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: 360.38.002

February 22, 2017

Stephen Krause
U. S. Air Force
AFCEC/CZOP
10471 20th Street, Suite 348
JBER, AK, 99506-2201

Theresa Clark
VP, Shareholder Services & Lands
Olgoonik Corporation
3201 C Street, Suite 700
Anchorage, AK, 99503

Re: Decision Document: Wainwright DEW Line/LIZ-3 Beach Diesel Tanks (SS001)
Cleanup Complete Determination

Dear Mr. Krause and Ms. Clark:

The Alaska Department of Environmental Conservation (ADEC), Contaminated Sites Program has completed a review of the environmental records associated with the Wainwright Distant Early Warning (DEW) Line/LIZ-3 Beach Diesel Tanks site SS001 near Wainwright, Alaska. 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 Wainwright DEW Line/LIZ-3 site, 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:
Wainwright Short Range Radar Station (SRRS)
Beach Diesel Tanks Site (SS001)
1 mile northeast of the village of Wainwright, AK
on the shore of the Chukchi Sea

Responsible Party:
U.S. Air Force

Landowner:
Olgoonik Corporation

ADEC Site Identifiers:

File No.: 360.38.002
Hazard ID: 26383

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

The Wainwright SRRS is approximately 4.5 miles southeast of the village of Wainwright, within the National Petroleum Reserve-Alaska (NPR-A). The Beach Diesel Tanks site is located approximately 5 miles northwest of the main SRRS station on the shore of the Chukchi Sea. The SRRS was constructed as a DEW Line Station in 1953, and was an active manned station until 1989. It was converted into an unmanned SRRS in 1994. The station was closed by the U.S. Air Force in 2008. The Air Force contractor completed site demolition activities in 2013. The Technical Services Building and the Radar Building/Radar Antenna remain on site. All other buildings, tanks, and fuel pipelines have been removed.

The Beach Diesel Tanks site consisted of two 65,000-gallon aboveground storage tanks (ASTs) in a gravel bermed containment area. Fuel for the Wainwright SRRS was offloaded from barges at this location and transported by an aboveground pipeline to the main installation. The fuel pipeline was removed during the 2001/2002 pipeline decommissioning, and the ASTs were removed in 2010.

Contaminants of Concern and Cleanup Levels

Contaminants of concern and cleanup levels for this site were established in the 2012 Record of Decision (ROD). The contaminants of concern identified in the ROD are gasoline, diesel, and residual range organics (GRO, DRO, and RRO). The ADEC Method 1 soil cleanup levels for the Arctic Zone (18 AAC 75.341, Table A2) were applied to this site because it is located near the Chukchi Sea and was determined susceptible to erosion in the relatively near future.

Beach Diesel Tanks (SS001) – Soil Cleanup Levels

Contaminant of Concern	Arctic Zone, Method 1 Cleanup Level
GRO	100 mg/kg
DRO	200 mg/kg
RRO	2,000 mg/kg

Soil was removed from the Beach Diesel Tanks site and transported to the main Wainwright SRRS installation for treatment by landspreading. The target cleanup level for the landspread soil were established in the 2012 Record of Decision. A site specific cleanup level of 1,000-mg/kg for DRO was established; cleanup levels for GRO and RRO are the ADEC Method 2 ingestion cleanup levels for the Arctic Zone (18 AAC 75.341, Table B2).

Beach Diesel Tanks (SS001) – Landspread Soil Cleanup Levels

Contaminant of Concern	Cleanup Level
GRO	1,400 mg/kg
DRO	1000 mg/kg
RRO	13,700 mg/kg

Characterization and Cleanup Activities

Soil samples were collected from within the gravel berm at the Beach Diesel Tanks site in 2007, and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), GRO, DRO, and RRO. Approximately two-thirds of the area within the containment berm contained DRO above the cleanup level. In addition, one sample collected from outside the berm also contained DRO above the cleanup level. The elevated DRO in this area

appeared to be the result of a small, isolated spill along the pipeline route. A surface water sample collected from the pond bordering the tank farm indicated that the surface water was not impacted by the historic fuel spill at the bulk tank farm.
Removal actions began at the beach diesel tanks site in April 2010. The ASTs and associated piping were removed from the tank farm area, followed by the removal of the petroleum-contaminated gravel pad. Approximately 4,500-cubic yards of material were removed and transported to the Wainwright SRRS installation for landspreading on the runway. Any remaining clean material was spread in an approximately 1-foot lift over the footprint of the former AST pad area to insulate the underlying tundra. Confirmation samples were collected from the floor and sidewalls of the excavation and analyzed for DRO and RRO. Half of the samples were also analyzed for GRO and BTEX. Results indicated that DRO, and to a lesser extent, RRO and GRO remain at SS001 above ADEC Method One cleanup levels. Two of the samples exceeded the Method 2 cleanup level of 12,500-mg/kg for DRO, with a maximum concentration of 44,300-mg/kg. The samples with exceedances were mainly located within native soils, as opposed to the gravel pad material.

