THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Environmental Conservation

SPILL PREVENTION & RESPONSE
Contaminated Sites Program

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File No.: 702.38.001

May 15, 2020

Electronic Delivery Only
Lisa Ebbs
Federal Aviation Administration
222 W 7th Ave, #14
Anchorage, AK 99513

Subject: **Decision Document: No Further Action**
FAA Chandalar Lake Facility: Former Tank Farm ASTs and NDB Soil Stockpile

Dear Ms. Ebbs,

The Alaska Department of Environmental Conservation, Contaminated Sites Program (DEC) has completed a review of the environmental records associated with the Federal Aviation Administration (FAA) Chandalar Lake Facility. Based on the information provided to date, contaminant concentrations remaining at the Former Tank Farm Above-ground Storage Tanks (ASTs) and former Non-Directional Beacon (NDB) Soil Stockpile, do not pose an unacceptable risk to human health or the environment and no further remedial action will be required unless information becomes available that indicates residual contaminants may pose an unacceptable risk. This determination is limited to the two source areas listed; a third source areas at the FAA Chandalar Lake Facility referred to as the Engine Generator Spill Site will remain active until cleanup is completed.

This No Further Action determination is based on the administrative record for the Former Tank Farm ASTs and NDB Soil Stockpile at the FAA Chandalar Lake Facility, 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:
FAA Chandalar Lake Facility
Chandalar, Alaska
- Former Tank Farm ASTs
  67°29'54.68"N, 148°30'11.81"W
- NDB Soil Stockpile
  67°30'12.99"N, 148°28'4.02"W

Name and Mailing Address of Contact Party:
Lisa Ebbs
Federal Aviation Administration
222 West 7th Avenue, Box 14
Anchorage, AK 99513-7587

DEC Site Identifiers
File No.: 702.38.001
Hazard ID: 4351
Source Areas:
- Former Tank Farm ASTs, ID 75335
- NDB Soil Stockpile, ID 80562

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background
The Chandalar Lake FAA Station is an inactive air navigation station near a 3,800-foot-long gravel runway that was constructed in the 1950s to support mining in the area. The FAA began operating a remote navigational facility at Chandalar Lake in 1968, when a primary power facility was built including a small utility building and a tank farm (see attached site figure). The site currently has three Areas of Concern (AOCs), referred to in the DEC database as "Former Tank Farm ASTs", "NDB Soil Stockpile" and "Engine Generator Spill Site". There is also a nearby, separate site called "FAA Chandalar Lake NDB Site UST", Hazard ID 24421.

Contaminants of Concern
During the site characterization and cleanup activities at this site, samples were collected from soil, and suprapermafrost water and analyzed for diesel range organics (DRO), gasoline range organics (GRO), residual range organics (RRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), and polynuclear aromatic hydrocarbons (PAHs). Surface water was analyzed for DRO, total aqueous hydrocarbons (TAqH) and total aromatic hydrocarbons (TAH). Contaminants were either non-detect or had concentrations below the applicable cleanup levels. Maximum detected concentrations are summarized in **Table 1.** Contamination in soil does not exceed the applicable cleanup levels.

Cleanup Levels
Due to the presence of continuous permafrost, the Table B1 Arctic Zone Human Health and Table B2 Ingestion cleanup levels for soil apply at the FAA Chandalar Lake Facility. The applicable cleanup levels and maximum concentrations detected at the two FAA Chandalar Lake Facility AOCs is summarized in Table 1, below.

Table 1 – Approved Soil Cleanup Levels and Maximum Detected Concentrations

Contaminant	Table B2 Arctic Zone (mg/kg)	Maximum Detected Concentrations (mg/kg)	
		Former Tank Farm ASTs	NDB Former Soil Stockpile
DRO	12,500	956	231
GRO	1,400	182	4.91
RRO	13,700	-	150

mg/kg = milligrams per kilogram
"-" = non-detect

Due to the presence of continuous permafrost, Table C groundwater cleanup levels do not apply at this site. Groundwater that is closely connected hydrologically to nearby surface water may not cause a violation of the water quality standards set forth in 18 AAC 70 for surface water or sediment. 18 AAC 70 specifies that TAqH and TAH in the water column may not exceed 15 µg/L and 10 µg/L, respectively.

