



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: 650.38.002

December 15, 2017

Sent via electronic mail only

Heidi Long

Alaska Army National Guard

Construction Facilities Management Office

PO Box 5800

JBER, AK 99505-0800

Re: Decision Document: AKARNG Stebbins FSA
Cleanup Complete Determination

Dear Ms. Long:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Alaska Army National Guard (AKARNG) Stebbins Federal Scout Armory (FSA) located on an unnamed road on the northern end of Stebbins. The FSA does not have a conventional address but is located at 63.524295°N and -162.291149°W. 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 AKARNG Stebbins FSA, which is located in the ADEC office in Juneau, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

Site Name and Location:
AKARNG Stebbins FSA
Section 2 of Township 23S,
Range 19W of the Kateel River
Meridian.
Stebbins, AK

Name and Mailing Address of Contact Party:
Heidi Long
Alaska Army National Guard
Construction Facilities Management Office
PO Box 5800
JBER, AK 99505-0800

DEC Site Identifiers:
File No.: 650.38.002
Hazard ID.: 3095

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

Stebbins is a community located just north of the Yukon-Kuskokwim delta on the eastern bank of Norton Sound. The Stebbins Federal Scout Armory (FSA) does not have a formal address and is located at 63.524295° north latitude and -162.291149° west longitude and in Section 2 of Township 23S, Range 19W of the Kateel River Meridian.

Stebbins is located on a coastal lowland of St. Michael Island. The vegetation is moist tundra with mosses, grass, and scrub. Permafrost is generally continuous under the village, however, there have been differing reports that suggest that there may be discontinuous permafrost below the FSA. There have been reports of shallow permafrost and also permafrost from 5-60 feet below ground surface. There are many thaw lakes and other lakes. There is also a seasonal active water layer below ground. The water supply for the community of Stebbins is obtained from Big Clear Creek located northeast of the village. The water is treated at the city-operated water treatment plant and stored in a 1-million-gallon steel water storage tank. There are 3 well logs for wells drilled for the Bureau of Indian Affairs School in 1963 are posted on the Alaska Department of Natural Resource (ADNR) Well Log Tracking System (WELTS). Due to high salinity and mineral content in the water, all 3 wells were for non-potable uses only. No public or private drinking water wells exist in Stebbins.

The Stebbins Federal Scout Armory (FSA) was built in 1960 and consists of a 20 x 60 ft. prefabricate Butler building. Exterior features include a disconnected 3,000-gallon fuel aboveground storage tank (AST), an active 1,500-gallon AST, and a storage van. The armory used to keep heating fuel in drums, but switched to using ASTs at some point after 1980.

Contaminants of Concern

During the site investigation and cleanup activities at this site, samples were collected from soil only due to the presence of discontinuous permafrost and analyzed for diesel range organics (DRO), gasoline range organics (GRO), residual range organics (RRO), polycyclic aromatic hydrocarbons (PAHs), benzene, toluene, ethylbenzene, xylenes (BTEX), extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), and synthetic precipitation leaching procedure (SPLP). Based on these analyses, the following contaminant was detected in soil above the applicable cleanup level and is considered a Contaminant of Concern at this site:

- Diesel Range Organics (DRO)

Cleanup Levels

A site-specific soil cleanup level for the site was documented in the *AKARNG Final Stebbins Federal Scout Readiness Center Record of Decision for Petroleum Contamination*, dated August 2013. The cleanup levels are for soil only due to the fact that groundwater is not considered a complete pathway as groundwater has not been encountered and the nearest aquifer resides below 20 feet of aquitard. The selected remedial alternative was to remediate soil to conditions that are protective of human health and the environment by excavating contaminated soil with petroleum concentrations greater than the site-specific soil cleanup level of 12,335 mg/kg DRO (total aliphatic and aromatic fractions). For the remedial action, a lower cleanup level of 10,250 mg/kg DRO which corresponds to the more stringent ADEC Method 2, for the under 40-inch precipitation zone ingestion cleanup level was chosen to eliminate the need to determine DRO aliphatic and aromatic fractions.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)
DRO	12,335

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 1998 following a site investigation conducted in 1996 by Ogden Environmental under contract for the AKARNG and documented in the *Final Report Preliminary Assessment/Site Investigation at the Stebbins FSA* dated January 1998.

A Preliminary Assessment Site Investigation was conducted at the Stebbins FSA in August 1996 on behalf of the AKARNG and is documented in the report titled *Final Report Preliminary Assessment/Site Investigation at the Stebbins FSA* authored by Ogden Environmental and Energy Services Co. Inc. and dated January 1998. During this investigation, 16 discrete locations were sampled at a maximum of 2.5 feet (ft.) below ground surface within 4 areas of concern: a 3,000-gallon heating oil tank, a 1,500-gallon heating oil tank, a conex storage van, and the drum storage area. Soil samples (10) were field screened using a portable infrared spectrophotometer (IR). Six soil samples and a duplicate were submitted for laboratory analysis of diesel range organics (DRO) and total petroleum hydrocarbons (TPH). There was no evidence of petroleum contamination at the storage van and no samples were collected at the drum storage area. The 3,000-gallon heating oil tank had DRO contamination at 34,000 mg/kg. There was similar contamination at the 1,500-gallon heating oil tank (17,000 mg/kg TPH). Ogden estimated that 45 cubic yards of contaminated soils would require excavation based on the *ADEC Soil Matrix Score Sheet for non-UST Sites* and the *Interim Guidance for Non-UST Contaminated Soil Cleanup Levels* dated July 17, 1991.

