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: 2452.38.001

August 29, 2016

Sent via regular and electronic mail
LT Jennifer Nutt
Alaska Army National Guard
Construction Facilities Management Office
PO Box 5800
JBER, AK 99505-0800

Re: Decision Document: AKARNG Tuntutuliak FSA
Cleanup Complete Determination

Dear LT Nutt:

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) Tuntutuliak Federal Scout Armory (FSA) located at the north end of the community of Tuntutuliak between the Kinak River and Airport Lake. 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 Tuntutuliak 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 Tuntutuliak FSA
60.345415 N, -162.675138 W
Tuntutuliak, Alaska

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

DEC Site Identifiers:
File No: 2452.38.001
Hazard ID: 2824

Regulatory Authority for Determination:
18 AAC 75

Site Description and Background

The Tuntutuliak FSA is located in the village of Tuntutuliak adjacent to the Kinak River and about 40 miles from Bethel. The site is within the Yukon Delta National Wildlife Refuge. The FSA consists of a 20 by 60 foot prefabricated butler-style building, a 30 by 50 foot prefabricated scout readiness center, two 1,500 gallon double-walled aboveground storage tanks (ASTs), and a storage van. The FSA is connected to a boardwalk system. The contamination at the FSA was due to fuel handling operations. The FSA was entered into the ADEC Contaminated Sites database in December of 1997 following the receipt of a Phase 1 Preliminary Assessment/Site Investigation dated January 1998 that documented petroleum contamination on site.

Contaminants of Concern

The following petroleum contaminants of concern, those above approved cleanup levels, were identified during the course of the site investigations summarized in the Characterization and Cleanup Activities section of this decision letter.

- Gasoline Range Organics (GRO)
- Diesel Range Organics (DRO)
- Residual Range Organics (RRO)
- Benzene
- Ethylbenzene
- 1-Methylnapthalene
- 2-Methylnaphalene
- Naphthalene
- Toluene
- Total xylenes

Table 1 – Approved Site-Specific Cleanup Levels

Contaminant	Soil (mg/kg)
GRO	300
DRO	10,250
RRO	3,000
Benzene	0.025
Ethylbenzene	6.9
1-Methylnaphalene	6.2
2-Methylnaphalene	6.1
Naphthalene	20
Toluene	6.5
Total xylenes	63

mg/kg = milligrams per kilogram

Characterization and Cleanup Activities

A Preliminary Assessment/Site Investigation (PA/SI) at the FSA was conducted in July of 1996 (Ogden Environmental and Energy Services Co., Inc. 1998). There were five areas of concern where fuel had

been held and handled. These are: area one (55-gallon fuel drum storage site), area two (generator shed), area three (former stockpiled drum site), area four (1,500 AST), and area five (storage van). Eleven borings were advanced by hand auger to a depth of 1.5 feet where frozen soil was encountered. The borings were field screened for total petroleum hydrocarbons (TPH) and seven analytical soil samples were analyzed for DRO, GRO, and benzene, toluene, ethylbenzene, and xylenes (BTEX). The results of the PA/SI indicated that petroleum contamination was present on site above ADEC cleanup levels at locations where fuel was handled. DRO concentrations as high as 150,000 mg/kg were found near area one. Lower concentrations of DRO and TPH (around 10,000-69,000 mg/kg) were found in area two. The other areas of the site also had petroleum contamination but to a lesser degree.

A remedial investigation was performed in September 1998 at the Tuntutuliak FSA in order to delineate areas of contamination (CH2M HILL 1999). Twenty-seven soil samples to a depth of two feet below ground surface were collected and field screened, four groundwater wells were completed and sampled, and four collocated sediment and surface water samples were collected. The majority of samples were analyzed for DRO. Select samples were additionally analyzed for GRO, RRO, polycyclic aromatic hydrocarbons (PAHs), and BTEX. Some samples were also analyzed for physical properties to aid in the establishment of cleanup levels. Areas one, two, and three all contained DRO concentrations greater than ADEC cleanup levels with the highest concentrations found in area one. Soil from areas four and five were not analyzed for DRO. Two collocated sediment and surface water samples were collected from area four. The sediment had petroleum detections, but no detections of contamination were found in the surface water. The other two collocated sediment and water samples were taken north of areas two and four and not have any detections of petroleum. Four groundwater samples were collected from the site and these had BTEX and DRO concentrations below ADEC cleanup levels and no detections for RRO and GRO. Results from this investigation indicated that DRO was the primary contaminant of concern and that soils in the area contain high organic content that potentially resulted in bias high results.