The removal of petroleum-contaminated soil at the pipeline area, known as the Kirby Pit, also commenced in 2010. Approximately 10-cubic yards of soil, predominantly fine sand with silt, was transported to the Wainwright SRRS installation and mixed with the petroleum-contaminated gravel from the Beach Diesel Tanks pad and landspread. Confirmation sampling following the removal action at the Kirby Pit indicated DRO remained above ADEC Method One cleanup level. The maximum concentration of DRO was 36,800-mg/kg, which is above the Method 2 cleanup level.

In 2013, approximately 2,380-cubic yards of petroleum-contaminated material from an area approximately 150 feet by 160 feet was excavated from beneath the former Beach Diesel Tanks. Final excavation depth relative to the existing ground surface varied due to the pre-existing topography and ranged from roughly 2.5' to approximately 5'. During excavation of the beach diesel tanks, an ice lens was encountered beneath the ground surface. The excavation did not proceed beneath the ice lens.

Confirmation samples were collected from the floor of the excavation and analyzed for DRO and RRO. Some of the laboratory samples were analyzed for DRO with and without the silica gel cleanup method. Results of this comparison, along with elevated total organic carbon results, indicated that the excavated material was high in carbon, providing false positive results. The laboratory confirmation sample results reported DRO concentrations ranging from non-detect to 80.4-mg/kg, and RRO concentrations ranging from non-detect to 401-mg/kg. All laboratory sample results were reported below the ADEC Method 1 cleanup levels.

Approximately 120-cubic yards of petroleum-contaminated material was excavated from the Kirby Pit from an area roughly 14-feet wide, 32-feet long, and between 2 and 10 feet in depth relative to existing ground elevation. This included the removal of previously-identified hotspots. All laboratory confirmation soil samples were collected from approximately 0.5-feet below the final relative excavation elevation and analyzed for DRO and RRO. Sample results for DRO ranged from non-detect to 43.4-mg/kg and RRO confirmation results ranged from 11.6-mg/kg to 39-mg/kg. All laboratory sample results were below the ADEC Method 1 cleanup levels. The contaminated soils excavated from the Kirby Pit were combined with the material obtained from the Beach Diesel Tank Area and landspread at the former Wainwright SRRS runway. As documented in the 2015 Landspreading Operation and Maintenance report, the landspread efforts were successful in treating the soil to the cleanup levels established for the landfarmed soils.

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 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 or Pathway Incomplete. 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. A summary of the pathway evaluation for this site is included in the table below.

Beach Diesel Tanks (SS001) - Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contaminated soil has been removed from the surface soil.
Sub-Surface Soil Contact	De Minimis Exposure	Following excavation, remaining contaminant concentrations in soil are below the Method 1, Table A2 Arctic Zone cleanup levels.
Inhalation – Outdoor Air	Pathway Incomplete	Contaminated soil has been removed, and remaining residual contaminant concentrations in soil are below the Method 1, Table A2 Arctic Zone cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contaminated soil has been removed and remaining residual contaminant concentrations in soil are below the Method 1, Table A2 Arctic Zone cleanup levels.
Groundwater Ingestion	Pathway Incomplete	The ADEC has made a general determination that the presence of continuous permafrost in the Arctic Zone acts as a barrier for soil contamination to a groundwater zone of saturation. Therefore, the migration to groundwater pathway does not naturally exist for sites located in the Arctic Zone.
Surface Water Ingestion	Pathway Incomplete	This site is adjacent to the Chukchi Sea and there are no potential surface water drinking sources in the proximity. Remaining residual contaminant concentrations in soil are below the Method 1, Table A2 Arctic Zone cleanup levels.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern are not bio-accumulative.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminants of concern are not bio-accumulative.

ADEC Decision

Soil contamination at this 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 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.
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.

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

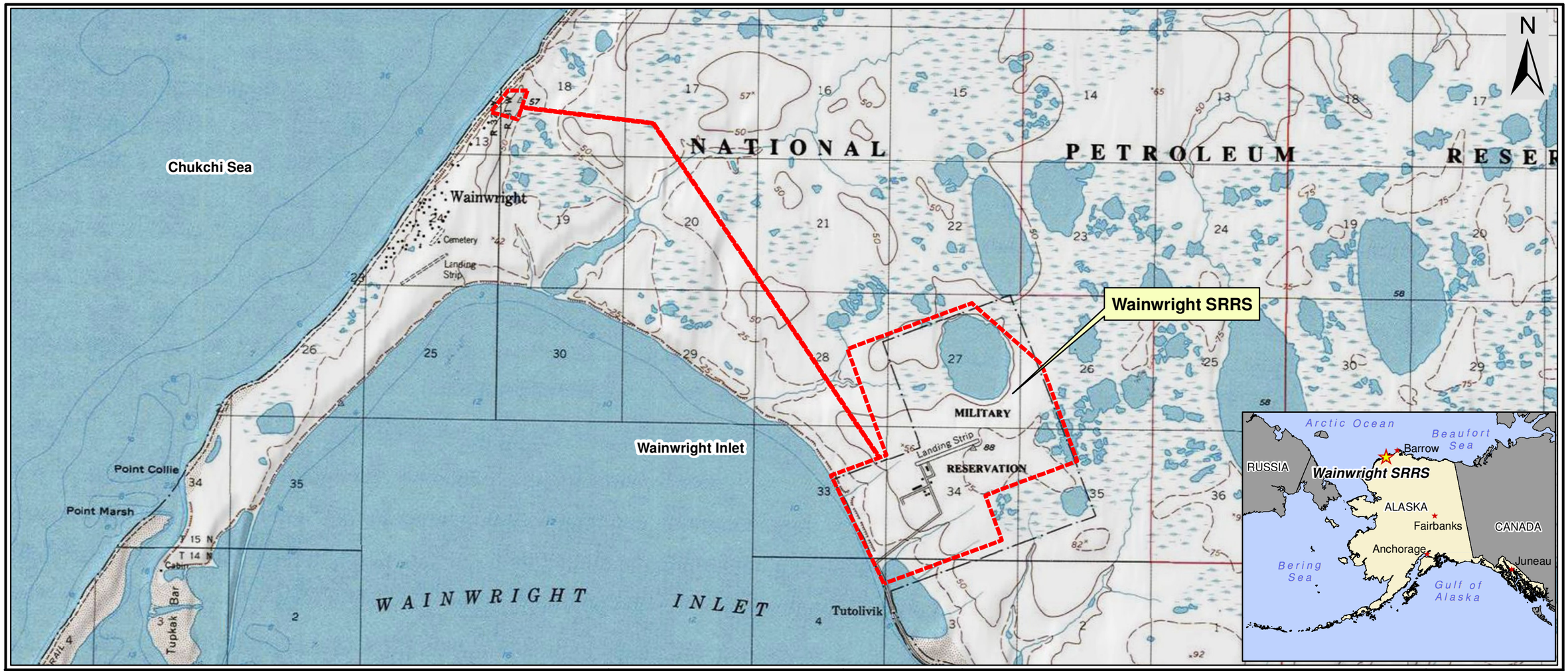
Sincerely,

Digitally signed by John Carnahan
DN: cn=John Carnahan, o=Contaminated Sites Program, ou=DEC Division of SPAR, email=john.carnahan@alaska.gov, c=US
Date: 2017.02.23 09:59:16 -09'00'

John Carnahan
Program Manager

Enclosures: Figure 1, Wainwright SRRS Location Map
Figure 2, Runway Landspread Area

Cc (via email): Stacie McIntosh, BLM
Spill Prevention and Response, Cost Recovery Unit



Installation Boundary

Topographic Coverage: © 2013 National Geographic Society, i-cubed

0 4,000 8,000

Feet

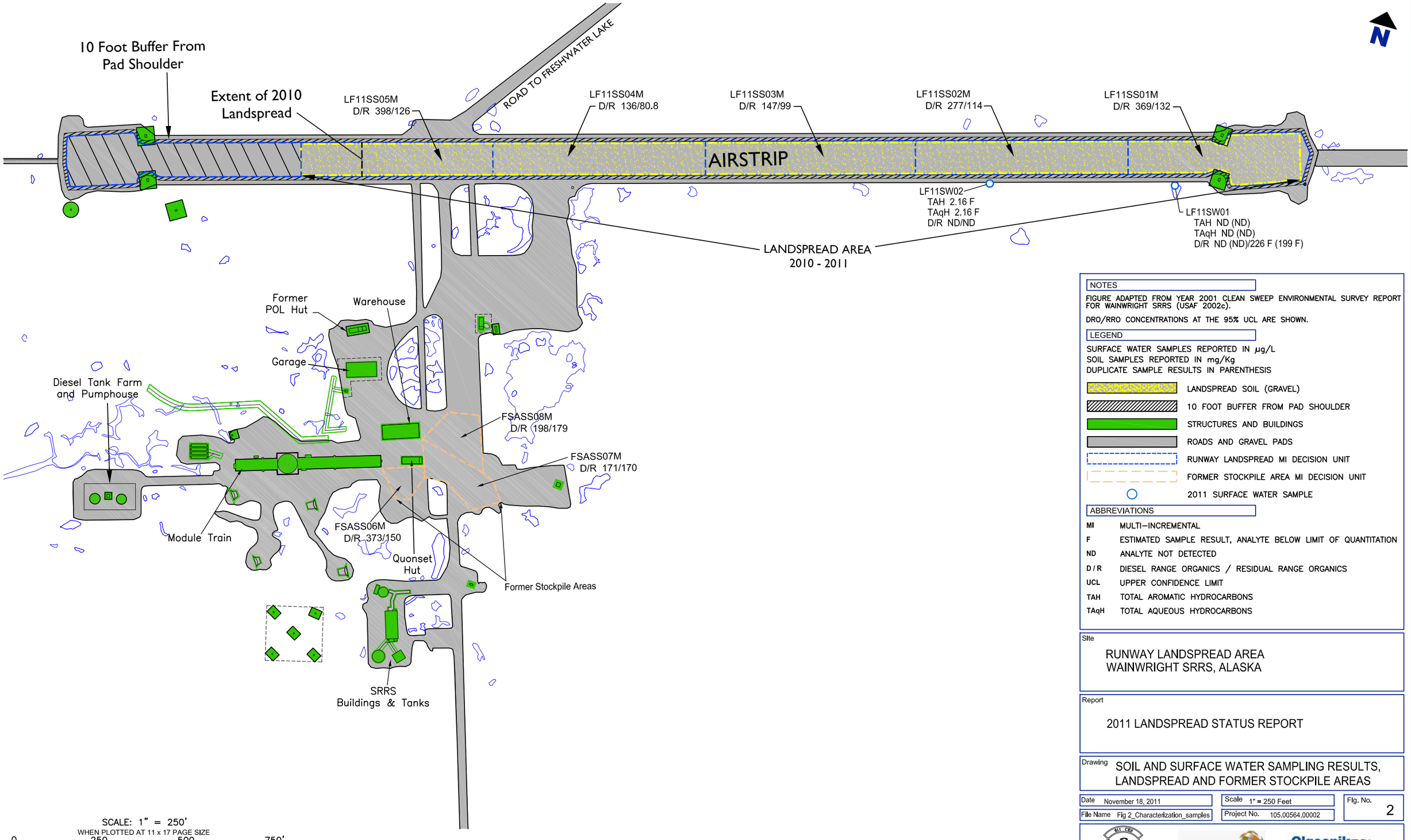
Wainwright SRRS, Alaska

Landspreading Operation and Maintenance

Figure 1:
Wainwright SRRS Location Map

PROJECT NO:
10-ECOS09-27

DATE:
October 2015



THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.

NOTES

FIGURE ADAPTED FROM YEAR 2001 CLEAN SWEEP ENVIRONMENTAL SURVEY REPORT FOR WAINWRIGHT SRRS (USAF 2002c).

DRO/RRO CONCENTRATIONS AT THE 95% UCL ARE SHOWN.

LEGEND

SURFACE WATER SAMPLES REPORTED IN µg/L
SOIL SAMPLES REPORTED IN mg/Kg
DUPLICATE SAMPLE RESULTS IN PARENTHESIS

- LANDSPREAD SOIL (GRAVEL)
- 10 FOOT BUFFER FROM PAD SHOULDER
- STRUCTURES AND BUILDINGS
- ROADS AND GRAVEL PADS
- RUNWAY LANDSPREAD MI DECISION UNIT
- FORMER STOCKPILE AREA MI DECISION UNIT
- 2011 SURFACE WATER SAMPLE

ABBREVIATIONS

MI	MULTI–INCREMENTAL
F	ESTIMATED SAMPLE RESULT, ANALYTE BELOW LIMIT OF QUANTITATION
ND	ANALYTE NOT DETECTED
D / R	DIESEL RANGE ORGANICS / RESIDUAL RANGE ORGANICS
UCL	UPPER CONFIDENCE LIMIT
TAH	TOTAL AROMATIC HYDROCARBONS
TAqH	TOTAL AQUEOUS HYDROCARBONS

Site

RUNWAY LANDSPREAD AREA
WAINWRIGHT SRRS, ALASKA

Report

2011 LANDSPREAD STATUS REPORT

Drawing SOIL AND SURFACE WATER SAMPLING RESULTS, LANDSPREAD AND FORMER STOCKPILE AREAS

Date November 18, 2011
File Name Fig 2_Characterization_samples
Scale 1" = 250 Feet
Project No. 105.00564.00002
Fig. No. 2

611 CES ENGINEERS IN PROGRESS

SLR

Olgoonik Specialty Contractors LLC