A preliminary assessment records review was conducted by ERM – West Inc. and Hart Crowser on behalf of the AKARNG that is documented in the report *Preliminary Assessment Records Review Remedial Investigation Army National Guard Scout Armory Stebbins, Alaska*, dated July 1998. The records review found 2 documented petroleum releases: a leak in a fuel drum observed in a 1966 inspection and a 1992 release of unknown quantity at a fuel line between the 3,000-gallon AST and the furnace.

The records review was followed-up by a remedial investigation documented in the report *Final Remedial Investigation Army National Guard Scout Armory Stebbins, Alaska*, dated April 1999, and authored by ERM – West Inc. and Hart Crowser on behalf of the AKARNG. Twenty-one soil borings were advanced across the site and a surface and a subsurface soil samples was collected from each boring where possible. Some locations had only 1 sample and others had 3 depending on soil conditions. Fifty-five soil samples were collected and analyzed for DRO. A portion of the samples were also analyzed for GRO, RRO, synthetic precipitation leaching procedure (SPLP), PAHs, and zero headspace extraction (ZHE/BTEX). Other inorganic analyses such as total organic carbon, pH, and grain size were conducted to define soil conditions/types. A well point was established at boring SB-11 at 6.2 feet below ground surface, but never had water in it so it was abandoned.

All of the samples were analyzed for DRO. Nineteen of the borings were advanced near the former AST (3,000-gallon). DRO concentrations in this area ranged from below detection limits to 50,000 mg/kg. The majority of the contamination was found underneath or just south of the former AST location. Four borings were advanced at the current AST (1,500-gallon). DRO concentrations here ranged from below detection limits to 980 mg/kg. The storage van area was free of contamination having DRO results of 43 mg/kg. A field screening sample was collected near the drum storage area and it had an estimated DRO result of 83 mg/kg. RRO was detected in 4 of 7 samples submitted for analysis and ranged from 110-1,400 mg/kg. GRO was also detected in 4 of 6 samples analyzed with a maximum concentration of 640 mg/kg. BTEX was analyzed in 6 samples and had a maximum concentration of 8.9 mg/kg. ZHE-BTEX was not detected, but the SPLP-DRO result was 22 mg/L. The PAH analysis data was unusable due to silica gel cleanup and the holding time was exceeded. The conclusion of the report was that no further action was required for the existing AST and storage van areas. The former AST area had approximately 50-75 cubic yards of soil having DRO concentrations greater than a cleanup criteria of 10,250 mg/kg.

An interim removal action was completed in 2002 on behalf of the AKARNG and is documented in the *Final Interim Removal Action Report*, dated April 2005 and authored by Clearwater Environmental Inc. DRO contaminated soil (all of the visibly stained soil) was removed from the former AST area at a maximum depth of 7 feet below ground surface. The excavation was guided by field screening using a photoionization detector (PID) and a PetroFLAG® field screening kit. In all, 60 tons of DRO contaminated soil was removed and disposed of at TPS Technologies Inc., in Lakeland, Washington for disposal. Confirmation analytical soil samples were collected from the base and sidewalls of the excavation and analyzed for BTEX, GRO, DRO, and GRO hydrocarbon fractionation analyses using Alaska Method 101AA. The BTEX and GRO data were rejected due to improper preservation. The DRO results were compared to the ADEC Method 2 cleanup levels for the under-40 inch precipitation zone for migration to groundwater (200 mg/kg DRO). The results indicated that DRO above cleanup levels was remaining on site on every sidewall and the base of the excavation. The most heavily contaminated soil (42,700 mg/kg) was located adjacent to the armory building.

The AKARNG contracted with Hoefler Consulting Group to identify possible alternative cleanup levels. These are documented in the report *Alternative Cleanup Level Demonstration Stebbins Federal Scout Armory Alaska Army National Guard Stebbins, Alaska*, dated December 2005. The effort included limited sample collection for the purpose of characterizing soils on site for the calculation of alternative cleanup levels. Twelve borings were advanced on site at 2-3 feet below ground surface. Eight of these locations were considered background. Field screening was not conducted. Eleven soil samples were collected and analyzed for DRO. A subset was also analyzed for GRO, bulk

density, total organic carbon, grain size, SPLP-GRO/BTEX, and SPLP-DRO. Only 3 samples had DRO above ADEC Method 2 cleanup levels and 1 sample had GRO above the cleanup levels. These samples which were collected from the former AST footprint also had leachable petroleum constituents as evidenced by the SPLP results. The report provided alternative cleanup levels based on the findings.

