



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

**Department of
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

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File: 2504.38.004

February 27, 2020

Aemon Wetmore
Federal Aviation Administration Alaska Section
222 West 7th Avenue, Box 14
Anchorage, Alaska 99513-7587

Re: Decision Document: FAA Chirikof Island Radio Range Facility Cleanup Complete Determination

Dear Mr. Wetmore:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the FAA Chirikof Island Radio Range Facility located south of Akhiok, 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 information becomes available that indicates residual contaminants may pose an unacceptable risk.

This Cleanup Complete determination is based on the administrative record for the FAA Chirikof Island Radio Range 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 Chirikof Island Radio Range Facility
90 Miles SSW of Akhiok, Alaska
Northern Tip of Chirikof Island

Name and Mailing Address of Contact Party:

Aemon Wetmore
Federal Aviation Administration
222 West 7th Avenue, Box 14
Anchorage, Alaska 99513-7587

DEC Site Identifiers:

File No.: 2504.38.004
Hazard ID.: 26412

Regulatory Authority for Determination:

18 AAC 75

Site Description and Background

The Chirikof Island Radio Range Facility (Radio Range, Hazard ID 26412) was constructed in 1940 on the northern tip of Chirikof Island, located in the Gulf of Alaska 80 miles southwest of Kodiak Island at approximately 55.9069°N, -155.5886°W (Figure 1). The Radio Range occupies land owned by the U.S. Fish and Wildlife Service (USFWS) and is part of the Alaska Maritime National Wildlife Refuge. The Radio Range was operated from 1943 to 1946 on 3 acres of land. Structures onsite included five steel towers, an electronics operation building, a power building with generators, a storage building, and two living quarters buildings, but currently only the generators remain standing. Groundwater appears to be ephemeral and was not encountered during 2017 and 2018 investigations where borings were advanced up to 16 feet below ground surface (bgs). However, historical information indicates groundwater (14 ft bgs) was used for drinking water during the time the Radio Range was operating. Chirikof Island receives an average of roughly 77 inches of precipitation per year, based on data from nearby Kodiak Island. No fresh surface water is present in the vicinity of the site, but saltwater (Gulf of Alaska) is approximately 1,500 feet away.

Suspected release of contaminants at the abandoned site include petroleum leaking from corroded drums where fuel and lubricants were stored out-of-doors, and possible releases from a single aboveground storage tank near the former power building. Batteries, transformers, cables, and cylinders were also possible sources of contamination. In 2002, soil and surface water samples were collected at various locations on Chirikof Island by a consultant associated with the former cattle husbandry operation, and diesel range organics (DRO) exceeded ADEC soil cleanup levels in one soil boring. However, the exact location of this boring is unclear. In 2015 and 2016, FAA and contractors undertook site visits to the Radio Range to observe site conditions and plan for debris removal and remediation efforts. The purpose of debris removal and remediation was to clean up potential contamination at the site to the satisfaction of USFWS, the landowner. A release investigation and debris removal project was undertaken by the FAA in 2017. Results from the investigation indicated exceedances of ADEC soil cleanup levels for DRO and residual range organics (RRO) at two source areas, and exceedances of lead ecological soil screening levels (Eco-SSL) at three source areas.

Contaminants of Concern

During the site characterization, soil samples were collected and analyzed for gasoline range organics (GRO), DRO, RRO, benzene, toluene, ethylbenzene, and total xylenes (BTEX), polynuclear aromatic hydrocarbons (PAHs), PCBs, and metals. Based on site characterization data, DRO, RRO, and lead were detected above applicable cleanup levels and are considered contaminants of concern.

Cleanup Levels

The applicable soil cleanup levels for this site are those found in 18 AAC 75.341 Table B2, over 40-inch precipitation zone, migration to groundwater pathway, as noted below in Table 1. Additionally, Environmental Protection Agency Ecological Soil Screening Levels for avian wildlife were incorporated as cleanup levels for lead at the site.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)
DRO	230
RRO	9700
Lead ¹	11

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

¹EPA ecological soil screening level adopted as cleanup level (Eco-SSL)

Characterization and Cleanup Activities

During a 2017 release investigation and debris removal effort, batteries, broken transformers, paint cans, cylinders, and lead cable were removed from the site. Over 100 surface and subsurface soil samples were collected and analyzed for lead at locations across the site. Forty-two soil samples were collected and analyzed for petroleum contaminants at likely areas, as indicated by photoionization detector (PID) screening detections. Sample results found DRO contamination above human health cleanup levels in soil at the Drum Pile 1 source area (maximum concentration 21,000 mg/kg) and above migration to groundwater levels at the Engine Generator source area (maximum concentration 3,700 mg/kg). Additionally, soil samples showed exceedances of RRO human health and migration to groundwater cleanup levels at the Engine Generator Building (maximum concentration 24,000 mg/kg). Finally, lead exceeded the ADEC cleanup level of 400 mg/kg at the Storage Building source area (maximum concentration 620 mg/kg), and the lead Eco-SSL was exceeded at the Quarters Building 1 and Engine Generator Building source areas (maximum concentration 400 mg/kg). Samples collected from structures and transformer areas were found not to be contaminated with PCBs or asbestos. Uncontaminated debris was left on the island to minimize soil disturbance and wind erosion.

A removal action was undertaken in 2018 with the objective to excavate and dispose of the petroleum and lead-contaminated soil above cleanup levels at the site and investigate the presence of groundwater. Excavation of 174 cubic yards of contaminated soil was conducted at the Storage Building, Engine Generator Building, Quarters Building 1, and Drum Pile 1 source areas, guided by PID and X-Ray fluorescence (XRF) screening. Confirmation samples were taken from the edges of the excavations to verify that all soil above cleanup levels was fully removed. Soil sample results verified that remaining petroleum and lead contamination was below human health cleanup levels (DRO maximum concentration 4,860 mg/kg, RRO maximum concentration 3,920 mg/kg, lead maximum concentration 7.67 mg/kg). Borings advanced up to 16 ft bgs did not encounter groundwater, and it was concluded that groundwater is not currently present at the site.

No further remedial action is planned at this site because human health cleanup levels have been met. Due to the absence of groundwater, the remaining small quantities of DRO contamination above migration to groundwater cleanup levels (no deeper than 4.5 ft bgs, bounded underneath by soil samples below migration to groundwater levels, and present since the 1940s) at the Engine Generator Building and Drum Pile 1 source areas do not pose an unacceptable risk. The remaining contamination above migration to groundwater levels is bounded by soil with contamination below this cleanup level and thus

does not extend to or pose a risk to groundwater. In concurrence, the USFWS (landowner) issued a letter supporting a Cleanup Complete determination on December 11, 2019.

Cumulative Risk Evaluation

Pursuant to 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, ADEC has determined that residual soil 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. A summary of this pathway evaluation is included in Table 2.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis	Contamination is below human health cleanup levels.
Sub-Surface Soil Contact	De Minimis	Contamination is below human health cleanup levels.
Inhalation – Outdoor Air	Pathway Incomplete	Contamination is below human health cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contamination is below human health cleanup levels and no structures are present.
Groundwater Ingestion	Pathway Incomplete	Groundwater is not currently present at the site and only a small quantity of DRO contamination above migration to groundwater cleanup levels remains, and is bounded underneath by soil below the cleanup level.
Surface Water Ingestion	Pathway Incomplete	There were no impacts to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contamination is below human health cleanup levels.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination is below the most stringent cleanup levels for DRO and RRO, and below the Eco-SSL for lead.

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 site is at concentrations below human health cleanup levels, and the small amount of contamination remaining above migration to groundwater levels has achieved steady state equilibrium and is bounded underneath by soil samples below migration to groundwater concentrations. The site is suitable for residential land use and ecological integrity is protected. 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 from a site that is subject to the site cleanup rules or for which a written determination from the department has been made under 18 AAC 75.380(d)(1) that allows contamination to remain at the site above Method two soil cleanup levels or groundwater cleanup levels listed in Table C requires DEC approval in accordance with 18 AAC 78.600(h). A “site” [as defined by 18 AAC 78.995(134)] 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 78.276(f) 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 20 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) 451-2104, or email at kevin.fraley@alaska.gov.

