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: 150.38.031

July 3, 2018

Lance Raymore
Federal Aviation Administration
222 W. 7th Ave., P.O. Box 14
Anchorage, AK 99513-7587

Re: *Decision Document: FAA Summit Station: Former Housing Buildings 100, 103, 106, 107, and 600 within the Former Housing Area – North Area of Concern (AOC) Hazard ID 26620 Cleanup Complete Determination*

Dear Mr. Raymore:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the FAA Summit Station Housing Buildings located at Mile 201 Parks Highway, Cantwell. 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 FAA Summit Station Housing Buildings, 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 Summit Station Housing Buildings
Section 29, T18S, R8W
Mile 201 Parks Highway
Cantwell, AK 99729

Name and Mailing Address of Contact Party:
Lance Raymore
Federal Aviation Administration
222 W. 7th Ave., P.O. Box 14
Anchorage, AK 99513-7587

DEC Site Identifiers:
File No.: 150.38.031
Hazard ID.: 26620

Regulatory Authority for Determination:
18 AAC 75.325-75.390

Site Description and Background
The Summit FAA Station is located immediately adjacent to the George Parks Highway at Broad Pass, nine miles south of Cantwell and approximately 200 miles north of Anchorage. The land occupied by the station was designated for FAA use by the Federal Government between 1939 and 1959. Much of the Summit FAA Station was conveyed to the State of Alaska in a Deed in May 1966. The Quarters Buildings were among the first structures constructed at this Site and included 11 separate buildings.

Each unit had an associated heating oil aboveground storage tank (AST); the size of the ASTs was not reported. Most of the housing buildings were decommissioned during the 1980s by the State of Alaska or other parties, no buildings remain in this area. No spills or incidents were reported at this location.

Soil and groundwater investigations at the former building locations were conducted from 2010 to 2015. Soil borings were advanced, monitoring wells were installed, and analytical soil and water samples were collected in order to evaluate the presence and extent of petroleum contamination. In addition, a characterization of subsurface water was performed to evaluate the nature of shallow subsurface water at the Summit FAA Station. Based on the results of the investigation the housing buildings have been divided into two groups for the purpose of tracking environmental issues with the ADEC. The two groups of housing buildings are described as follows:

- The South Area of Concern (AOC) included former housing buildings 109 and 110 and a small, unoccupied outbuilding called building 203. These buildings remain as open sites in the ADEC data base (Hazard ID 26619) and are not discussed further in this closure letter.

- The North Area of Concern (AOC) included eight building locations. Former housing buildings 101, 102, 104, and 105 did not have evidence of soil contamination above ADEC cleanup levels and were designated as being "non-qualifying" (i.e. the buildings do not qualify as contaminated sites). Former Housing Buildings 100, 103, 106, 107, and 600 were found to have hydrocarbon impacted soils which meet the ADEC requirements for a Cleanup Complete determination without institutional controls. Former Housing Buildings 100, 103, 106, 107, and 600 are the subject of this closure letter (Hazard ID 26620).

Analytical results associated with Former Housing Buildings 100, 103, 106, 107, and 600 within the Former Housing Area – North AOC and characterization of subsurface water at the Summit FAA site indicated that these areas meet the ADEC requirements for Cleanup Complete determination without institutional controls. The following text discusses the identified contaminants of potential concern, applicable cleanup levels, characterization activities conducted at each former building, cumulative risk evaluation, and exposure pathway evaluation.

Contaminants of Concern
During the site investigation, samples were collected from soil and subsurface water and analyzed for gasoline range organics (GRO), diesel range organics (DRO), residual range organics (RRO), benzene, toluene, ethylbenzene and xylene (BTEX) at Former Housing Buildings 100, 103, 106, 107, and 600. In addition, extractable petroleum hydrocarbons (EPH), volatile petroleum hydrocarbons (VPH), and polycyclic aromatic hydrocarbons (PAH) samples were collected at Former Housing Building locations 100 and 103.

The soil samples collected from 2010 to 2015 were compared to cleanup levels in regulation from 2009 in the report titled Final Site Investigation Report Federal Aviation Administration, Summit, Alaska (Ahtna,

2013). This letter compares the results to revised cleanup levels promulgated on November 6, 2016, in order to identify the contaminants of concern (COCs) at the Former Housing Buildings 100, 103, 106, 107, and 600 sites. The determination of COCs was based on the detection of petroleum constituents in soil samples that exceeded the cleanup levels listed in 18 Alaska Administrative Code (AAC) 75.341, Method 2, Table B1 and B2, Under 40-Inch Zone. As a result of this comparison, the following contaminants or groups of contaminants were retained as COCs at this site:

- GRO
- DRO
- PAHs listed in Footnote #7 to Tables B1 and B2 in 18 AAC 75.341

Cleanup Levels
The cleanup levels for the Former Housing Buildings 100, 103, 106 107, and 600 which are presented in this closure letter, are based on regulations that took effect on November 6, 2016.

