



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: 380.38.009

December 28, 2018

Department of the Army
Attn: Mr. Jeremy Craner
Alaska District, U.S. Army Corps of Engineers
P.O. Box 6898
JBER, AK 99506-0898

Re: Decision Document: Porcupine River DEW Staging Camp
Cleanup Complete Determination

Dear Mr. Craner:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Porcupine River DEW Staging Camp Formerly Used Defense Site, Arctic National Wildlife Refuge. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on 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.

This Cleanup Complete determination is based on the administrative record for the Porcupine River DEW Staging Camp, which is located in the ADEC office in Fairbanks, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:

Porcupine River DEW Staging Camp
Formerly Used Defense Site
Arctic National Wildlife Refuge
Alaska

Name and Mailing Address of Contact Party:

Attn: Mr. Jeremy Craner
Department of the Army
Alaska District, U.S. Army Corps of Engineers
P.O. Box 6898
JBER, AK 99506-0898

DEC Site Identifiers:

File No.: 380.38.009
Hazard ID.: 2658

Regulatory Authority for Determination:

[18 AAC 75]

Site Description and Background

The Porcupine River DEW Staging Camp site is located in the Arctic National Wildlife Refuge in northeastern Alaska, under the jurisdiction of the United States Fish and Wildlife Service (USFWS). The

site is located approximately 160 miles northeast of Fort Yukon, Alaska and 1 ½ miles west of the Canadian border at geographic coordinates: latitude 68° 11' 25.8" N and longitude 141° 03' 47.4" W (Figure 1). The site consists of approximately 8 undeveloped acres of tussock tundra. The current land use is as a federally-managed wildlife refuge.

The site features include abandoned military equipment, including 2 fuel tankers, 2 camp trailers, several 55-gallon drums, and miscellaneous debris. Many of these items were observed to be sunk into the tundra or covered with water and/or tundra plants. The hatches to the fuel tankers were open allowing rain and snow to accumulate inside. This equipment is attributed to an overland vehicle convoy, known as a CAT train, which became bogged down in 1957.

A preliminary assessment was conducted by Ecology & Environment, Inc. (E&E) in October of 1997 for the Environmental Protection Agency. A total of five surface soil samples were collected: at each fuel tanker, at the two camp trailers, and a drum pile to the east of fuel tanker #2. Samples were analyzed for polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and total petroleum hydrocarbons (TPH). Aroclor 1260 (16 milligrams per kilogram [mg/kg]) was detected at the northeast corner of Camp Trailer #1, Aroclor 1254 (2.6 mg/kg) was detected on the west side of Camp Trailer #2, anthracene (3.0 mg/kg) was detected at the north end of fuel tanker #2, and TPH (360 through 11,000 mg/kg) was detected in all five surface soil samples (E&E 1998).

A site visit was performed by the USFWS in September of 2004. During the visit, empty drums found on-site were converted for use as burn barrels. All drummed hydrocarbons remaining on the site, including the oil, were burned in the burn barrels. USFWS noted that 18 empty drums, two empty tanker truck trailers, the remains of two destroyed camp trailers, and several areas of small oil and gasoline spills remained on site (USFWS 2004).

During the 2017 site investigation and cleanup activities, location-specific analysis was performed as presented in Table 1.

Table – 1 Site features, primary samples, sample depth, and analytes.

Site Feature	Number of Primary Samples	Sample Depth (feet bgs)	Analytes
Camp Trailer #1	9	Surface	DRO/RRO and PCBs
Camp Trailer #2	9	Surface	DRO/RRO and PCBs
Fuel Tanker #1	2	0.5/1.5	GRO/DRO/RRO, BTEX and PAHs
Fuel Tanker #2	2	1	GRO/DRO/RRO, BTEX and PAHs
10 Drum Group	4	1.5-2	GRO/DRO/RRO, VOCs, SVOCs, PCBs, and RCRA metals + nickel and vanadium
4 Drum Group	2	1.5	GRO/DRO/RRO, VOCs, SVOCs, PCBs, and RCRA metals + nickel and vanadium

No PCBs were detected above ADEC cleanup criteria at any of the sampled locations. PCB samples collected from previously elevated locations and associated step out locations demonstrate that there is no significant PCB contamination at the Porcupine River DEW Staging Camp FUDS.

Cadmium, chromium, lead, mercury, selenium, and vanadium were detected at concentrations that exceeded EPA Region 4 Ecological Risk Assessment screening levels. The highest mercury exceedance was assigned a “QN” flag which indicates a quality control failure. Mercury was also assigned a “J” flag which indicates an estimated value. The majority of the exceedances are very close to the screening levels. The concentrations are consistent in each sample and likely attributable to background concentrations.

Contaminants of Concern

Based on these analyses, the following contaminants were detected above the applicable cleanup levels and are considered Contaminants of Concern at this site: RRO and arsenic in soil exceeded ADEC Table B1/B2 Method Two Arctic Zone Human Health cleanup levels (13,700 mg/kg and 12 mg/kg respectively). RRO was detected at concentrations exceeding ADEC cleanup criteria at both the fuel tankers. RRO and arsenic were both detected at the 4 Drum Group at concentrations exceeding ADEC cleanup criteria. Arsenic concentrations are assumed to be naturally occurring.

A small amount of unrecoverable fuel is present as a floating layer inside Fuel Tanker #2. The majority of the tank contents were burned by the USFWS in 2004 and no source remains.

Cleanup Levels

Soil was the only medium sampled. Table 2 lists the Arctic Zone Cleanup levels for each COC in soil.

Table 2 – Approved Cleanup Levels

Contaminant	Soil Cleanup Level Arctic Zone, Ingestion/Human Health (mg/kg)
RRO	13,700
Arsenic	12

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

A Site Investigation was performed in August of 2017 under 18 AAC 75.335 for the partial delineation of previously detected PCBs at the Camp Trailers (2); partial delineation of POLs at the Fuel Tankers (2), and at groups of abandoned drums as well as scattered individual abandoned drums; and visual inspection of surface water bodies for signs of contamination.

Soil was the only medium sampled. Plans to sample the soil beneath four scattered drums were abandoned due to time constraints. A small quantity of remnant petroleum discovered on top of water inside Fuel Tanker #2 was not sampled due to time constraints and the “infeasibility of collecting a sample of thin (3/4 inch) layer of product floating on water”. Hand augured soil borings planned to be advanced to 4 ft or refusal could not be advanced past 2 ft bgs due to permafrost.

At the camp trailer where PCB Aroclor1260 had been previously detected up to 16mg/kg, PCBs were non-detect and or below DEC cleanup levels. A single sample location (out of 18 total) had Aroclor1260 at 0.023 mg/kg. DRO and RRO were non-detect despite a previous investigation detection of TPH at 1,300 mg/kg at the camp trailers. Elevated (but below DEC Cleanup levels) RRO and DRO across the site was attributed to biogenic interference from high organic soil content. The photographs appear to support that conclusion.

At Tanker 2, sample results indicated RRO at 20,000 mg/kg in one of the four borings. At Tanker 1 RRO was detected at 17,000 mg/kg in one of the four borings. These were very shallow surface samples. Permafrost was at 1 ft. bgs in some cases.

At the piles of abandoned drums, elevated PID readings were recorded at most boring intervals. However no analytes exceeded cleanup standards in the four borings at the 10 drum group. At the 4 drum group, one boring (of four) showed exceedances of RRO at 22,000 mg/kg and arsenic at 18 mg/kg (attributed to background, as no anthropogenic source was evident).

The SI report recommends no further action, and that the de minimis volume of POL contaminated soil be left on site. Table 3 below lists the maximum concentrations of contaminants remaining on site.

Table 3 – Maximum concentrations of contaminants remaining on site.

Analyte	Screening Level (mg/kg)	Maximum Concentration (mg/kg)	Number of Exceedances
Soil			
RRO	13,700 ^a	22,000	3
Arsenic	12 ^a	18	1

Notes:

a – Screening Level from ADEC Table B1/B2 Method Two Soil Cleanup Levels, Arctic Zone (18 AAC 75.340)

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), 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, ADEC 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 ADEC'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	Site is remote and infrequently visited.
Sub-Surface Soil Contact	Pathway Incomplete	Soil is permanently frozen at 1 to 2 foot depth.
Inhalation – Outdoor Air	Pathway Incomplete	Remote site/no receptors.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Site is remote; no current ongoing activities or buildings.
Groundwater Ingestion	Pathway Incomplete	Arctic zone site, no groundwater.
Surface Water Ingestion	Pathway Incomplete	Flat topography at site. Contaminants not expected to migrate off site to surface waters.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Potential mass is very small following initial cleanup.
Exposure to Ecological Receptors	Pathway Incomplete	Ecoscoping indicates no further ecological evaluation necessary.

Notes to Table 2: “De Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. “Pathway Incomplete” means that in ADEC’s judgment contamination has no potential to contact receptors.

ADEC Decision

The 2017 SI identified RRO and arsenic in soil as COPCs which exceeded ADEC Table B1/B2 Method Two Arctic Zone Human Health cleanup levels (13,700 mg/kg and 12 mg/kg. respectively).

- RRO was detected at concentrations exceeding ADEC cleanup criteria at both the fuel tankers.
- A small amount of fuel is present as a floating layer inside Fuel Tanker # 2. The majority of the tank contents were burned by the USFWS in 2004.
- RRO and arsenic were both detected at the 4 Drum Group at concentrations exceeding ADEC cleanup criteria. Arsenic concentrations are assumed to be naturally occurring. The majority of the drum contents were burned by the USFWS in 2004 and no source remains.
- Cadmium, chromium, lead, mercury, selenium, and vanadium were detected at concentrations that exceeded EPA Region 4 Ecological Risk Assessment screening levels. The highest mercury exceedance was assigned a “QN” flag which indicates a quality control failure. Mercury was also assigned a “J” flag which indicates an estimated value. The majority of the exceedances are very close to the screening levels. The concentrations are consistent in each sample and likely attributable to background concentrations. All metals exceedances (other than arsenic) were at levels well below DEC cleanup levels.

The Porcupine River DEW Staging Camp is located in an extremely remote location and the site was only minimally used. Recent visitors include scientists/engineers conducting site investigation and product burning activities and the occasional trapper. Reasonable potential future site use includes the very occasional visitor due to the extreme remoteness of the site which is only accessible by helicopter in the summer or snowmachine in the winter.

Risk to human health and the environment is considered insignificant (no surface soil contact pathway). The current site conditions are protective of human health, safety or welfare, and the environment. All soils in the area are high in organic carbon and migration of the limited contaminants off the project site is unlikely. Adverse impact to the site would be substantial if a removal action was implemented and would likely cause more harm than good (i.e., surface vegetation damage, permafrost damage, promoting erosion, etc.).

This site will receive a “Cleanup Complete” determination in the Contaminated Sites Database, subject to the following standard conditions.

Standard Conditions

1. Any proposal to transport soil off-site requires ADEC 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.

This determination is in accordance with 18 AAC 75.380 and does not preclude ADEC 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.