A data gap investigation was conducted by CH2MHill on behalf of the AKARNG and is documented in the *Stebbins Federal Scout Readiness Center Data Gap Investigation Report* dated August 2013. The report identified data gaps in the delineation of DRO contamination in soil both vertically and laterally at the former and in-use ASTs. The field effort to address these data gaps commenced in June and July of 2011. In total, 12 soil borings were made. These were located beneath the FSA building, at the drum storage area, at the storage van area, and at the 2 AST locations. Soil were field screened and all of the samples were submitted for laboratory analysis. The samples were analyzed for DRO and a subset were analyzed for extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), BTEX, and PAHs. The results of the investigation adequately delineated the extent of soil contamination having DRO concentrations greater than ADEC Method 2 cleanup level for migration to groundwater for the under-40 inch precipitation zone (250 mg/kg) in the lateral direction. The contamination extends from south of the storage van at the drum storage area/hazardous materials storage locker to the former AST footprint and below the FSA building. A second area of contamination, though much smaller, is located west of the current 1,500-gallon AST area. The vertical extent of contamination was delineated up to 8.5 feet below ground surface. Further depth delineation as not possible due to the using a hand auger and very poor soil conditions (dry, well-rounded sand and fine gravel). Groundwater was not encountered. DRO concentrations on site were a maximum of 42,000 mg/kg. Naphthalenes were the only PAHs measured above ADEC cleanup levels for some samples. GRO and BTEX were below ADEC cleanup levels. The report concluded by proposing alternative cleanup levels for the site.

Site-specific cleanup levels were determined for the site in August 2013 and are documented in Table 1 above and in the AKARNG Final Stebbins Federal Scout Readiness Center Record of Decision for Petroleum Contamination. The cleanup levels are for soil only due to the fact that groundwater is not considered a complete pathway as groundwater has not been encountered and the nearest aquifer resides below 20 feet of aquitard. The selected remedial alternative was to remediate soil to conditions that are protective of human health and the environment by excavating contaminated soil with petroleum concentrations greater than the site-specific soil cleanup level of 12,335 mg/kg DRO (total aliphatic and aromatic fractions). For the remedial action, a lower cleanup level of 10,250 mg/kg DRO which corresponds to the more stringent ADEC Method 2, for the under 40-inch precipitation zone ingestion cleanup level was chosen to eliminate the need to determine DRO aliphatic and aromatic fractions.

A removal action occurred in 2017 that was documented in the report *Final Remedial Action Report*, dated November 30, 2017 and prepared by Eagle Eye Electric LLC on behalf of the AKARNG. Source removal activities centered around 7 historic soil sample locations that exhibited DRO at concentrations greater than the site-specific cleanup level. These were located in 2 places: south of the former 3,000-gallon aboveground storage tank (AST) (excavation 1) and east of the former AST (excavation 2). The excavations were completed using a mini-excavator and soils were field screened as the excavation progressed using a photoionization detector (PID). Contaminated soil was placed on a 6-mil liner before moving into Super Sacks for transport.

Seventeen cubic yards (yd³) of contaminated soil was excavated from excavation 1. Six confirmation samples were collected from the base and sidewalls and analyzed for DRO. Confirmation samples from the base and a sidewall had DRO concentrations greater than the cleanup level so an additional 14 yd³ were excavated and new confirmation samples were collected (4). These were below the cleanup level with the highest concentration at 4,800 mg/kg DRO. The maximum depth of the excavation was 6 feet (ft.) below ground surface.

Two cubic yards of contaminated soil was excavated from excavation 2, but as with excavation 1, additional excavation (3 yd³) required removal due to the confirmation sample from the eastern sidewall having a DRO concentration above the cleanup level. The final confirmation soil samples (5) had a maximum DRO concentration of 9,700 mg/kg. The excavation went to about 3 ft. below ground surface.

No groundwater was encountered during excavation activities. One cubic yard of overburden was confirmed clean and was used as backfill. The contaminated soil (approximately 47 tons) was transported to Alaska Soil Recycling for treatment and disposal. Clean backfill from a borrow source was used to finish backfilling the excavations.

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 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 Exposure	Remaining DRO contamination is less than the ADEC cleanup level of 10,250 mg/kg for the ingestion exposure pathway for the under-40 inch precipitation zone.
Sub-Surface Soil Contact	De-Minimis Exposure	Remaining DRO contamination is less than the ADEC cleanup level of 10,250 mg/kg for the ingestion exposure pathway for the under-40 inch precipitation zone.
Inhalation – Outdoor Air	De-Minimis Exposure	DRO contamination remains in the soil, but is below the inhalation cleanup level of 12,500 mg/kg.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	Vapor intrusion is not expected to occur on site.
Groundwater Ingestion	Pathway Incomplete	Supra-permafrost groundwater is not a potential drinking water source and groundwater was not contaminated.
Surface Water Ingestion	Pathway Incomplete	DRO contamination did not affect surface water in the area.
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	Ecological receptors on site are limited and are not expected to be affected by residual contamination.

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. “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

Soil contamination at the site has been cleaned up to concentrations below the approved cleanup level 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. (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.

If you have questions about this closure decision, please feel free to contact me at (907) 465-5207, or email at Danielle.Duncan@alaska.gov.

Sincerely,



Danielle Duncan
Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit