THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 310.38.008

October 27, 2016

Kendra Liebman
Remedial Project Manager
Navy Facilities Engineering Command Northwest
1101 Tautog Circle
Silverdale, WA 98315-1101

Re: Decision Document, NARL – Middle Salt Lagoon, Hazard ID No. 559
Cleanup Complete Determination

Dear Ms. Liebman:

The Alaska Department of Environmental Conservation (DEC), Contaminated Sites Program has completed a review of the environmental records associated with the Navy Arctic Research Lab (NARL) – Middle Salt Lagoon Site located at Barrow, Alaska. Based on the information provided to date, it has been determined that the contaminant concentrations associated with this site do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless new information becomes available that indicates residual contaminants may pose an unacceptable risk. Contributing environmental factors that led to concern in the Middle Salt Lagoon were likely derived from the following adjacent contaminated sites: (1) NARL – Old Waste Disposal Area (Hazard ID no. 567), and NARL Antenna Field Property (Hazard ID no. 26340). Both of these sites are currently open and are under investigation by the Navy.

This Cleanup Complete determination is based on the administrative record for the NARL – Middle Salt Lagoon site file located in the Fairbanks DEC office. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:
NARL – Middle Salt Lagoon
Section 22, NE 1/4
Township 023N, Range 018W

Name and Mailing Address of Contact Party:
Kendra Liebman, RPM
Navy Facilities Engineering Command Northwest
1101 Tautog Circle
Silverdale, WA 98315-1101

DEC Site Identifiers:
File No.: 310.38.008
Hazard ID.: 559

Regulatory Authority for Determination:
18 AAC 75 - CS

Site Description and Background

The surface area of the Middle Salt Lagoon is about 400 acres and it averages about 10 feet in depth. It is covered with ice about 9 months of the year and is opened to the Arctic Ocean several weeks each summer to allow runoff to escape and to flush the lagoon. Raw sewage was placed into the lagoon up until about 1974, after which sewage was pre-treated at NARL prior to discharge; however, animal feces and urine from the laboratory cages continued to be disposed in the lagoon for a period of time until the laboratory was permanently closed in 1980. It now is used only as a secondary treatment lagoon by the North Slope Borough. Portion of the lagoon shoreline of the Middle Salt Lagoon borders the Antenna Field Property, and what is referred to as the Old Waste Disposal area, two active contaminated sites.

Contaminants of Concern

Subsequent investigations at this site identified diesel range organics (DRO) above cleanup levels. The metal arsenic was also detected at levels slightly above Arctic zone cleanup levels; however, the levels detected are reasonable levels for background in this area. Based on these analyses and knowledge of the source area, the following Contaminant of Concern was identified:

- Diesel Range Organics (DRO)

Cleanup Levels

The default soil cleanup levels for this site are established in 18 AAC 75.341, Method Two, Table B2, Arctic Zone.

Contaminant	Site Cleanup Level (mg/kg)
DRO	12,500

Characterization and Cleanup Activities

During a 1987 DEC inspection, Middle Salt Lagoon banks were noted to be saturated with fuel and a sheen was evident on the surface of the lagoon. In 1995, three sediment samples were collected from the bank of the lagoon and analyzed for target analytes. Arsenic was the only analyte with results exceeding the risk-based screening criteria, ranging from 9.1 – 11.5 mg/kg, which is within the range of arsenic found in North Slope background marine sediment samples (3 to 16 mg/kg). Fourteen soil samples were collected in 1999 along the shore near the general location of debris from the Antenna Field. Total petroleum hydrocarbons (TPH) ranged from non-detect to 2,260 mg/kg, and halogens ranged from 104 to 191. A later Navy report discounted the halogen detections as interference from saline water.

According to the 2003 Environmental Status Report prepared by Integrated Concepts and Research Corporation (ICRC), two surface water samples collected along the shoreline at the edge of a former waste disposal area were analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs) and metals. No exceedances of DEC drinking water standards were detected. In 2006, sixteen soil samples were taken approximately 5 feet below ground surface along the shoreline of the Middle Salt Lagoon in the approximate location of the 1999 sampling effort. Soil samples were analyzed for GRO, DRO, RRO, VOCs and SVOCs. All analytes were below Arctic zone cleanup levels. One sample slightly exceeded DRO migration to groundwater cleanup level and the proposed naphthalene migration to groundwater cleanup level, with concentrations of 287 and 0.311 mg/kg, respectively. While migration to groundwater cleanup levels are not applicable in the Arctic zone, the information provides some evidence of migration potential during the short season where active zone water from the soil may interact with surface water.

