THE STATE of ALASKA
GOVERNOR BILL WALKER

Department of Environmental Conservation

DIVISION OF SPILL PREVENTION AND RESPONSE
Contaminated Sites Program

610 University Avenue
Fairbanks, AK 99709-3643
Phone: 907-451-2143
Fax: 907-451-2155
www.dec.alaska.gov

File: 860.38.063

June 23, 2017

Christiana Hewitt
AFCEC/CIBE
2261 Hughes Ave, Suite 155
JSBA Lackland, TX 78236-9853

Subject: Decision Document: Galena AFS/Airport - Former Aircraft Refueling Pads (PADS / CSS005) Cleanup Complete Determination

Dear Ms. Hewitt:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Galena AFS/Airport - Former Aircraft Refueling Pads (PADS /CSS005) located at Galena, 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. 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 Former Galena Forward Operating Location (FOL), 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:
Former Aircraft Refueling Pads
PADS / CSS005
Airport Runway
E of Bldg 1428
E and W of Former Bldg 1551
Galena, Alaska 99741

Name and Mailing Address of Contact Party:
Christiana Hewitt
AFCEC/CIBE
2261 Hughes Ave.,
Suite 155, JSBA Lackland, TX 78236-9853

DEC Site Identifiers:
File No.: 860.38.063
Hazard ID.: 26206

Regulatory Authority for Determination:
18 AAC 75 and 18 AAC 78

Site Description and Background
The former Aircraft Refueling Pads (Site CSS005, formerly known as Site PADS) is located within the airfield, south of the Former Galena FOL cantonment triangle, as shown on Figure 1.

Site CSS005 consists of 12 former aircraft refueling pads, outlined in green on Figure 1. The dimensions of each former refueling pad is approximately 50 feet by 50 feet. The former refueling pads have been covered over by more recent pavement and are no longer visible. The source of contamination is suspected surface releases associated with aircraft refueling.

Contaminants of Concern

The following contaminants of concern (those exceeding approved cleanup levels) were identified during the course of investigation, summarized in the Characterization and Cleanup Activities section of this decision letter.

- C6-C10 gasoline-range organics (GRO)
- C10-C25 diesel-range organic (DRO)
- Benzene
- 1,1,2-Trichloroethane

Residual-range organic (RRO) and polynuclear aromatic hydrocarbon (PAH) concentrations in surface soil (0 to 2 feet deep) were excluded from this list. RRO and PAH contamination at Site CSS005 was caused by widespread use of overlying asphalt paving and is determined not associated with fuel releases.

Cleanup Levels (CUL)

Migration to groundwater and Under 40 inch zone human health soil CULs apply to this site. GRO, DRO, benzene, and 1,1-2-trichloroethane were detected above the migration to groundwater CULs, but below the human health levels, established in 18 AAC 75.341 (d), Tables B1 and B2.

Concentrations of contaminants in groundwater samples were below ADEC Method Two, Table C CULs. There is no surface water present at this site.

Table 1 – Approved Cleanup Levels

Contaminant	Soil (mg/kg)	Groundwater (mg/L)
GRO	300	2.2
DRO	250	1.5
Benzene	0.022	0.0046
1,1,2-Trichloroethane	0.0014	0.00041

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

Characterization and Cleanup Activities

Characterization and cleanup activities conducted under the regulatory authority of the Contaminated Sites Program began in 2009. These activities are described below.

In July 2009, Environmental Compliance Associates, LLC (ECA) completed a geophysical survey using ground penetrating radar to confirm the locations of the refueling pads east of Building 1428 (Combat Alert Cell building) and east and west of former Building 1551 (former Birchwood Hangar).

A reconnaissance-level site visit and ecological site survey were completed in October 2009 as part of the Preliminary Assessment (PA) for Site CSS005. The site was covered with pavement and no viable habitat for plants or animals was observed.

Site characterization sampling was conducted at Site CSS005 in 2010 and 2011. Additional site characterization sampling was conducted in 2015 and 2016, and identified DRO, GRO, benzene, and PAHs detected at concentrations exceeding the Method Two CULs.