- 18 AAC 75.341, Method 2, Table B1 – Soil Cleanup Levels, Under 40-inch Zone, Human Health;
- 18 AAC 75.341, Method 2, Table B2 – Petroleum Hydrocarbon Soil Cleanup Levels, Under 40-inch Zone, Ingestion; and
- 18 AAC 74.345, Table C – Groundwater Cleanup Levels

Table 1 – Approved Cleanup Levels

Contaminant	Soil Table B1-Human Health Table B2 – Under 40in Zone (mg/kg)	Groundwater Cleanup Levels Table C (µg/L)
GRO	1,400	2,200
DRO	10,250	1,500
RRO	10,000	1,100
Benzene	11	4.6
Toluene	200	1,100
Ethylbenzene	49	15
Xylenes	57	190
Acenaphthene	4,600	530
Acenaphthylene	2,300	260
Anthracene	23,000	43
Benz[a]anthracene	2.0	0.12
Benzo[a]pyrene	0.20	0.034
Benzo[b]fluoranthene	2.0	0.34
Benzo[g,h,i]perylene	2,300	0.26
Benzo[k]fluoranthene	20	0.80
Chrysene	200	2.0
Dibenz[a,h]anthracene	0.20	0.034
Fluoranthene	3,100	260

Fluorene	3,100	290
Indeno[1,2,3-cd]pyrene	2.0	0.19
Naphthalene	29	1.7
Phenanthrene	2,300	170
Pyrene	2,300	120

mg/kg = milligrams per kilogram
µg/L = micrograms per liter

Characterization and Cleanup Activities
Characterization activities conducted under the regulatory authority of the Contaminated Sites Program occurred from 2010 to 2015 to characterize the extent of petroleum contamination and to evaluate the presence and distribution of subsurface water throughout Summit FAA Station. Site characterization under 18 AAC 75.335 included evaluation of the nature and extent of petroleum impact with the installation of soil borings and monitoring wells, and the collection of subsurface water samples. Soil borings and monitoring wells were advanced and installed at the following locations:

- Former Housing Building 100
- Former Housing Building 103
- Former Housing Building 106
- Former Housing Building 107
- Former Housing Building 600

Former Housing Building 100: The contaminated source area length at former Building 100 was estimated to be 40 feet based on the DRO results for analytical soil samples collected in 2010. Contamination was present from approximately 1 to 14 feet below ground surface (bgs). All reported COC soil results from soil samples were below the cleanup levels listed in Table 1.

A total of 15 borings were advanced to depths ranging from 8 to 20 feet bgs at Former Housing Building 100 in 2010. Four borings were drilled within the source area and 11 borings were drilled around the perimeter of the source area. Ten analytical soil samples were collected and analyzed for DRO, RRO, GRO, and BTEX, and three samples were analyzed for EPH, VPH, and PAHs.

Monitoring well MW08 was installed in boring B15 to an approximate depth of 8.2 feet bgs, near the downgradient edge of the source area. Due to low water yield, water samples could not be collected during 2010 field activities using low-flow sampling techniques. Approximate water depth during the 2011 field season was 4.3 feet bgs. Water samples were collected from MW08 in 2011 using no-purge sampling techniques. Water quality parameter readings were collected in situ and groundwater samples were analyzed for DRO, RRO, GRO, BTEX, EPH, VPH, and PAH. All analytes detected in water samples collected from MW08 were at concentrations less than groundwater cleanup levels listed in Table 1.

Former Housing Building 103: At former Building 103 a contaminated source area, approximately 10 feet long in lateral extent, was identified based on the DRO results for analytical soil samples. In 2010, DRO was detected at a maximum concentration of 276 mg/kg in a soil sample collected at 2 to 4 feet bgs (this was the only sample that exceeded the Table B2 migration to groundwater criteria).

Seven borings were advanced in 2010 near former housing Building 103 to depths ranging from 4 to 12 feet bgs, one drilled within the source area and six around the perimeter of the source area in 2010. Eight

analytical soil samples were collected and analyzed for GRO, DRO, RRO, and BTEX, and three samples were analyzed for EPH, VPH, and PAH.

Monitoring well MW07 was installed to a depth of approximately 8 feet bgs, adjacent to and downgradient of the source area. Due to low water yield during 2010 site characterization activities, groundwater samples could not be collected from MW07 using low-flow sampling techniques. Approximate water depth during the 2011 field season was 5.6 feet bgs. MW07 was sampled in 2011 using no-purge sampling techniques. Water quality parameter readings were collected in situ and analytical groundwater samples were collected and analyzed for GRO, DRO, RRO, BTEX, EPH, VPH, and PAH. All analytes were detected at concentrations less than groundwater cleanup levels listed in Table 1 in groundwater samples collected from MW07.

