



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 No: 360.38.002

May 26, 2015

Lori Roy
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1150 University Avenue
Fairbanks, AK 99709

**Decision Document: Wainwright DEW Line/LIZ-3/Fuel Spills (SS004)
Cleanup Complete Determination**

Dear Ms. Roy and Ms. McIntosh:

The Alaska Department of Environmental Conservation (DEC) has reviewed the environmental records for the Wainwright Distant Early Warning (DEW) Line LIZ-3 Fuel Spills SS004 site (also identified as the Module Train Area) near Wainwright, Alaska. This decision letter memorializes the site history, cleanup actions, and standard conditions for long-term site management. No further remedial action is required.

Site Name and Location

Wainwright Short Range Radar Station (SRRS), Fuel Spills SS004
Kuk River on the Chukchi Sea, 4.5 miles southeast of the village of Wainwright

Responsible Party

United States Air Force

Landowner

United States Department of the Interior, Bureau of Land Management

DEC Site Identifiers

File No: 360.38.002 Hazard ID: 744

Regulatory Authority for Determination

18 AAC 75

Site Description and Background

The Wainwright SRRS is located on federal lands within the National Petroleum Reserve-Alaska (NPR-A), approximately 4.5 miles southeast of the village of Wainwright. The Wainwright 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, including the structures at the module train area, have been demolished and all tanks and fuel pipelines have been removed.

The module train was located in the main camp area and included the sanitary wastewater treatment facility, potable water treatment facility, diesel power generators, radar equipment, recreational facilities, dining facilities, and an incinerator. The module train building was raised on pilings approximately 4 feet above the tundra. A 3 to 4 foot thick gravel pad surrounded the building, thinning to only an inch or two beneath the building. The active zone water table in the area is just below the elevation of the tundra. Standing water has been observed beneath the module train building, and was drained by culverts to either the west or southwest into the tundra.

There were two separate 10,000-gallon fuel spills reported in the 1970s near the powerhouse section of the module train. Additional areas of concern at the Module Train Area include polychlorinated biphenyl (PCB) contamination associated with transformers and other electrical equipment containing PCBs, the culvert outfalls, the sewer main outfall, a drum spill area south of the module train building and the former tank farm and pumphouse located west of the module train building.

Record of Decision

The Air Force prepared a Record of Decision (ROD) in 2011 for the Module Train Area and included the diesel spills area, the PCB spills area, the sewer main outfall, and the drum spill area. The ROD selected the ADEC's Method Two Arctic Zone cleanup levels, 18 AAC 75.341, Tables B1 and B2, for this site. The table below presents the contaminants of concern and their cleanup levels for this site.

Contaminants of Concern and Cleanup Levels

Contaminant	Cleanup Level
Diesel Range Organics (DRO)	12,500 mg/kg
Residual Range Organics (RRO)	13,700 mg/kg
Polychlorinated Biphenyls (PCBs)	1 mg/kg

mg/kg = milligrams per kilogram

Based on site results of site characterization through 2009, the ROD concluded that contamination identified at the diesel spills area and the sewer main outfall was below the arctic zone cleanup levels and no removal actions were required. Removal and off-site disposal of contaminated soil was selected as the final remedy for the PCB spills area and the drum spill area.

Characterization and Cleanup Activities

Previous characterization activities at the Module Train Area occurred in 1993, 2001, 2004, 2005, 2007, and 2009. Remedial actions were performed in 2011 and in 2013. All of the buildings and associated infrastructure at the Module Train Area, including fuel storage tanks and pipelines, were demolished in 2013.

Diesel Spills Area

The diesel spills area is the location of two separate 10,000-gallon spills in the 1970s, near the west end of the module train at the powerhouse section. In 2007, soil samples were collected from the end of the module train area and analyzed for GRO, DRO, RRO, BTEX, and PAHs. Soil sample results showed DRO, GRO, 1-methylnaphthalene, and 2-methylnaphthalene above the migration to groundwater cleanup level but below the selected arctic zone cleanup levels.

In 2009, four test pits approximately 1½ feet deep were dug under the west end of the module train area to determine the presence or absence of free product. Active zone water was allowed to collect in the test pits for 24 hours. No sheen or free product was observed in any of the test pits. In addition, temporary well points were installed at two locations in the gravel pad downgradient of the generator room area and allowed to equilibrate for 24 hours. An oil-water interface probe was used to determine if free product was present on the surface of the active zone water. No product was detected.

