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: 2102.38.073

April 3, 2018

Teresa Lee
AFCEC/CZOP
10471 20th Street, Suite 317
JBER, AK 99506

Re: **Decision Document: JBER-Ft. Rich SS119 Bldg 791 Cleanup Complete Determination**

Dear Ms. Lee:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Source Area SS119 – Building 791 North DRO site located on Joint Base Elmendorf-Richardson, Alaska. Based on the information provided to date, it has been determined by ADEC that the contaminant concentrations remaining at SS119 do not pose an unacceptable risk to human health or the environment. No further remedial action will be required by ADEC unless subsequent information becomes available that indicates an unacceptable risk to human health or to the environment.

This cleanup complete determination by ADEC for SS119 is based on the administrative record which is located in the offices of the ADEC in Anchorage, Alaska. This decision letter summarizes the site history, cleanup actions, regulatory decisions, and specific conditions required to effectively manage remaining contamination at this site.

Site Name and Location:
JBER-Ft. Rich SS119 Bldg 791
JBER-Richardson, Alaska

Name and Mailing Address of Contact Party:
Teresa Lee
AFCEC/CZOP
10471 20th Street, Suite 317
JBER, AK 99506

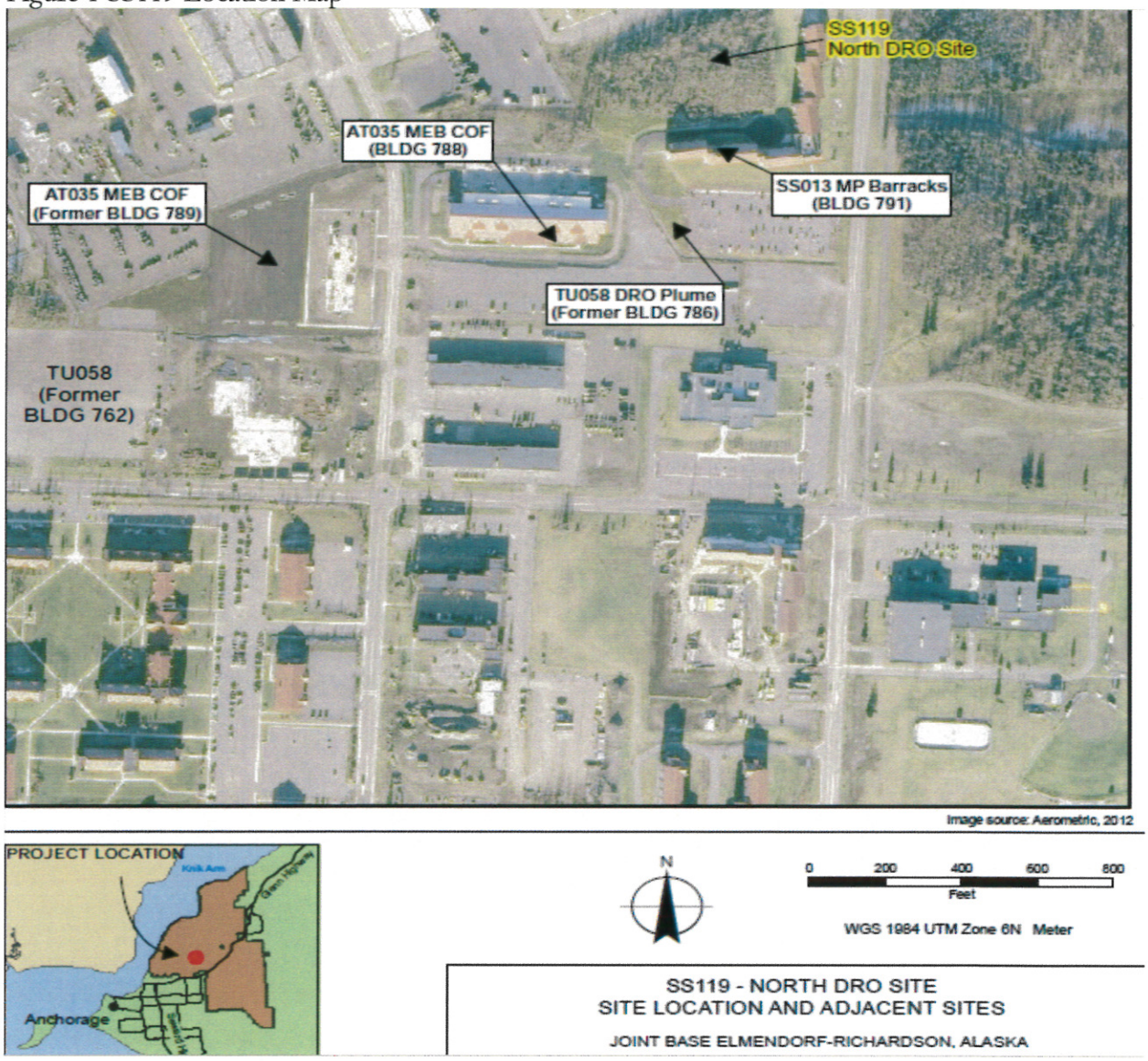
ADEC Site Identifiers:
File No.: 2101.38.073
Hazard ID.: 26522