Based on the available data, it appears that no hazardous contaminants exist in the surface water or sediment of Middle Salt Lagoon above DEC surface water quality standards or Arctic zone soil cleanup levels. Ecological receptors in the Middle Salt Lagoon appear to be at minimal environmental risk from any contaminants remaining from the reported 1970s oil spill or from lingering waste from the Antenna Field.

All of the requirements listed in the DEC Site Closure Memorandum (dated 30 August 2016) have been met.

Cumulative Risk Evaluation
Pursuant to [18 AAC 75.325(g) or 18 AAC 78.600(d)], when detectable contamination remains on-site following a cleanup, a cumulative risk determination must be made that the risk from hazardous substances does not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all exposure pathways and does not exceed a cumulative noncarcinogenic risk standard at a hazard index of one across all exposure pathways.

Based on a review of the environmental record, DEC has determined that residual contaminant concentrations meet the human health cumulative risk criteria for residential land use.

Exposure Pathway Evaluation
Following investigation and cleanup at the site, exposure to the remaining contaminants was evaluated using DEC's Exposure Tracking Model (ETM). Exposure pathways are the conduits by which contamination may reach human or ecological receptors. ETM results show all pathways to be one of the following: De-Minimis Exposure, Exposure Controlled, or Pathway Incomplete. A summary of this pathway evaluation is included in Table 2.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De-Minimis Exposure	Contamination is no longer present in surface soil (0 to 2 feet below ground surface) above DEC cleanup levels.
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination is no longer present in subsurface soil (2 – 15 feet) above DEC cleanup levels.
Inhalation – Outdoor Air	De-Minimis Exposure	Contamination does not remain in the sub-surface at levels above inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Site is a lagoon and part of a sewage treatment process and no buildings will be constructed.
Groundwater Ingestion	Pathway Incomplete	Supra-permafrost groundwater is not a potential drinking water source. Site is a lagoon and is a secondary sewage lagoon for the North Slope Borough.
Surface Water Ingestion	Pathway Incomplete	Site is a lagoon and is a secondary sewage lagoon for the North Slope Borough.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Site is a lagoon and is a secondary sewage lagoon for the North Slope Borough and not a source of wild or farmed foods.

Exposure to Ecological Receptors	Pathway Incomplete	Site is a lagoon and is a secondary sewage lagoon for the North Slope Borough.

Notes to Table 2: "De-Minimis Exposure" means that in DEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in DEC's judgment contamination has no potential to contact receptors. "Exposure Controlled" means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

DEC Decision

Soil and groundwater contamination at the site have been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. This site will receive a "Cleanup Complete" designation on the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC approval in accordance with [18 AAC 75.325(i). A "site" as defined by 18 AAC 75.990 (115) means an area that is contaminated, including areas contaminated by the migration of hazardous substances from a source area, regardless of property ownership. (See attached site figure.)

2. Movement or use of contaminated material in a manner that results in a violation of 18 AAC 70 water quality standards is prohibited.

3. Groundwater throughout Alaska is protected for use as a water supply for drinking, culinary and food processing, agriculture including irrigation and stock watering, aquaculture, and industrial use. Contaminated site cleanup complete determinations are based on groundwater being considered a potential drinking water source. In the event that groundwater from this site is to be used for other purposes in the future, such as aquaculture, additional testing and treatment may be required to ensure the water is suitable for its intended use.

This determination is in accordance with 18 AAC 75.380 and does not preclude DEC from requiring additional assessment and/or cleanup action if future information indicates that contaminants at this site may pose an unacceptable risk to human health, safety, or welfare or to the environment.

Appeal

Any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195 – 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Division Director, 555 Cordova Street, Anchorage, Alaska 99501-2617, within 15 days after receiving the department's decision reviewable under this section. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite 303, P.O. Box 111800, Juneau, Alaska 99811-1800, within 30 days after the date of issuance of this letter, or within 30 days after the department issues a final decision under 18 AAC 15.185. If a hearing is not requested within 30 days, the right to appeal is waived.

If you have questions about this closure decision, please feel free to contact me at (907) 907-451-2166 or email at john.carnahan@alaska.gov.