During the 2011 remedial action to remove PCB contaminated soil from the PCBs spills areas on the north and south sides of the west end of the module train building, petroleum contamination above the arctic zone cleanup level was encountered. A total of 44 cubic yards of PCB and petroleum contaminated soil was transported off-site for disposal. Confirmation sampling results showed DRO remaining in the excavations above the cleanup level. The excavations were left open and surrounded with orange safety fencing.

In 2013, the module train building was demolished and approximately 500 cubic yards of petroleum contaminated soil was excavated from underneath the footprint of the building and the surrounding area. The final excavation was approximately 70 feet long by 85 feet wide, with a depth of approximately 4.5 feet. Twenty eight confirmation samples were collected from the limits of the excavation and analyzed for DRO and RRO. Three confirmation samples from the floor of the excavation had DRO results above the cleanup level. Additional excavation into the frozen tundra occurred at these locations, however no additional confirmation samples were collected before the excavation was backfilled. These three samples were located sporadically around the excavation bottom, and samples collected closer to the lateral extents of the excavation were below cleanup levels, indicating they represent small areas of de minimis remaining petroleum contamination.

The 500 cubic yards of petroleum contaminated soil excavated from the diesel spills area was landspread on the western end of the Wainwright SRRS runway for treatment. Multi-incremental sampling of the landspread area verified that the contaminant concentrations in the soil are now below the applicable cleanup levels.

PCB Spills Area

In 2005, soil samples collected beneath the transformer stand on the north side of the module train building contained PCBs above the cleanup level. Additional sampling was performed in 2007 and 2009 on the north and south sides of the module train building from areas surrounding the stairs closest to the radio rooms and the radome. Additional sampling was also performed at the transformer stand on the north side of the module train building. Sample results were above the cleanup level on both the north and south sides of the building.

In 2011, approximately 44 cubic yards of PCB and petroleum contaminated soil (15 cubic yards from the north side of the building and 29 cubic yards from the south side of the building) was removed and transported off-site for disposal. Confirmation sampling results from the north side of the building were below the applicable cleanup level for PCBs, DRO, and RRO. Confirmation sample results from the south side of the building showed DRO remaining above the cleanup level. In addition, several confirmation samples for PCBs had elevated detection limits above the cleanup level of 1 mg/kg.

During the remedial action in 2013, an additional 2 cubic yards of PCB and petroleum contaminated soil was removed from the south PCBs spill area and transported off-site for treatment. Confirmation sample results were below the cleanup level for PCBs, DRO, and RRO.

Drum Spill Area

In 2004, a 55-gallon drum of lubricating oil was observed south of the module train. Approximately ¼ of the drum contents had drained through a bullet hole onto the gravel pad. Soil sample results from 2004 and 2007 showed RRO above the cleanup level. The drum and its contents were removed from the site in 2009, and the petroleum contaminated soil was excavated and transported off-site for treatment in 2011. Confirmation sample results were below the cleanup levels.

Culvert Outfalls

Two culverts drained the western end of the module train building. In 2007, sediment and surface water samples were collected from the outfalls of the culverts. Sediment samples were analyzed for GRO, DRO, RRO, BTEX, and PAHs. Both sediment samples had detections of GRO, DRO, RRO, xylenes, and several PAHs. One sediment sample had concentrations of 2-methylnaphthalene and naphthalene above the National Oceanic and Atmospheric Administration screening quick reference probable effects levels for freshwater or marine sediments. All other results were below screening levels. Surface water samples were analyzed for BTEX and PAHs. Surface water results had detections for several PAHs, but did not exceed the 18 AAC 70 water quality standards.

Sewer Outfall

A 4-inch sewer line from the module train building extended approximately 400 feet to an outfall in the tundra northwest of the module train. A second 4-inch line paralleled the sewer main and extended an additional 175 feet beyond the sewer main outfall. In 2007, three samples were collected from the outfalls of the pipes and analyzed for DRO, RRO, VOCs, PAHs, metals, and PCBs to determine if there had been any improper disposal of chemicals or solvents through the sewer. Results for DRO and RRO were above the migration to groundwater cleanup levels but below the established arctic zone cleanup levels. The DRO and RRO results were attributed to biogenic interference from peat in the samples. Several PAH samples were detected at concentrations below the cleanup levels. Results for metals were within background concentrations. No VOCs or PCBs were detected.