Former Housing Building 106: Based on 2010 DRO results for analytical soil samples, the source area at former Building 106 appears to be confined laterally to an area 10 feet in diameter. DRO was detected at a maximum concentration of 402 mg/kg in a soil sample collected at 2 to 4 feet bgs (this was the only sample out of six that exceeded the Table B2 migration to groundwater criteria). Soil samples were not collected or analyzed for EPH, VPH, and PAH due to the limited size of the source area and no monitoring wells were installed.

Three borings were advanced in 2010 near former housing Building 106 to depths of 8 feet bgs. One boring was drilled within the source area and two borings were drilled around the perimeter of the source area. Six analytical soil samples were collected and analyzed for GRO, DRO, RRO, and BTEX.

Former Housing Building 107: The source area at former Building 107 appeared to be limited in extent based on DRO results for 2010 analytical soil samples. DRO was detected at a maximum concentration of 976 mg/kg in a soil sample collected at 6 to 8 feet bgs (this was the only sample out of six that exceeded the Table B2 migration to groundwater criteria). Soil samples were not collected or analyzed for EPH, VPH, and PAH due to the limited size of the source area and no monitoring wells were installed.

Three borings were advanced near former housing Building 107 to depths of approximately 8 feet bgs. One boring was drilled within the source area and two borings were drilled around the perimeter of the source area. Six analytical soil samples were collected and analyzed for GRO, DRO, RRO, and BTEX.

Former Housing Building 600: The source area at former Building 600 appeared to be limited in extent based on 2010 DRO results for analytical soil samples. DRO was detected at a maximum concentration of 429 mg/kg in a soil sample collected at 4 to 6 feet bgs (this was the only sample out of seven that exceeded the Table B2 migration to groundwater criteria). Samples were not collected or analyzed for EPH, VPH, and PAH due to the limited size of the source area.

Four borings were advanced near former housing Building 600 to depths ranging from 4 to 8 feet bgs. One boring was drilled within the source area and three borings were drilled around the perimeter of the source area. A total of seven analytical soil samples were collected and analyzed for DRO and RRO, six samples were also analyzed for GRO and BTEX.

One monitoring well was installed downgradient of the source area to a depth of approximately 8 feet bgs. Due to low water yield, groundwater samples could not be collected using low-flow sampling techniques during 2010 SI activities. Depth to water was approximately 3.2 feet bgs in October 2011. Groundwater samples were collected from MW11 during 2011 site characterization activities using no-purge sampling techniques. Water quality parameter readings were collected in situ and analytical groundwater samples were

collected and analyzed for DRO, RRO, GRO, and BTEX. All analytes were detected at concentrations less than groundwater cleanup levels listed in Table 1 in groundwater samples collected from MW11.
The maximum DRO concentrations measured at each building location are listed in Table 2, along with the DRO soil ingestion cleanup level listed in the regulations. As shown in the table the maximum DRO concentration is below the risk based concentration.

Table 2. – Highest Soil DRO Concentrations Remaining at Each Location.

Location	DRO Concentration (mg/kg)	Specific Location
Former Housing Building 100	6,370 mg/kg	Borehole 4, 6-8 feet
Former Housing Building 103	276 mg/kg	Borehole 1, 2-4 feet
Former Housing Building 106	402 mg/kg	Borehole 1, 2-4 feet
Former Housing Building 107	976 mg/kg	Borehole 1, 6-8 feet
Former Housing Building 600	429 mg/kg	Borehole 1, 4-6 feet
Applicable Soil Cleanup Level: 10,250 mg/kg*		

*Method 2-Table B2, DRO, Under 40 Inch Zone, soil ingestion, maximum allowable concentration.

Cumulative Risk Evaluation

A cumulative risk determination must be completed when detectable contamination remains onsite following a cleanup. The risk from hazardous substances shall not exceed a cumulative carcinogenic risk standard of 1 in 100,000 across all significant exposure pathways and shall not exceed a cumulative noncarcinogenic risk standard at a hazard index of one across all significant exposure pathways. The ADEC calculator was used to document that the former building locations meet the human health cumulative risk criteria in 18 AAC 75.325. Table 3 summarizes the cumulative risk calculator results and recommendations for each location and Attachment 1 of the attached Cleanup Complete Determination Request Letter (Ahtna 2017) includes the calculator inputs and outputs.