During the 2011, 2015, and 2016 sampling events, the following contaminants were detected at concentrations exceeding Method Two CULs:

- DRO was detected in four shallow soil samples (up to 1,700 mg/kg) and one subsurface soil sample (837 mg/kg at PADS_GP018 from 5 to 7 feet bgs).
- GRO was detected in one subsurface soil sample (837 mg/kg at PADS_GP018 from 5 to 7 feet bgs).
- Benzene was detected in in two subsurface soil samples (0.106J mg/kg at PADS_GP017 from 5 to 7 feet bgs and 0.037 mg/kg at PADS_GP006 from 9 to 11 feet bgs).
- 1,1,2-Trichloroethane was detected in one sample (0.054J mg/kg at PADS_GP001 from 0 to 2 feet bgs).

Additionally, six PAHs were detected in soil samples at concentrations exceeding than the Method Two CULs: benzo(a)anthracene; benzo(a)pyrene; benzo(b)fluoranthene; dibenz(a,h)anthracene; indeno(1,2,3-cd)pyrene; and naphthalene. The relatively high concentrations of RRO and PAHs in the shallow soil samples do not match the distribution pattern for an aviation fuel release (seen in 5-7 ft subsurface samples). The conclusion from the site characterization is that petroleum hydrocarbons in the shallow soil are related to the tar in the asphalt paving rather than fuel releases from past Air Force uses of the site.

The extent of contamination greater than the Method Two CULs is vertically defined. The extent of contamination is also laterally defined, except for DRO and GRO to the south, where additional step out drilling was not possible because of Alaska Department of Transportation (ADOT) concerns for damage to the airport apron and runway. Based on this limitation, the small area of impact and low concentrations in soil, ADEC agreed that collection of a grab groundwater sample would be sufficient to evaluate potential contribution to groundwater contamination to complete site characterization.

Grab groundwater samples were collected from two locations. Samples were analyzed for GRO, DRO, RRO, and PAHs. Groundwater sampling results were compared to the ADEC Table C CULs and concentrations in groundwater were confirmed below the ADEC Table C CULs for both sampling locations.

Excluding the asphalt-related surface soil samples, the fuel-related contaminated subsurface soil area is approximately 7 feet by 7 feet, and extends from approximately 5 to 9 feet bgs within the vadose zone (approximately 7.25 cubic yards). The 1,1,2-trichloroethane contamination in surface soil is approximately 3 feet by 3 feet and extends from approximately 0 to 2 feet bgs within the vadose zone.

Table 2 – Contaminant Concentrations Remaining at Site CSS005

Contaminant	**Soil Cleanup Level Migration to Groundwater** (mg/kg)	**Soil Cleanup Level Human Health** (mg/kg)	**Highest Concentrations Remaining**[a] (mg/kg)
GRO	300	1,400	780
DRO	250	10,250	837
Benzene	0.022	11	0.106 J
1,1,2-Trichloroethane	0.0014	1.6	0.054 J

a = Excludes asphalt-related PAHs, DRO, and RRO in surface soil
mg/kg = milligrams per kilogram
J = estimated value

Cumulative Risk Evaluation

Pursuant to 18 AAC 75.325(g), when detectable contamination remains onsite, 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 of one across all exposure pathways. Cumulative risk is calculated using all contaminant concentrations remaining on site at concentrations above 1/10th the cleanup level, per 18 AAC 75.340 (k).

For CSS005, a human health risk evaluation using the Hydrocarbon Risk Calculator (HRC) under ADEC Method Three (18 AAC 75.340 (e) and 18 AAC 78.600 (d)) was undertaken. Cumulative risk was shown to be below regulatory carcinogenic risk standard of 1E-05. The cumulative non-cancer hazard index (HI) estimates for the current industrial and hypothetical residential exposure scenarios are below the regulatory risk standard of 1 in the HRC evaluation.

Subsequent to evaluating site risk using the HRC, ADEC revised the site cleanup rules (18 AAC 75.325 to 390) and promulgated new cleanup levels for soil and groundwater. Cumulative risk from residual contamination at the site was further evaluated using the ADEC 2016 Method Three Cumulative Risk Calculator under a residential exposure scenario. The cumulative cancer risk estimate is below the regulatory risk standard of 1E-05, and the cumulative noncancer HI estimate is below the regulatory risk standard of 1, supporting a Cleanup Complete determination under the current ADEC cleanup rules.

Exposure Pathway Evaluation

Following investigation 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 is included in Table 3.