Tank Farm and Pumphouse

The former diesel tank farm and pumphouse consisted of two 65,000-gallon above ground storage tanks (ASTs) and a pump station building within an unlined gravel bermed containment area. In 2007, soil samples were collected from 10 locations within the tank farm and analyzed for GRO, DRO, RRO, BTEX, and PAHs. Sample results had detections of DRO above the migration to groundwater cleanup level but below the selected Method Two Arctic Zone cleanup level. One surfaced water sample was collected from a small tundra pond outside the gravel containment area and analyzed for BTEX and PAHs. All surface water results were non-detect.

The tanks, pumphouse, and associated pipelines were removed in 2013. Samples collected during the pipeline removal had detections of DRO above the migration to groundwater cleanup levels but below the selected Method Two Arctic Zone cleanup level.

Generator Room Concrete

During a survey in 2001, PCBs were detected in concrete core samples from the generator rooms of the module train. When the module train was demolished in 2013 the concrete from the generator rooms was transported off-site for proper disposal.

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 do not pose a cumulative human health risk.

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 presented below.

Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis	Contaminated surface soil from this site has been excavated. PCB contaminated soil was transported off-site for disposal, and petroleum contaminated soil has been treated by landspreading.
Sub-Surface Soil Contact	De Minimis	Contaminated soil from this site has been excavated. PCB contaminated soil was transported off-site for disposal, and petroleum contaminated soil has been treated by landspreading. Three confirmation sample results had DRO concentrations above the cleanup level. Additional excavation was done in these areas, however no additional confirmation samples were collected. These three samples

		were located sporadically around the excavation bottom, and samples collected closer to the lateral extents of the excavation were below cleanup levels, indicating they represent small areas of de minimis remaining petroleum contamination.
Inhalation – Outdoor Air	Pathway Incomplete	Contaminants of concern at this site were petroleum and PCBs. No VOCs or BTEX have been detected above the applicable cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contaminants of concern at this site were petroleum and PCBs. No VOCs or BTEX have been detected above the applicable cleanup levels. The buildings have been removed from this site.
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 contaminant migration to a groundwater zone of saturation (ADEC Guidance No. SPAR 99-3, Policy for Establishing Cleanup Levels for Sites in the Arctic Zone in Accordance with 18 AAC 75, Article 3)
Surface Water Ingestion	Pathway Incomplete	Contaminated soil from this site has been excavated. PCB contaminated soil was transported off-site for disposal, and petroleum contaminated soil has been treated by landspreading. Surface water sample results are below applicable cleanup levels and water quality standards.
Wild and Farmed Foods Ingestion	De Minimis	Contaminated soil from this site has been excavated. PCB contaminated soil was transported off-site for disposal, and petroleum contaminated soil has been treated by landspreading.
Exposure to Ecological Receptors	Pathway Incomplete	Contaminated soil from this site has been excavated. PCB contaminated soil was transported off-site for disposal, and petroleum contaminated soil has been treated by landspreading.

Notes to Table 2: “De-Minimis Exposure” means that in ADEC’s judgment receptors are unlikely to be 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. “Exposure Controlled” means there is an administrative mechanism in place limiting land or groundwater use, or a physical barrier in place that deters contact with residual contamination.

ADEC Decision

Several remedial actions have been performed at this site. PCB contaminated soil was excavated and transported off-site for disposal. Petroleum contaminated soil from the diesel spills area was excavated and treated by landspreading. Three confirmation sample results from the diesel spills area excavation had DRO concentrations above the cleanup level. Additional excavation was done in these areas, however no additional confirmation samples were collected before the excavation was backfilled. These three samples were located sporadically around the excavation bottom, and samples collected closer to the lateral extents of the excavation were below cleanup levels, indicating they represent small areas of de minimis remaining petroleum contamination. 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. 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. Soil remains onsite with residual levels of diesel and residual range organics at concentrations with the potential to cause a water quality violation if placed in direct contact with wetlands or surface water. 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 this site may pose an unacceptable risk to human health or 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, 410 Willoughby Avenue, Suite 303, Juneau, Alaska 99811-1800, 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, 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.

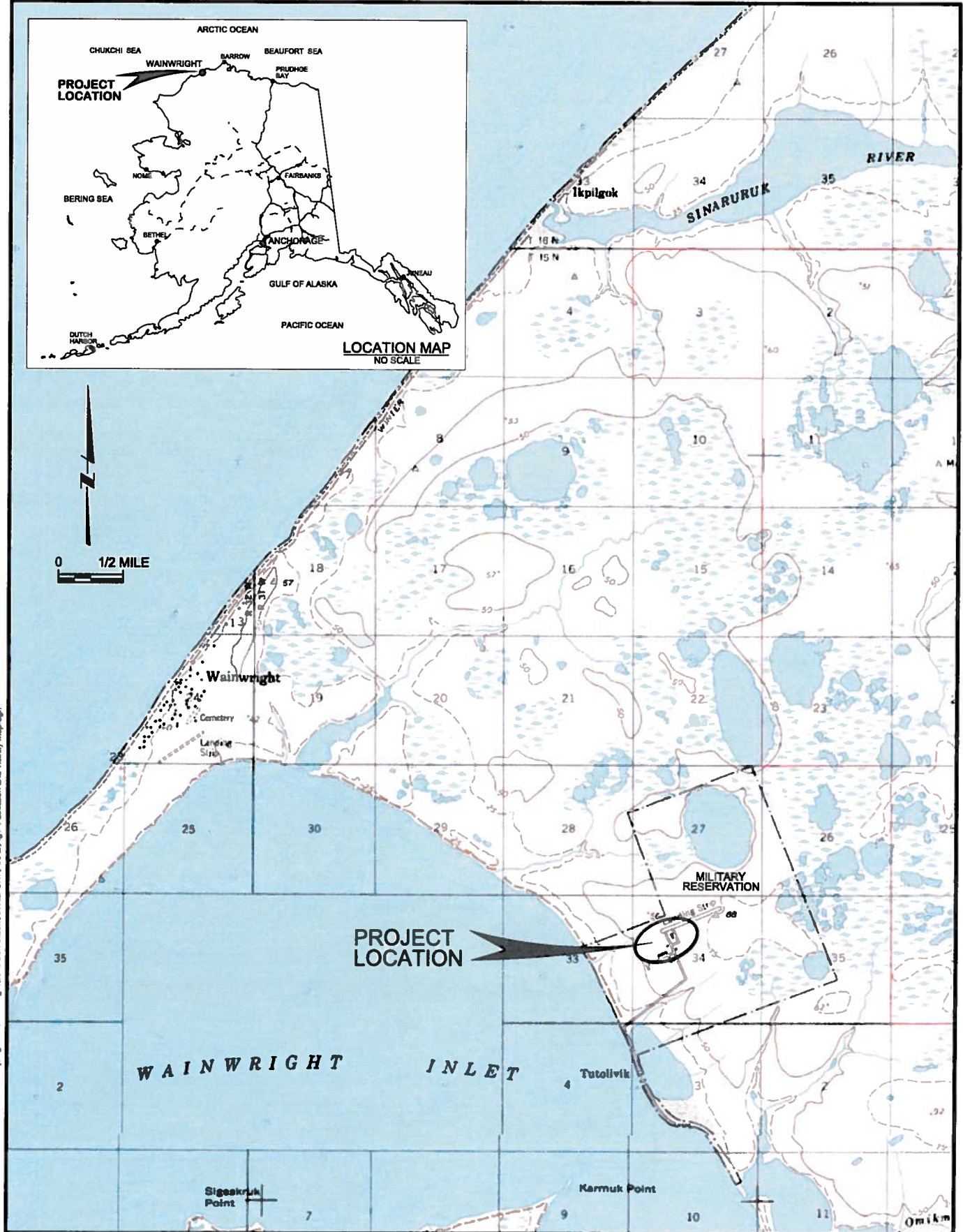
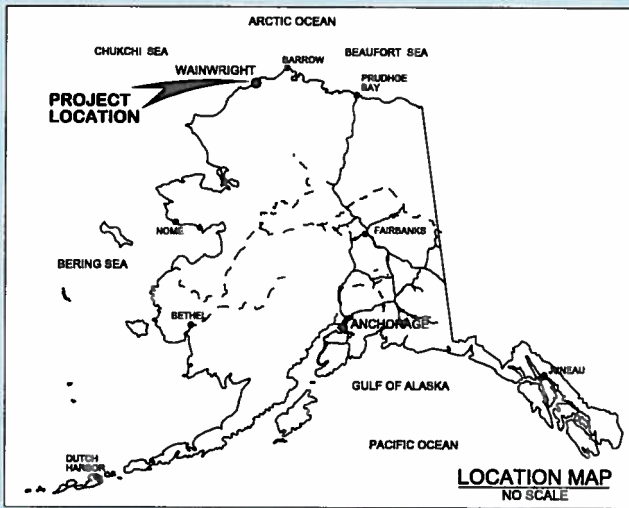
If you have questions about this closure decision, please feel free to contact me at (907) 451-5175 or melody.debenham@alaska.gov.

Sincerely,



Melody Debenham
Environmental Program Specialist

Attachments: Figure 1-1, Location and Vicinity Map (MWH, 2015)
 Figure 1-2, Site Map (MWH, 2015)



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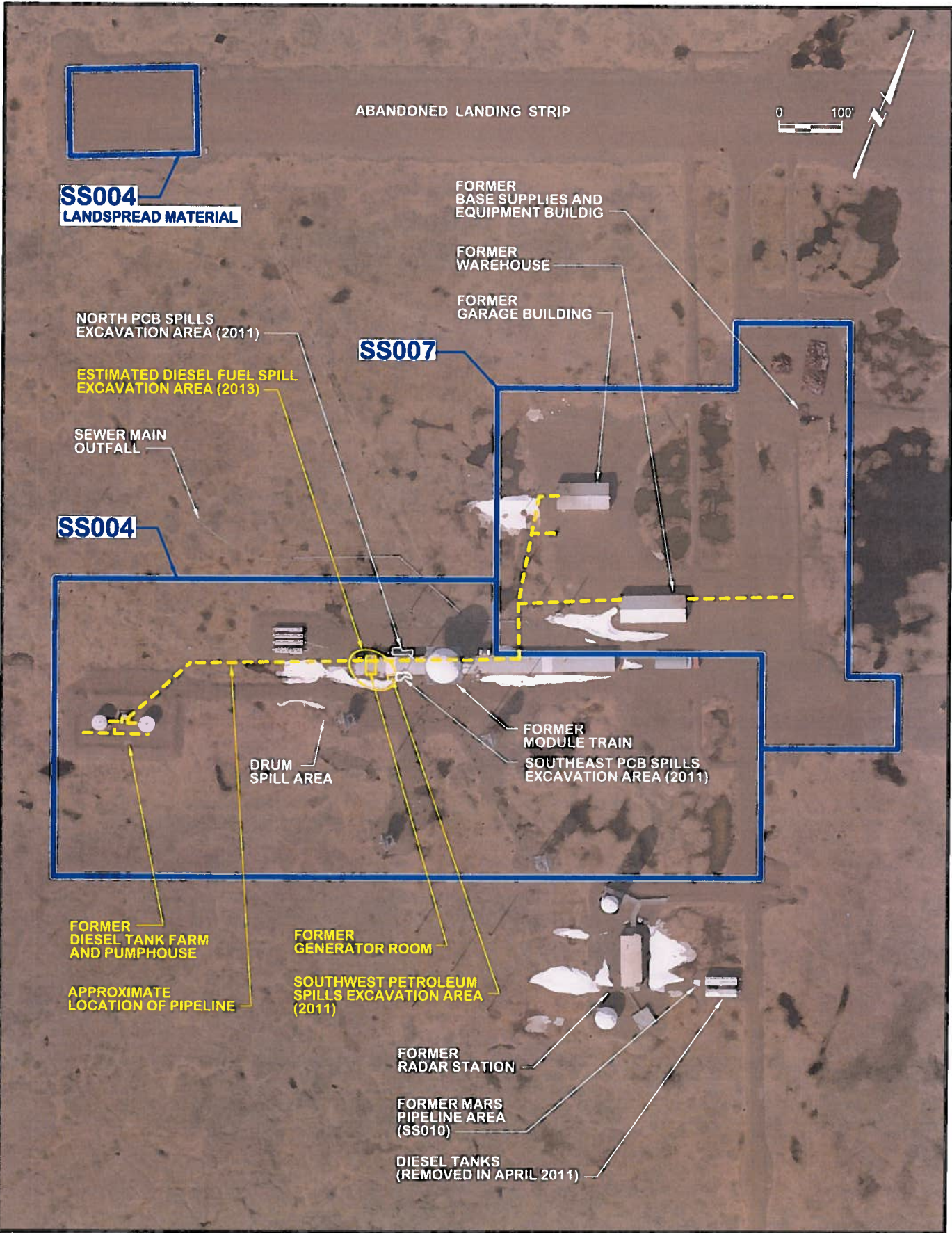


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WAINWRIGHT SHORT RANGE RADAR SITE
SS004 AND SS007 SITE DEMOLITION
AND CLEANUP REPORT

LOCATION AND VICINITY MAP

FIGURE
1-1

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USAF - JOINT BASE ELMENDORF-RICHARDSON
 WAINWRIGHT SHORT RANGE RADAR SITE
 SS004 AND SS007 SITE DEMOLITION
 AND CLEANUP REPORT

SITE MAP

FIGURE
 1-2

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