Sincerely,

Kevin Fraley
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit
Eric Breitenberger, DEC
Bill O'Connell, DEC
Tim Plucinski, USFWS
Steve Delehanty, USFWS

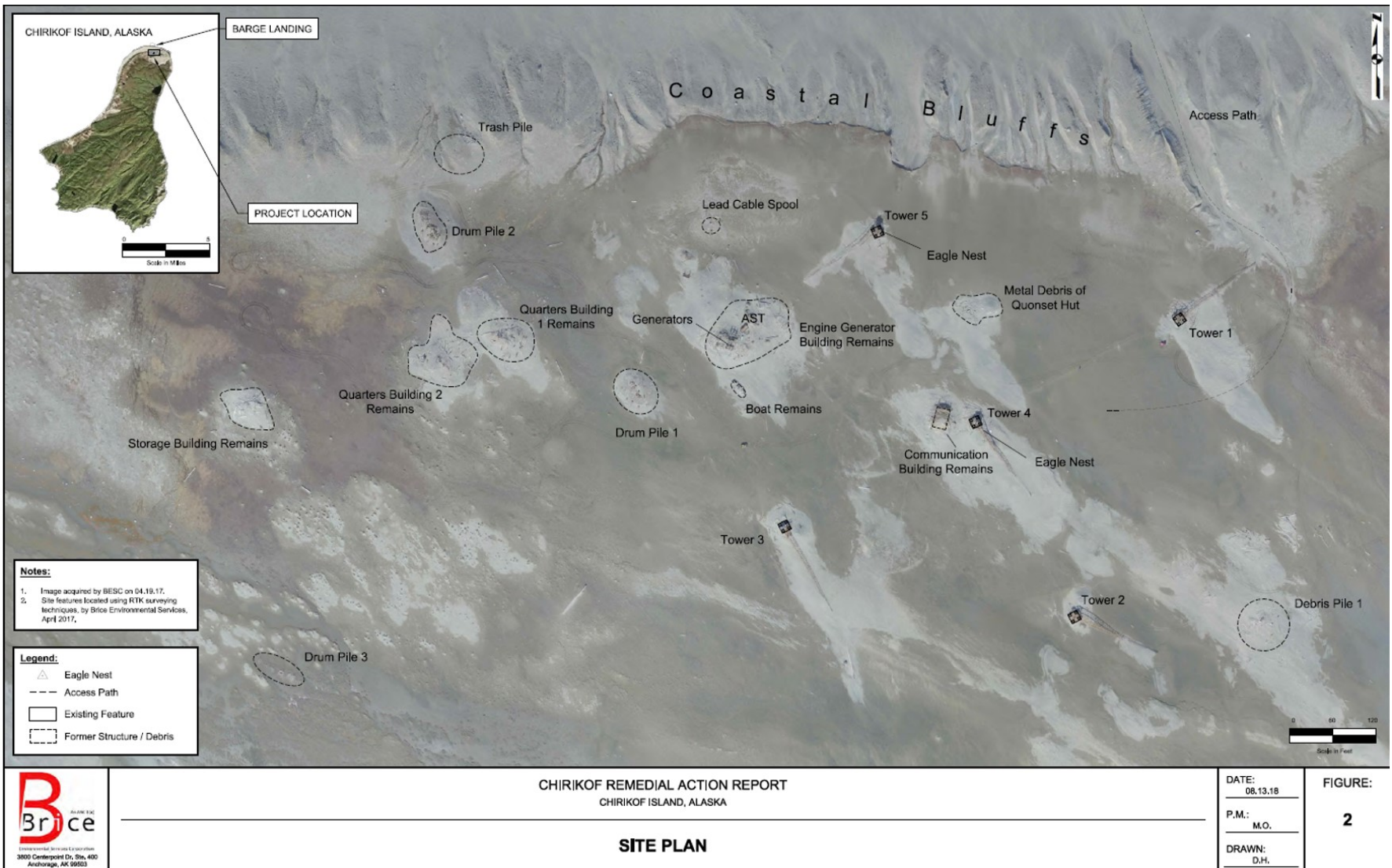


Figure 1: Site map of the FAA Chirikof Island Radio Range Facility.