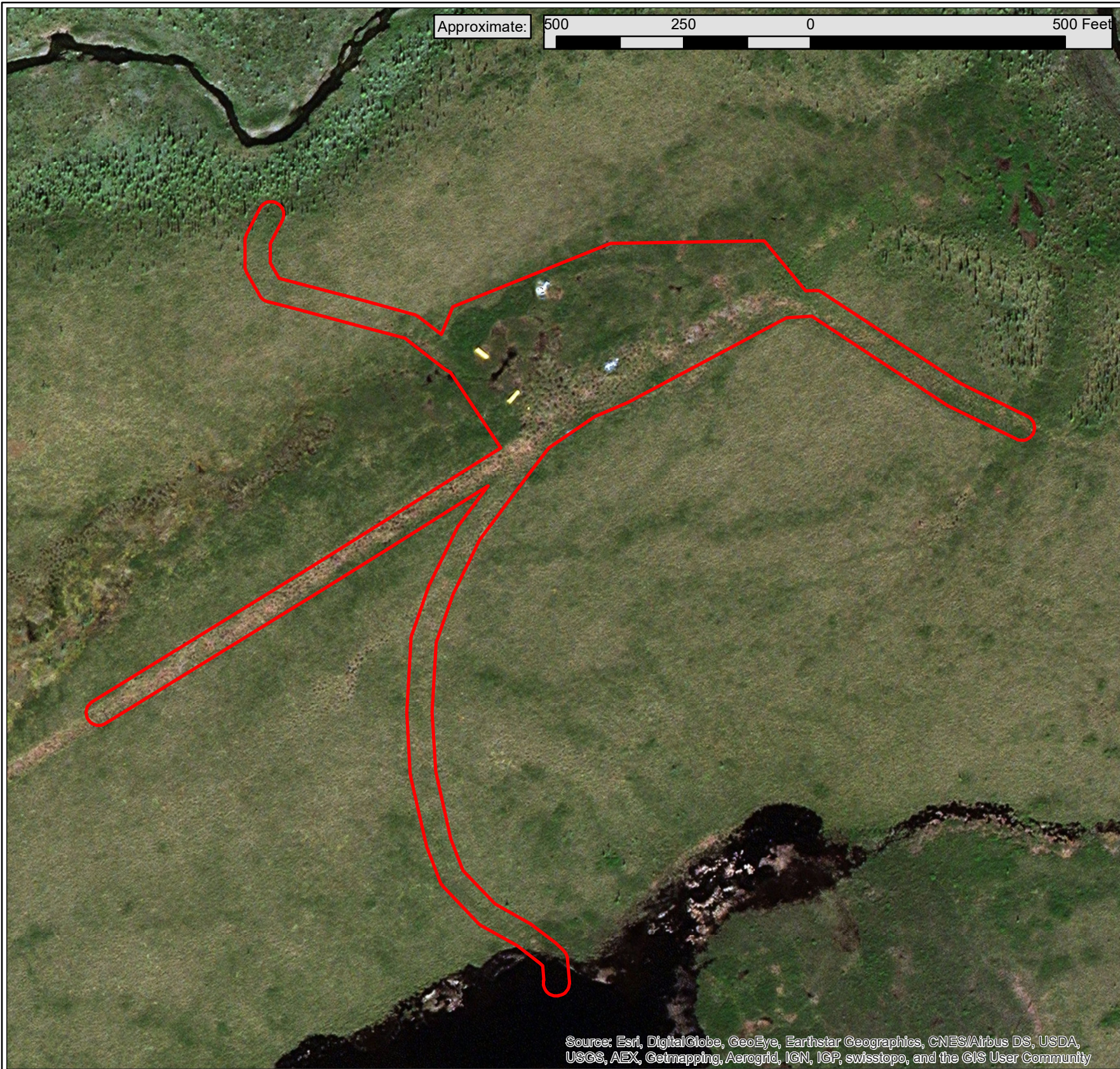
If you have questions about this closure decision, please feel free to contact me at (907) 451-2181, or email at john.obrien@alaska.gov.

Sincerely,

John O’Brien
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit
Arctic National Wildlife Refuge, USFWS
Angela Matz, USFWS
Stan Wharry, USACE