Characterization and Cleanup Activities

FAA FORMER TANK FARM ASTs

The former Tank Farm was located at the southeast end of the runway, approximately 55 feet from the high water line of Chandalar Lake. The Tank Farm fuel system consisted of two former ASTs located at the airstrip and a 235-foot-long aboveground fuel transfer pipeline that spanned from the airstrip to three ASTs located within a lined containment dike at the Tank Farm (8-A-1, 8-A-2, and 8-A-3). The fuel lines transferred fuel from ASTs near the runway to the Tank Farm ASTs, and then to an Engine Generator Building adjacent to the Tank Farm.

In 1999, three Tank Farm ASTs were decommissioned: AST 8-A-1 (10,000 gallon) and two 2,500-gallon ASTs (8-A-2 and 8-A-3). The tanks were located within an earthen containment dike with a synthetic liner (Figure 1). Soil beneath the liner was excavated down to permafrost at approximately ten feet below ground surface (bgs). Soil confirmation samples did not exceed the applicable Arctic Zone cleanup levels.

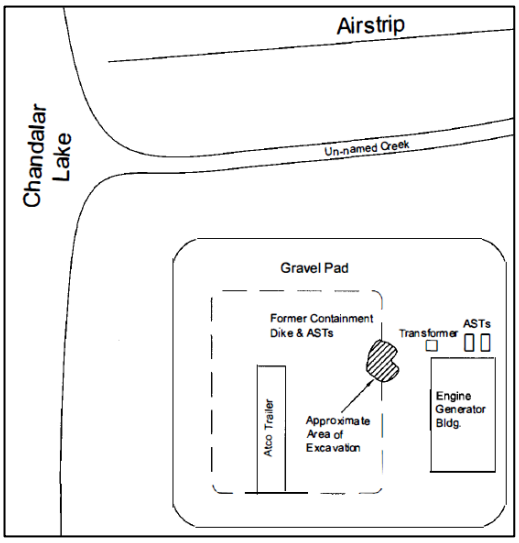


Figure 1. Former Tank Farm Layout. The ASTs and piping were decommissioned in 1999. The Engine Generator Building remains on site. Not to scale.

In 2009, 12 additional soil borings were advanced at the former tank farm and analyzed for DRO, GRO, RRO and BTEX. DRO and GRO were detected well below the applicable cleanup levels; all other analytes were non-detect (Table 1). Four borings were converted to monitoring wells to sample suprapermafrost water, analyzed for DRO, GRO, RRO, BTEX and PAHs. One well exceeded Table C values for DRO. Subsequent sampling events in 2012 and 2015 found a single Table C exceedance for DRO, however Table C does not apply as this is not true groundwater. Surface water samples were also collected from Chandalar Lake and the nearby Unnamed Creek and analyzed for DRO, TAH, and TAqH. All results were non-detect, indicating that the minimal remaining soil contamination is not migrating to surface water.

NDB SOIL STOCKPILE

In 1994, approximately 12 cubic yards (cy) of contaminated soil from the decommissioned NDB UST 8-B-1 was stockpiled on a liner at the NDB site. Additionally, 40 cy of contaminated soil from the vicinity of the decommissioned fuel pipeline associated with two former ASTs near the runway (8-A-4 and 8-A-5) was also stockpiled on the liner. Soil samples collected from the stockpiles identified up to 4,200 mg/kg DRO, below the cleanup level of 12,500 mg/kg. In July 1996, the stockpiles were spread, amended with fertilizer and tilled. In September 1996, the landspread soils were resampled and DRO concentrations had decreased to 2,700 mg/kg.

In 1999, approximately 150 cubic yards (cy) of contaminated soil was excavated during the decommissioning of three ASTs at the Tank Farm (8-A-1, 8-A-2, and 8-A-3). The contaminated soil was stockpiled on a liner and covered at the NDB site. During the 2009 Site Investigation, the stockpile was found uncovered and FAA learned that a local had been using the stockpiled soil for trail maintenance. The landspread area and remaining100 cy soil stockpile were sampled for DRO, GRO, RRO, and BTEX; DRO, GRO, and RRO were detected well below the applicable cleanup levels; all other analytes were non-detect (Table 1).

In 2012, the 100 cy stockpile was landspread at the base of the NDB tower, and underlying soil from the footprint of the stockpile area was sampled for DRO, RRO, GRO, and BTEX. All samples were non-detect.

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 non-carcinogenic 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 at the former tank farm ASTs and former NDB soil stockpile 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 De Minimis Exposure or Pathway Incomplete. A summary of this pathway evaluation is included in **Table 2**.

Table 2 – Exposure Pathway Evaluation

Pathway	Former Tank Farm ASTs	NDB Soil Stockpile
Surface Soil Contact	PATHWAY INCOMPLETE: No contamination has been detected in surface soil.	DE MINIMIS: All surface soil sample concentrations are well below the applicable Arctic Zone Cleanup levels.
Sub-Surface Soil Contact	DE MINIMIS: All subsurface soil sample concentrations are well below the applicable Arctic Zone Cleanup levels.	PATHWAY INCOMPLETE: Contamination has not been detected in subsurface soil.
Inhalation – Outdoor Air	PATHWAY INCOMPLETE: No volatile contaminants have been detected at these AOCs.	
Inhalation – Indoor Air (vapor intrusion)	PATHWAY INCOMPLETE: There is one unoccupied building adjacent to the former tank farm area. Contamination in soil does not exceed the applicable cleanup levels.	PATHWAY INCOMPLETE: There are no structures in the vicinity of the former stockpile. Contamination in soil does not exceed the applicable cleanup levels.
Groundwater Ingestion	PATHWAY INCOMPLETE: The FAA Chandalar Lake Facility is underlain by continuous permafrost. Table C groundwater cleanup levels do not apply.	
Surface Water Ingestion	PATHWAY INCOMPLETE: Surface water samples from Chandalar Lake and the nearby Unnamed Creek were collected and analyzed for DRO, TAH, and TAqH. All samples were non-detect.	
Wild and Farmed Foods Ingestion	PATHWAY INCOMPLETE: No bioaccumulative contaminants have been detected at these AOCs.	
Exposure to Ecological Receptors	PATHWAY INCOMPLETE: There are no concerns about ecological pathways. Contamination at these AOCs does not exceed the applicable cleanup levels.	

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

Soil contamination at the Former Tank Farm ASTs and NDB Soil Stockpile has been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. These AOCs will receive a "No Further Action" designation on the Contaminated Sites Database[1], subject to the following standard conditions. The FAA Chandalar Lake Facility will remain open until all areas of concern tracked under this file number have reached cleanup complete status.

Standard Conditions

1. Any proposal to transport soil or groundwater 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.

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 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.

[1] DEC Contaminated Sites Database: https://dec.alaska.gov/Applications/SPAR/PublicMVC/CSP/Search

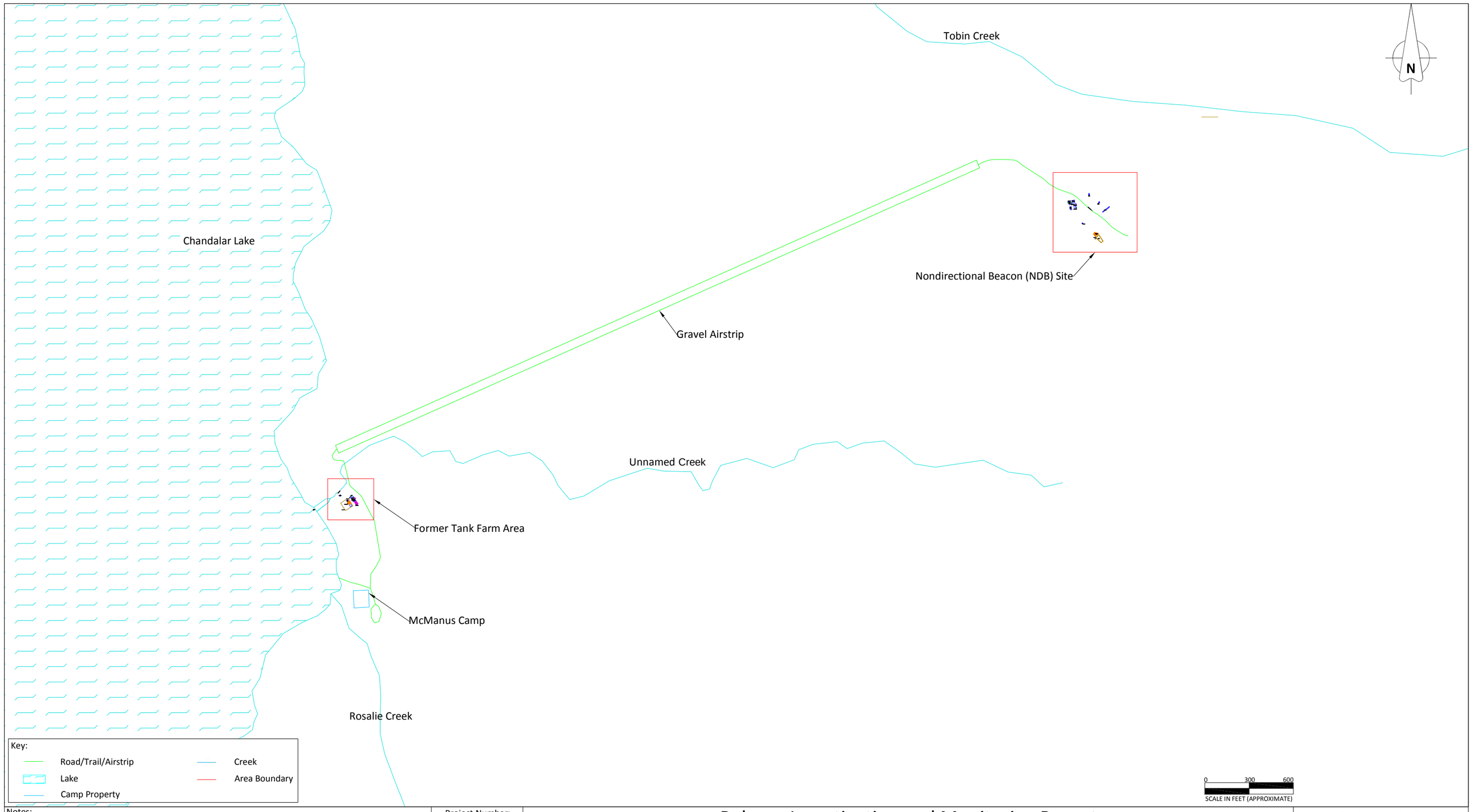
If you have questions, please contact me at (907) 451-5175, or via email at jamie.mckellar@alaska.gov.

Sincerely,

Jamie McKellar
Project Manager

Enclosure: FAA Chandalar Lake Facility site figure

cc, via email: Eric Breitenberger, ADEC
Kara Kusche, ADEC
Spill Prevention and Response, Cost Recovery Unit



Notes:

1. All locations are approximate.
2. Figures modified from figures within: Ecology and Environmental, Inc., *Environmental Compliance Investigation Report (ECIR), Chandalar FAA Station, Chandalar, Alaska* , December, 1992; Montgomery Watson (MW), *Aboveground Storage Tank (AST) Decomissioning Assessment, FAA Chandalar Lake Station,* January 2000.

Project Number: 10002.054.01

Release Investigation and Monitoring Report Chandalar Lake FAA Station Chandalar Lake, Alaska

Site Plan

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Date: 03-31-2010

Drafted By: L.D.

Figure Number: 2