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

SS119 is a mounded lot covering approximately 6 acres north of Building 791 (Figure 1). SS119 is suspected to be an old contaminated soil stockpile. The lot was the former location of a World War II storage hut (circa 1943) and a trail between barracks facilities and other military operations that were primarily residential in nature (officers' quarters, a latrine, a mess hall, and additional barracks). Based on an analysis of historical photos and survey drawings from 1950, a trench replaced what was formerly a trail, the storage hut location is labeled as a "former storeroom", and the legend refers to that same location as a "building footprint". By 1952, an ammunitions storage unit had been constructed north of the trench encompassing the area of the former storage hut/storeroom and extending farther east. By 1974 all of the buildings on this lot were removed and the area remains undeveloped and partially wooded. The contaminated soil stockpile was placed on the lot next to Building 791.

Figure 1 SS119 Location Map



Contaminants of Concern

During the site investigation in 2016, 12 soil borings were completed to groundwater. Soil samples were collected from the borings according to the sampling plan. Four of the soil borings were converted to monitoring wells to collect groundwater samples. The soil and groundwater samples were analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, nickel, and vanadium), and pesticides. DRO and naphthalene were detected in subsurface soil at SS119 above the migration to groundwater cleanup levels for the under 40-inch precipitation zone established in 18 AAC 75.341(c) Table B1 and 18 AAC 75.341(d) Table B2.

DRO was detected at 1,080 mg/kg at 5' below ground surface (bgs) and decreased in concentration with increasing depth to 531 mg/kg at 20' bgs. Naphthalene was detected in one boring at 0.0557 mg/kg at 20' bgs. Analytical results from the groundwater sampling showed no exceedances of Table C cleanup levels as established in 18 AAC 75.345(b)(1) in any of the four monitoring wells installed in 2016. Based on these analyses, the following petroleum-related contaminants were detected above the applicable cleanup levels and are considered contaminants of concern in soil:

- Diesel Range Organics (DRO)
- Naphthalene

Cleanup Levels

No contaminants were detected in any of the samples from the four groundwater monitoring wells at the site and therefore the migration to groundwater cleanup level does not apply. Groundwater could be a potential source of future drinking water. Depth-to-groundwater in the vicinity of SS119 ranges from approximately 83 to 114 feet bgs. All of the soil exceedances were found in the upper 20 feet of soil. Therefore the applicable cleanup levels for this site are listed in the following Table 1 using the Method Three Calculator on ADEC's website.

Table 1 – Approved Cleanup Levels (Under 40 Inch Zone)

Contaminant	Soil (mg/kg)
DRO	10,300[1]
Naphthalene	29[2]

[1] – Method Three Calculator Residential land use
[2] – Method Three Calculator Residential land use

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 2007.

In 2007, between August and September, the U.S. Army Corps of Engineers (USACE) conducted a hazardous, toxic, and radioactive waste (HTRW) survey in preparation for the construction of Building 791.

Four soil borings were advanced and soil samples were collected according to the sampling plan. The following contaminants were detected as a result of the survey at various depths below ground surface. Maximum detected concentrations for each contaminant are listed below in Table 2.

Table 2 - 2007 Maximum Detections in Soil

Contaminant	Maximum concentration	Depth in feet bgs
DRO	5,200 mg/kg	5'
RRO	25,000 mg/kg	5'
Heptachlor epoxide	0.016 mg/kg	2.5'
Naphthalene	0.2 mg/kg	5'
Alpha-hexachlorocyclohexane (HCH)	0.0045 mg/kg	15'
Beta-HCH	0.12 mg/kg	5'
Ethylbenzene	0.18 mg/kg	5'
1,2,4-trimethylbenzene	1.1 mg/kg	5'

In 2016, twelve soil borings were advanced (SB01 through SB08 were located in the old stockpile location) and four borings were converted into groundwater monitoring wells in accordance with the sampling plan (see Figure 2). Thirty-six primary sub surface soil samples and three duplicate soil samples were analyzed for GRO, DRO, RRO, VOCs, SVOCs, PCBs, metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, nickel, and vanadium), and pesticides.

The soil boring and groundwater monitoring well locations at SS119 were based on known soil contamination. DRO was detected in seven of the borings and naphthalene was detected in one soil boring above the migration to groundwater cleanup level. Both borings are more than 120' from the nearest occupied building so vapor intrusion pathway is incomplete.

Maximum detected soil concentrations are listed below:

Table 3 - 2016 Maximum Detections

Contaminant	Maximum concentration	Depth in feet
DRO	1,080 mg/kg	5'
Naphthalene	0.0557 mg/kg	20'
RRO	2260 mg/kg	5'

Figure 2 Soil Sample and Well Locations

None of the results exceed the soil cleanup levels for ingestion (DRO - 10,250 mg/kg, RRO - 10,000 mg/kg) or human heath soil cleanup level for naphthalene (29 mg/kg). RRO was not detected above the most stringent cleanup level during the 2016 investigation suggesting the extent of the 2007 RRO contamination is very limited.