Table 3 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	De Minimis Exposure	This site is located on the airport runway and it is unlikely that people will be present. The cleanup crew could be exposed to surface contamination. However, no analytes have been detected above the human health cleanup levels.
Sub-Surface Soil Contact	De Minimis Exposure	Extensive soil testing has been conducted at this site. No contaminants have been detected above human health cleanup levels. Excavation of the site is unlikely because it is currently an airport runway.
Outdoor Air Inhalation	De Minimis Exposure	This site is located on the airport runway and it is unlikely that people will be present. No contaminants have been detected above outdoor air inhalation levels in the soil at this site.
Groundwater Ingestion	De Minimis Exposure	Benzene and 1,1,2-Trichloroethane are present in the soil above migration to groundwater cleanup levels, listed in Table B1. However the volume of soil is considered De Minimis and groundwater is not impacted above Table C cleanup levels..
Surface Water Ingestion	Pathway Incomplete	This site is 0.3 miles upgradient of the Yukon River. Groundwater is not impacted and contamination is not expected to migrate to surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	This site is now the small aircraft runway at the Galena Airport.

Pathway	Result	Explanation
Indoor Air Inhalation (Vapor Intrusion)	Pathway Incomplete	This site is now the small aircraft runway at the Galena Airport. There are no buildings present and no construction is planned.
Other Human Health	Pathway Incomplete	This area is an aircraft runway and only DOT personnel are expected to infrequently visit the area. Runway users will not likely spend much time in the area. No exceedance of human health cleanup levels have been identified.
Ecological	Pathway Incomplete	This site is now the small aircraft runway at the Galena Airport.

ADEC Decision

A *de-minimis* volume of petroleum-contaminated soil was left in place approximately 5 to 9 feet below ground surface with concentrations above the migration to groundwater cleanup levels but below human health cleanup levels. A de-minimis volume of 1,1,2-trichloroethane contaminated soil was left in place approximately 0 to 2 feet below ground surface with concentrations above the migration to groundwater cleanup levels but below human health cleanup levels. Groundwater samples indicate that all analytes in groundwater are below Table C cleanup levels. Migration to groundwater is not a concern at this site. All remaining contamination in soil and groundwater is either below approved cleanup levels or has been deemed "de-minimis" by ADEC. Therefore, this site will be updated in the Contaminated Sites Database to reflect that the Site CSS005 is no longer of concern and will be considered closed without institutional controls, 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.

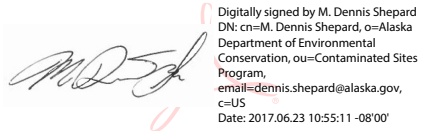
Appeal

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 contact me at (907) 451-2180, or via email at dennis.shepard@alaska.gov.

