds. The 1993 risk assessment concluded that the affected areas appear to be localized, and migration of contaminants from the site appears to be minimal. However, a risk assessment recommended the site for remedial action because fuel-related compounds and BTEX levels exceeded existing ADEC cleanup levels. The recommended remedial alternative for the site was enhanced bioremediation.

During the 2004 investigation, DRO and RRO levels were below Method Two cleanup levels for soils (*18 AAC 75.341 Tables B1 and B2*). Soil, sediment, and water sampling in the adjacent tundra did not indicate significant impacts. Sediment and water contamination have decreased since the 1993 sampling event. The overall risk posed by petroleum contamination at the site to human health or the environment is considered low. No contaminants of concern (COCs) have been identified at SS007 and, as a result, no risk assessment calculations have been developed for the site. The site is recommended for conditional closure under State of Alaska laws and regulations. Studies and reports providing details can be found in the Administrative Record file or the Information Repository. All SS007 investigations and actions from 1993 to 2004 are summarized or documented in the *Remedial Investigation/Feasibility Study Report for 8 Sites, Oliktok LRRS. Final.* (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 meetings. The Oliktok LRRS is part of the Nuiqsut RAB, which typically meets annually, occasionally semiannually. 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; however, there is no anticipated migration of contaminants or chemical interaction between this site and the other sites and, as a result, there is no potential for a response action at this site to affect response actions at any other site.

**SITE CHARACTERISTICS:** During the 1993 RI, soil, sediment, and surface water were sampled to determine the extent of contamination at SS007 (ICF 1996a). Soil samples were analyzed for DRO and RRO. Sediment samples were analyzed for GRO, DRO, VOCs (including BTEX), SVOCs, resource conservation recovery act (RCRA) metals, and PCBs. Surface water samples were analyzed for BTEX and PAHs (only naphthalene detected). Analytical results indicated the tundra and associated tundra ponds were impacted by contaminants associated with petroleum-related compounds. GRO and DRO contamination was detected in sediment and surface water samples in the proximity of a culvert outlet that discharges to the tundra from the north. In addition, DRO was detected in concentrations below ADEC Method Two cleanup levels for the site in a soil sample downgradient of the culvert outlet. A risk assessment was conducted (ICF 1996b) and concluded that the affected areas appear to be localized, and migration of contaminants from the site appears to be minimal.

In 2004, an RI was conducted at SS007 to characterize the residual petroleum-related compounds in the soil, sediment, and surface water. Analytical results indicated that the petroleum contamination had decreased overall since the 1993 sampling event for sediment and water. This indicates that current conditions are not resulting in contamination moving through the gravel pad or culvert from the tank farm to the adjacent wetlands. In addition, the potential for active zone migration of fuel-related contaminants from the gravel pad to adjacent tundra is considered low due to the low surface hydraulic gradient. Therefore, the overall risk to human health or the environment posed by petroleum contamination at the site is considered to be low. No analytes exceed Method Two cleanup levels for the Arctic Zone, which are considered appropriate for this site. Although there are no COCs at the site, contamination remains above migration to groundwater cleanup levels. No CERCLA hazardous substances are associated with the site. The ADEC has indicated that the remedial investigation report has met the requirements of State regulation in regards to the investigation of SS007. The site was recommended for NFA and closure (HCG 2005). 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. Petroleum contamination will be addressed in accordance with State of Alaska laws and regulations.



**REFERENCES:**

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

ICF. 1996b. *Final Risk Assessment, Oliktok Point Radar Installation, Alaska*. April.