Sincerely,

Digitally signed by John B. Carnahan
DN: cn=John B. Carnahan, o=Department of Environmental Conservation, ou=SPAR, email=john.carnahan@alaska.gov, c=US
Date: 2016.10.27 14:12:09 -08'00'

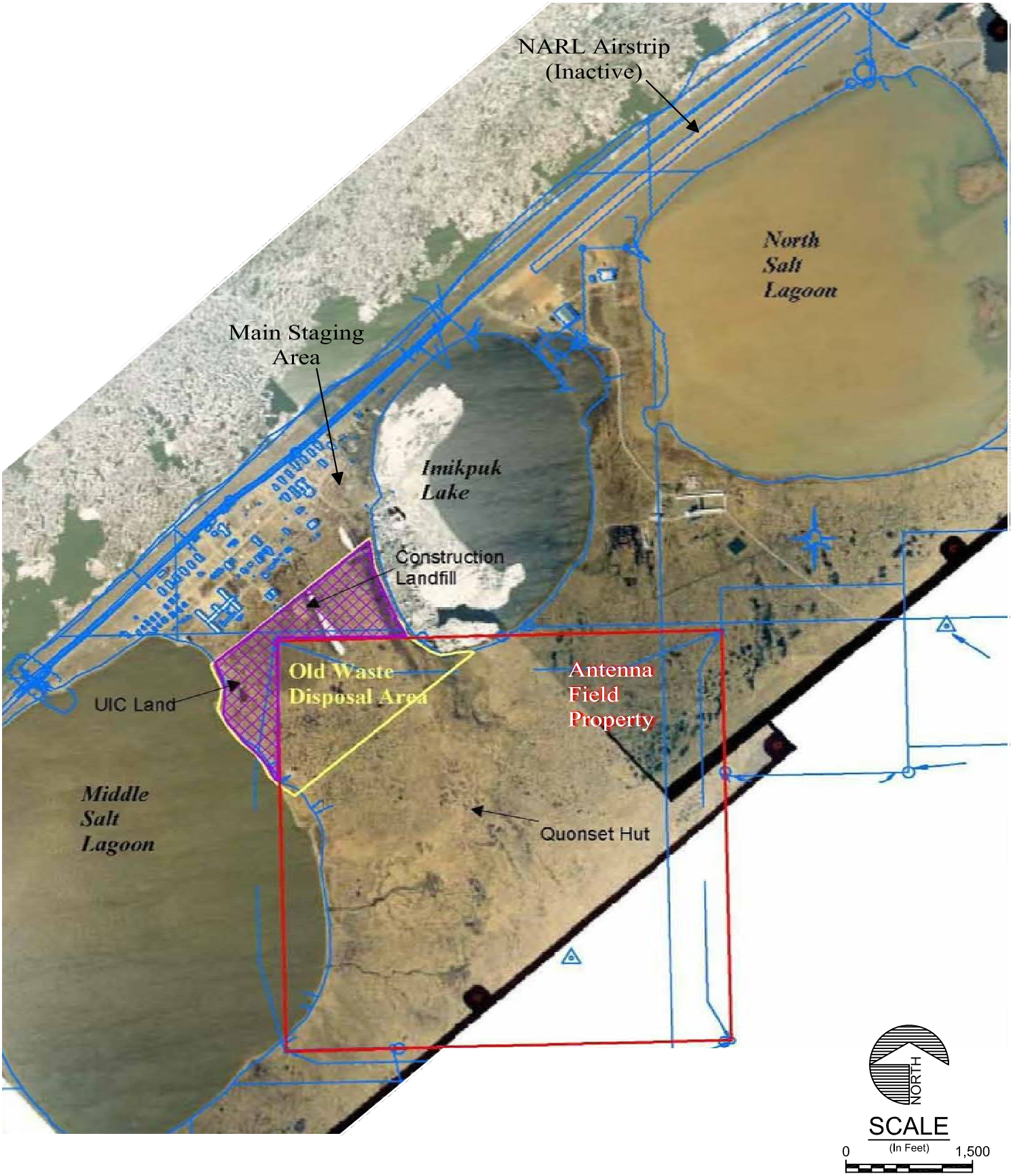
John Carnahan
Environmental Program Specialist

cc: Spill Prevention and Response, Cost Recovery Unit
Kim DeRuyter, DEC DSMOA Manager (email)

BARROW VICINITY MAP

DEMOLITION OF ANTENNA FIELD ARRAY AND MISCELLANEOUS STRUCTURES
FORMER NARL FACILITY, BARROW, ALASKA

PROJECT NO:	105.00569.00064
DATE:	1–30–2012
SHEET SIZE:	8.5x11
FIGURE NO:	1–1



NOTES:
1. Aerial Photo for Aeromap U.S.© July 14, 2000.
2. Survey by LCMF Incorporated (NARL Transfer Property Boundary) December 10, 2000.
3. Figure adapted from Environmental Condition of Property Report, Figure 2 (NAVFAC 2009).

FORMER NARL FACILITY
SITE LOCATION MAP

DEMOLITION OF ANTENNA FIELD ARRAY AND MISCELLANEOUS STRUCTURES
FORMER NARL FACILITY, BARROW, ALASKA

PROJECT NO:	105.00569.00064
DATE:	1–30–2012
SHEET SIZE:	8.5x11
FIGURE NO:	1–2