Table 3 – Summary of Cumulative Risk Calculations and Recommendations for Each Location

Location	Cumulative Risk Calculator Result	Recommendation
Former Housing Building 100	Site conditions meet the ADEC human health risk standard established in 18 AAC 75.325.	Cleanup Complete determination
Former Housing Building 103	Site conditions meet the ADEC human health risk standard established in 18 AAC 75.325.	Cleanup Complete determination
Former Housing Building 106	Site conditions meet the ADEC human health risk standard established in 18 AAC 75.325.	Cleanup Complete determination
Former Housing Building 107	Site conditions meet the ADEC human health risk standard established in 18 AAC 75.325.	Cleanup Complete determination
Former Housing Building 600	Site conditions meet the ADEC human health risk standard established in 18 AAC 75.325.	Cleanup Complete determination

Notes to Table 3: "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.

Exposure Pathway Evaluation

Following investigation and assessment of the need for cleanup at the sites, exposure to the remaining contaminants were 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 4.

TABLE 4– EXPOSURE PATHWAY EVALUATION

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	Contamination is present in surface soil (0 to 2 feet bgs). Therefore, the ingestion and direct contact pathways are complete for current industrial and site visitor receptors and potentially complete in the future for residential receptors. Contaminant concentrations in surface soil are below the most stringent cleanup levels.
Sub-surface Soil Contact	De Minimis Exposure	Contamination is present in subsurface soil (2 to 15 feet bgs) Therefore, the ingestion and direct contact pathways are complete for current industrial and site visitor receptors and potentially complete in the future for residential receptors. Contaminant concentrations in surface soil are below the most stringent cleanup levels.
Inhalation – Outdoor Air	De Minimis Exposure	Contaminant concentrations in soil are below inhalation and human health cleanup levels
Inhalation – Indoor Air (vapor intrusion)	De Minimis Exposure	Building are not currently present on site and volatile contaminants capable of causing risk via this pathway are not present.
Groundwater Ingestion	De Minimis Exposure	Contaminants of concern are below DEC cleanup levels for groundwater and thus are unlikely to be harmful to potential receptors.
Surface Water Ingestion	Pathway Incomplete	Surface water is not considered a potentially impacted medium at the present time or in the future for petroleum contamination. The Summit AOCs are over 1,300 feet from the closest surface water body, Mirror Lake, which is located northeast of the Summit FAA Station.
Wild and Farmed Foods Ingestion	De Minimis Exposure	Wild and farmed foods are not collected at the site.
Exposure to Ecological Receptors	De Minimis Exposure	The exposure pathway to aquatic ecological receptors is considered incomplete as a result of the incomplete pathway to surface water and sediments from migration of contaminants from the site. The exposure pathway to terrestrial ecological receptors is considered de minimis due to the small footprint of

		the site in relation to the overall areas occupied by terrestrial receptors.

Notes to Table 4: "De Minimis Exposure" means that in DEC's judgment receptors are unlikely to be adversely affected by the minimal volume or concentration of remaining contamination. "Pathway Incomplete" means that in DEC'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.

Previous ADEC Decisions

The August 6, 2014 letter from DEC to FAA recommended cleanup complete determinations for Former Housing Buildings 100, 103, 106, 107, and 600 pending results of an investigation of the nature of the shallow subsurface water at the site. The Final Federal Aviation Administration Follow-On Site Investigation Report, Summit FAA Station, Alaska (Ahtna, 2016), was completed and accepted by DEC in 2016.

The follow-on report supports the conclusions that the exposure to receptors through the groundwater ingestion pathway is de minimis at the Summit FAA Station due to the nature of shallow subsurface water at the site, the low permeability of site soils, and the depth of a viable aquifer.

Cleanup Complete Determination

Based on the above summarized information and the administrative records for FAA Summit Housing Building 100, 103, 106, 107, and 600, DEC has determined that a "Cleanup Complete" status will be applied to the sites on the Contaminated Sites Database, without ICs and subject to the following standard conditions:

Standard Conditions

1. Any proposal to transport soil or groundwater off-site requires DEC 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.

The Cleanup Complete determination is in accordance with 18 AAC 75.380 and does not preclude DEC 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.

Attachments

1. Ahtna Engineering Services LLC. 2017. Request for Cleanup Complete Determination Letter for FAA Summit Station: Former Housing Buildings 100, 103, 106, 107, and 600 within the Former Housing Area – North Area of Concern (AOC) Hazard ID 26620 [Note: this document includes the 2017 Housing Area North Cumulative Risk Calculations].
2. North Housing Area Site Figures excerpted from the Final Site Investigation Report dated March 28, 2013 (Ahtna 2013).

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) 451-2181, or email at john.obrien@alaska.gov.

Sincerely,

Digitally signed by John O'Brien
DN: cn=John O'Brien, o=DEC, ou=SPAR CS, email=john.obrien@alaska.gov, c=US
Date: 2018.07.03 16:34:59 -08'00'

John O'Brien
DEC Project Manager

cc: Spill Prevention and Response, Cost Recovery Unit
Kara Kusche (DEC) via email
Brad Platt (FAA) via email