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

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



Table 2-1 - SS007 Summary of Detected Contaminants in Soil, Sediment, and Water

Media	Analyte	Screening Criteria				1993 R/FS Maximum Concentration (ICF 1996a) <sup>5,6</sup>	2004 R/FS Maximum Concentration (HCG 2005) <sup>5,6</sup>	2004 R/FS Frequency of Detection (HCG 2004) <sup>6</sup>
		18 AAC 75 Cleanup Level (Arctic Zone) for Soil <sup>1</sup>	NOAA SQUIRT for Sediment <sup>2</sup>	18 AAC 70 for Surface Water <sup>3</sup>	NOAA SQUIRT for Surface Water <sup>4</sup>			
Soil (mg/Kg)	<b>Fuels</b>							
	GRO (AK101)/GRPH <sup>a</sup>	1,400 (100)	--	--	--	NS	22.9 J	2/11
	DRO (AK102)/DRPH <sup>a</sup>	12,500 (200/500)	--	--	--	120 J	771	12/12
	RRO (AK103)/RRPH <sup>a</sup>	13,700 (2,000)	--	--	--	ND (<160 J)	2,500 J	12/12
	<b>VOCs</b>							
	Benzene	13	--	--	--	NS	0.00572 F	1/11
	Ethylbenzene	89	--	--	--	NS	0.091	1/11
	Total Xylenes	81	--	--	--	NS	0.786	1/11
	Toluene	180	--	--	--	NS	ND (0.0361)	0/11
	<b>PAHs</b>							
	Benzo(a)pyrene	1.5	--	--	--	NS	0.00182 J,F	1/2
	Benzo(g,h,i)perylene	--	--	--	--	NS	0.00172 F	1/2
	Chrysene	1,500	--	--	--	NS	0.00215 F	1/2
Pyrene	4,100	--	--	--	NS	0.00177 F	1/2	
Sediment (mg/Kg)	<b>Fuels</b>							
	GRO (AK101)/GRPH <sup>a</sup>	--	--	--	--	389	NS	NS
	DRO (AK102)/DRPH <sup>a</sup>	--	--	--	--	2,990	NS	NS
	RRO (AK103)/RRPH <sup>a</sup>	--	--	--	--	NS	NS	NS
	<b>VOCs</b>							
	Benzene	--	--	--	--	0.038	0.0093 F	1/2
	Ethylbenzene	--	--	--	--	2.85	0.204	1/2
	total Xylenes	--	--	--	--	18.65	0.819	1/2
	Toluene	--	--	--	--	1.99	0.0308 F	1/2
	n-Butylbenzene	--	--	--	--	8.07	NS	NS
	sec-Butylbenzene	--	--	--	--	3.49	NS	NS
	Isopropylbenzene	--	--	--	--	2.42	NS	NS
	p-Isopropylbenzene	--	--	--	--	3.59	NS	NS
	Naphthalene	--	-- (0.391)	--	--	9.30	0.293	1/2
	n-Propylbenzene	--	--	--	--	5.49	NS	NS
	1,2,4-trimethylbenzene	--	--	--	--	21.3	NS	NS
	1,3,5-trimethylbenzene	--	--	--	--	9.84	NS	NS
	<b>SVOCs</b>							
	Fluorene	--	-- (0.144)	--	--	NS	0.0714	1/2
	Phenanthrene	--	0.515 (0.544)	--	--	NS	0.0127	1/2
	Benzyl alcohol	--	--	--	--	2.5	NS	NS
	di-n-butylphthalate	--	--	--	--	0.582	NS	NS
	bis(2-ethylhexyl)phthalate	--	--	--	--	0.504	NS	NS
	2-methylnaphthalene	--	-- (201.28)	--	--	2.23	NS	NS
	<b>RCRA Metals</b>							
	Barium	--	--	--	--	170	NS	NS
	Chromium	--	90 (160)	--	--	6	NS	NS
Lead	--	91.3 (112)	--	--	18	NS	NS	
PCBs	--	277 (189)	--	--	0.03	NS	NS	
Surface Water (ug/L)	<b>Fuels</b>							
	DRO (AK102)/DRPH <sup>a</sup>	--	--	15	--	417 <sup>b</sup>	NS	NS
	<b>BTEX</b>							
	Benzene	--	--	5	5,300 <sup>CMC</sup> (700)	ND (<1)	0.542	1/1
<b>PAHs</b>								
Naphthalene <sup>7</sup>	--	--	700	620 (2,350 <sup>CMC</sup> )	NS	0.0361 M,F	1/1	

Notes

- Lowest value of ingestion or inhalation shown from 18 AAC 75, Tables B1 and B2, referred to as "Method Two Cleanup Levels" for the Arctic Zone. 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.
  - NOAA SQUIRT values shown is the probable effects level (PEL) for freshwater sediment followed by marine sediment in ( ).
  - 18 AAC 70 Maximum Contaminant Levels (MCLs).
  - NOAA SQUIRT values shown for fresh water criteria continuous concentration (CCC) unless otherwise indicated (NOAA 1999). Marine criteria in ( ).
  - All detections shown. Only the highest historically detected values shown, if multiple detections.
  - 1993 data taken from R/FS, *Olitok Point Radar Installation* (ICF 1996a). 2004 data from R/FS Report for Eight Sites (HCG 2005).
  - 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.  
b - Although the sample exceeded the 18 AAC 70 criteria, the chromatograph was not consistent with a middle distillate fuel.