An alternative cleanup level demonstration project for the site was completed in 2004 (AMEC 2006). The project involved soil and suprapermafrost groundwater sampling. The goal of the project was to provide a leaching assessment to evaluate the potential for contaminants to migrate in the site soils and to assess the groundwater on site. Eleven soil borings were completed on site at depths up to 0.5 feet below ground surface. Four of these were for characterization and the others were for background data purposes. The samples were analyzed for DRO and a subset was also analyzed for GRO, BTEX, organic carbon, and synthetic precipitation leaching procedure. The DRO, GRO, and BTEX concentrations were all below ADEC cleanup levels. Four suprapermafrost samples were collected and analyzed for DRO and BTEX. DRO was detected in the water samples at concentrations ranging from 0.55-1.4 mg/L. These water concentrations were below ADEC groundwater cleanup levels.

In 2013, a data gap investigation was conducted at the Tuntutuliak FSA (CH2M HILL). Fifteen soil borings were completed at 0-2 feet below ground surface and 46 soil samples were collected from various locations on site, many of which had not previously been sampled. These were field screened and analyzed for DRO. Select samples were also analyzed for extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), BTEX, and polycyclic aromatic hydrocarbons (PAHs). The results of these analyses indicated that there was a large continuous area of contamination above ADEC cleanup levels encompassing areas one, two, and three. In addition, areas four and five were larger than observed during previous sampling events. The vertical extent of DRO contamination in soil was limited by the presence of permafrost at 2-2.5 feet below ground surface.

A final Record of Decision for the site was completed in June 2013 that established COCs, affected media, approved cleanup levels, and the selected remedy. The COCs and cleanup levels are provided in Table 1 of this document. Although GRO is listed as a COC and a cleanup level was approved for GRO, the ADEC and AKARNG determined that GRO was not a COC and it was removed from the Ahtna work plan dated April 2015. The selected remedy for the site was excavation of petroleum contaminated soil containing contaminants greater than the site-specific cleanup levels. There is no groundwater on site due to the presence of permafrost. Suprapermafrost water has tested below ADEC cleanup levels for groundwater.

A final removal action was completed in the summer of 2015 (Ahtna Environmental Inc. 2016). A total of 36 yd^3 was excavated from 0-2 feet below ground surface from three source areas identified in the data gap analysis conducted in 2013 (areas one, four, and five). The soils were field screened during the excavation and submitted to SGS North America for the analysis of DRO, RRO, BTEX, and naphthalenes. DRO and RRO were analyzed with and without silica gel cleanup. Twelve analytical confirmation samples were collected from area one, five confirmation samples from area two, and two confirmation samples from area four. The contaminated soils were shipped in Super Sacks to an appropriate landfill for disposal. Soils in the area are characteristic of tundra and have high organic matter (peat) content and low solid content (as low as 13%) especially for the surface layer. The laboratory data reflected these characteristics and DRO and RRO organics analyses were run both with and without silica gel cleanup. These analyses demonstrated that the peat in the soil co-elutes with DRO and RRO and results in higher petroleum fraction values than are actually present. The chromatograms and chemist's comments verified these conclusions. The resultant confirmation samples collected post-excavation from the excavation base and sidewalls contained petroleum fraction concentrations, BTEX, and PAHs at concentrations lower than the site-specific cleanup levels. The area was backfilled with clean material and seeded with an Alaskan grass seed mixture.

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 (HI) 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 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	DRO contamination in surface soil (0-2 feet below ground surface) is at its greatest (4,190 mg/kg) which is well below the ingestion (10,250 mg/kg) and inhalation (12,500 mg/kg) cleanup levels.
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination is not present in subsurface soil and the soil is characterized by permafrost below approximately two feet below ground surface.
Inhalation – Outdoor Air	De-Minimis Exposure	Minimal DRO contamination remains in the surface soil, but is below inhalation cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	De-Minimis Exposure	Minimal DRO contamination is not expected to affect indoor air due to low DRO concentrations and structure design aboveground on footing.
Groundwater Ingestion	Pathway Incomplete	Groundwater present in suprapermafrost is not a potable water source.
Surface Water Ingestion	Pathway Incomplete	Suprapermafrost water is not contaminated with DRO above groundwater cleanup levels and is not a potable water source.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminants of concern do not have the potential to bioaccumulate in plants or animals nor are these items collected on site.
Exposure to Ecological Receptors	Pathway Incomplete	Residual DRO in soil is not expected to negatively affect ecoreceptors.

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

As documented by confirmation samples during the Remedial Action, remaining petroleum concentrations in the soil are below the ADEC-approved cleanup levels. This site will receive a "Closed" 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. 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) 465-5207.

Sincerely,

Danielle Duncan
Project Manager

cc: Anne Marie Palmieri, Environmental Program Specialist IV, ADEC, via electronic mail
Spill Prevention and Response, Cost Recovery Unit, via electronic mail