Eric Breitenberger, ADEC
Melinda Brunner, ADEC



Legend

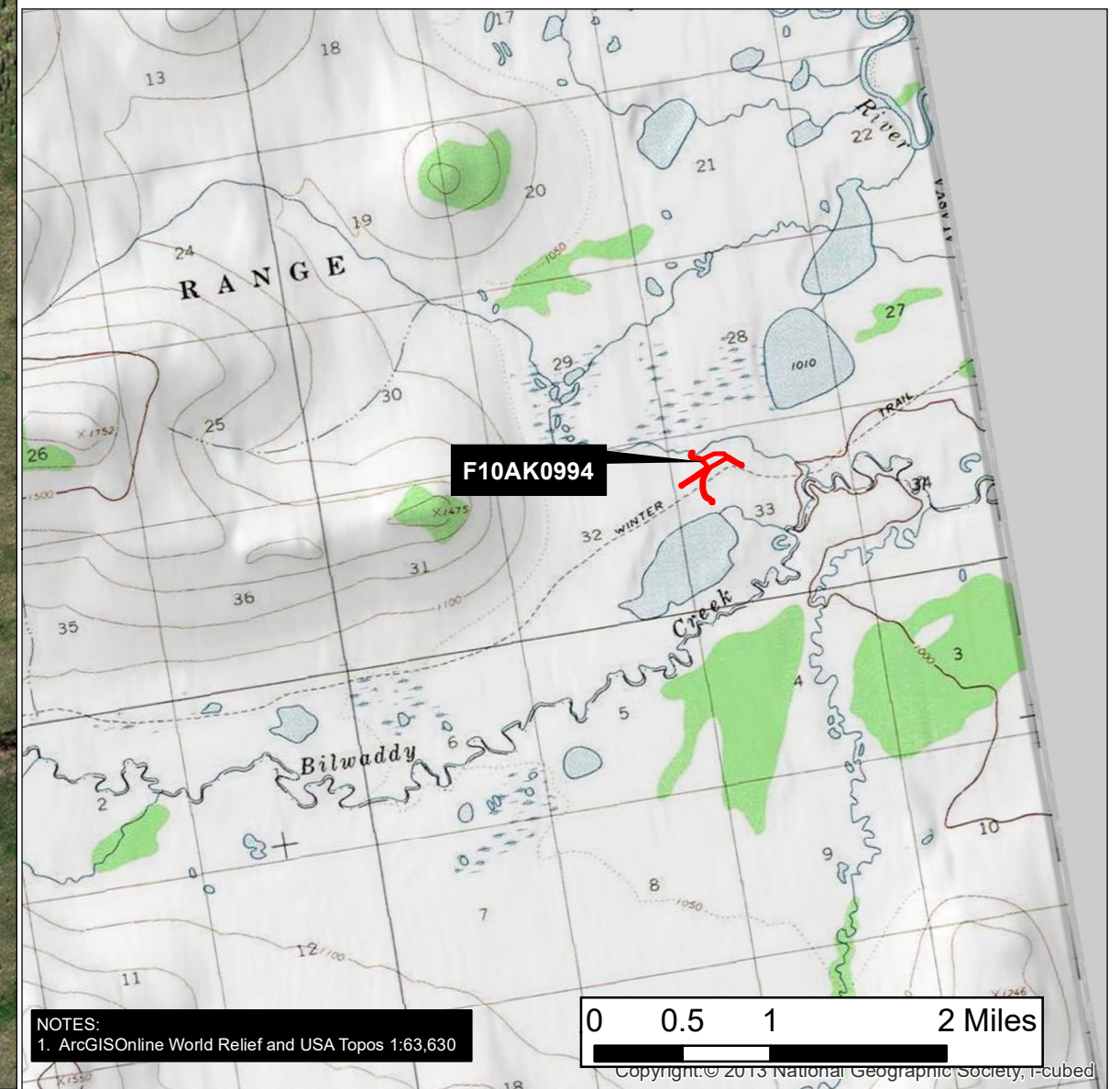
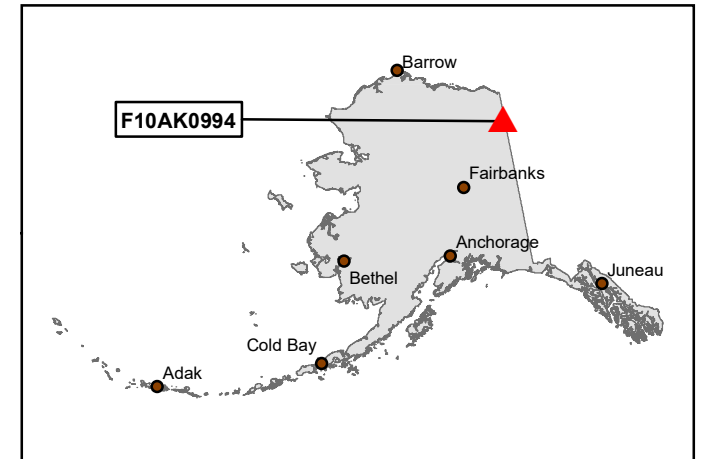
FUDS Property Polygon

CENTROID LOCATION

LOCATION OF POLYGON CENTROID IS:
 68.189928 ° NORTH LATITUDE
 141.062272 ° WEST LONGITUDE

AREAS

CALCULATED POLYGON LAND AREA:
 8 ACRES
 CALCULATED POLYGON OCEAN WATER AREA:
 00.00 ACRES
 FUDS FDE AREA: N/A ACRES



REFERENCES

- 2015 Army Geospatial Center Historical Photographic Analysis (F10AK0994--_01.04_0500_a)

PROCESS

- No DOD Real Estate Actions were taken for this property.
- The area of impact identified within the HPA was used to generate the polygon.
- A buffer of 50' (25' on each side) was used on historical road disturbances.



U.S. ARMY
 CORPS OF ENGINEERS
 ALASKA DISTRICT

Site Location and Vicinity Map 2017 Site Investigation

**Porcupine River DEW Staging Camp
 Formerly Used Defense Site - F10AK0994**
 Arctic National Wildlife Refuge, Alaska

FIGURE 1