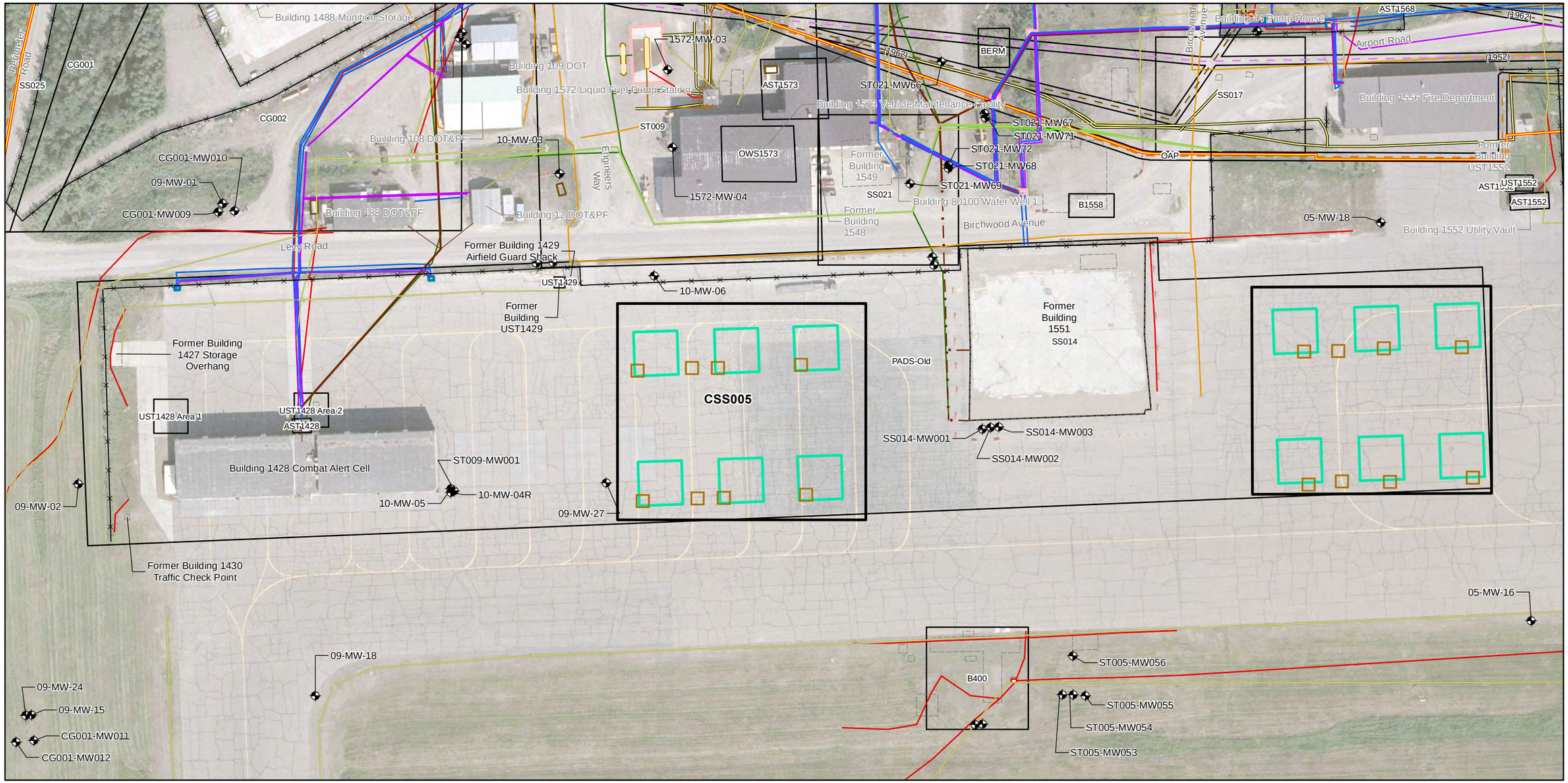
Sincerely,



Dennis Shepard
Environmental Program Specialist
Project Manager

Enclosures: Figure 1 – Site CSS005 Location

cc, via email: Donna Kozak, Booz Allen Hamilton
Angela Sederquist, Booz Allen Hamilton
Sam Myers, ADOT
Bruce Henry, Parsons
Win Westervelt, CH2M HILL
Andi Beausang, CH2M HILL
Shanda Huntington, City of Galena
Jamie McKellar, ADEC



LEGEND

- CSS005 Site Boundary
- Adjacent Site
- Approximate Location of Former Feature
- Fence
- Pad from 1963 photo
- Electrical Line
- Heating/Cooling Line
- Main Storm Sewer Line
- Service Wastewater Line
- Main Wastewater Line
- Abandoned Wastewater Line
- Main Fuel Line
- Service Fuel Line
- Abandoned Fuel Line (1952)
- Abandoned Fuel Line (1962)
- Active Fillstand Area
- Removed Fillstand Area
- Fuel Tank
- Geophysical Survey Feature - Vaults

Underground Utility Locates – 2010

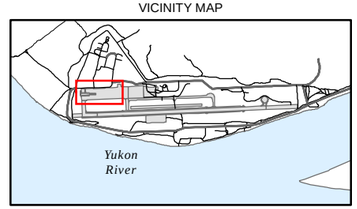
- Electrical Line
- Storm Drain
- Communications Line
- Sanitary Sewer Main
- Potable Water Main
- Fuel/Gas Line
- Concrete Pad
- Electrical Transformer
- Utility Vault

Historical Sample Location

- Monitoring Well

Note:
1. Aerial photography courtesy Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs. July 7, 2009. Pixel size 6 inch.
2. ADEC = Alaska Department of Environmental Conservation

VICINITY MAP



0 60 120
Feet

N

FIGURE 1
Site CSS005 Layout
ADEC Method Three Risk Evaluation
Former Galena Forward Operating Location. Alaska

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