In surface soil, DRO was detected at 642 mg/kg and naphthalene at 0.0878 mg/kg. None of the results exceed the ingestion level (DRO 10,250 mg/kg) or human health level for naphthalene (29 mg/kg). RRO was not detected above the most stringent cleanup level (10,000 mg/kg) during the 2016 investigation suggesting the 2007 RRO extent is very limited. All the other analytes in Table 2 above did not exceed the most stringent concentrations as established in Table B1 Method Two, 18 AAC 75.341(c).

Although contamination was present in surface soil, inhalation of fugitive dust was considered insignificant because ADEC's Guidance on Developing Conceptual Site Models (January 2017) states that the "DEC human health soil cleanup levels in Table B1 of 18 AAC 75 are protective of this pathway because the inhalation of particulates is incorporated into the soil exposure equation.

Soil samples collected deeper than 20 feet bgs did not contain any contaminant concentrations exceeding the ADEC cleanup levels, indicating that contaminants have largely remained within the suspected contaminated soil stockpile and have not migrated to groundwater. Depth-to-groundwater in the vicinity of SS119 ranges from approximately 83 to 114 feet bgs. Therefore the appropriate pathways of concern at SS119 are the ingestion and human health pathways.

18 AAC 75.345(d), Table B2, Method Two, under 40-inch zone, ingestion cleanup criteria for DRO, and 18 AAC 75.341(c), Table B1, Method Two, under 40-inch zone, human health cleanup criteria for naphthalene were compared to the contaminant concentrations at SS119. When compared to these criteria of 10,250 mg/kg for DRO and 29 mg/kg for naphthalene, all soil sample results were below cleanup levels.

A total of four primary groundwater monitoring well samples along with two field duplicates were collected and analyzed for GRO, DRO, RRO, VOCs, SVOCs, PCBs, metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, nickel, and vanadium), and pesticides. Groundwater monitoring well results did not exceed Table C for any of the contaminants above, demonstrating that migration to groundwater is not occurring at SS119 from existing contamination.

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.

The data collected from the 2016 field effort and the 2007 USACE soil HTRW survey was quantified using the ADEC cumulative risk calculator. The risk calculation results indicate that the risk from the contaminants detected onsite do not exceed the cumulative carcinogenic risk standard of 1×10^{-5} across all exposure pathways or the cumulative non-carcinogenic risk standard at a hazard index of 1 across all exposure pathways.

The site's current land use is industrial/commercial and groundwater is not used as drinking water at the site or on Joint Base Elmendorf-Richardson. Fuel contamination identified in the soil does not appear to be migrating into groundwater, based on groundwater sampling of four monitoring wells sampled on site in 2016. Institutional controls (Land Use Controls – LUCs) have been implemented across JBER as a result of other contaminated sites and are in place to prevent exposure to contaminated soil without prior ADEC approval.

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 for SS119 is included in Table 4.

Table 4 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway incomplete	Contamination is not present in surface soil (0 to 2 feet below ground surface) above cleanup levels
Sub-Surface Soil Contact	Exposure Controlled	Contamination remains in the sub-surface, but land use controls (LUCs) limit exposure to contamination.
Inhalation – Outdoor Air	Pathway Incomplete	Contamination remains in the sub-surface, but contaminants do not pose an inhalation risk.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contamination does not pose an inhalation risk since the nearest occupied building is 120' away from naphthalene contamination.
Groundwater Ingestion	Pathway Incomplete	No contamination present and groundwater is not used as a drinking water source.
Surface Water Ingestion	Pathway Incomplete	No contamination present and surface water is not a valid pathway in the vicinity of the site.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals.
Exposure to Ecological Receptors	Pathway Incomplete	Contamination is not a risk to plants or animals because the area is developed for commercial industrial use.

Notes to Table 4: "Pathway Incomplete" means that in ADEC's judgment contamination has no potential to contact receptors. "Exposure Controlled" means there is an institutional control in place limiting land or groundwater use and there may be a physical barrier in place that prevents contact with residual contamination.

ADEC Decision

Based on the depth of contamination at the site, lack of groundwater contamination, the soil does not pose a migration to groundwater risk and the remaining concentrations are below the site-specific method three calculated ingestion cleanup levels for DRO and human health level for naphthalene. ADEC has determined the cleanup is complete at SS119. The ADEC Contaminated Sites Database will be updated to reflect the change in site status to "Cleanup Complete" subject to the following standard conditions:

Standard Conditions

- ADEC approval is required prior to moving any soil off any site that is, or has been, subject to the site cleanup rules [see 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. In the future, if soil will be excavated, it must be characterized and managed following regulations applicable at that time and ADEC approval must be obtained before moving the soil off the property.

- 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(d) 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, PO 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) 269-7552 or email at louis.howard@alaska.gov.

Sincerely,

Louis Howard
Project Manager

cc: Kim DeRuyter via email