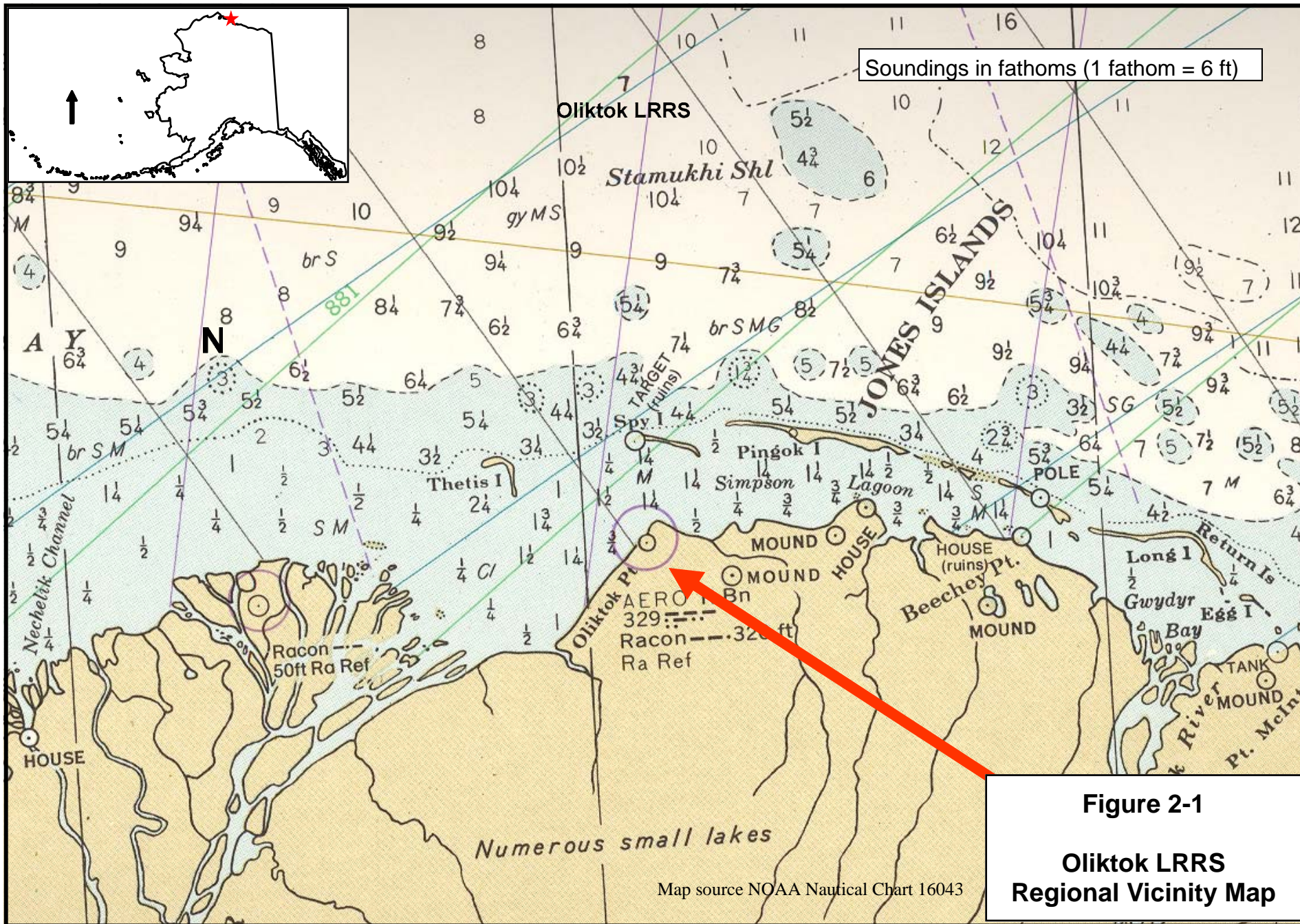
Abbreviations

--	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)





**Figure 2-1**  
**Oliktok LRRS**  
**Regional Vicinity Map**











**OLIKTOK LRRS**  
**DIESEL STORAGE AREA (SS007)**  
**SUMMARY OF SAMPLE LOCATIONS**

OLIKTOK LRRS, ALASKA

PROJECT NO:	9702-042
DATE:	1-16-08
FIGURE NO:	<b>2-3</b>

