



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: 2542.38.012

December 4, 2017

Andrew Sorum  
U.S. Army Corps of Engineers Alaska  
CEPOA-PM-C (FUDS)  
P.O. Box 6898 (Elmendorf AFB)  
JBER, AK 99506-0898

Re: **Decision Documents: Dutch Hbr-General's Hill UST 1  
Dutch Hbr-General's Hill UST 2  
Dutch Hbr-General's Hill UST 3  
Dutch Hbr-General's Hill UST 4  
Cleanup Complete Determination**

Dear Mr. Sorum:

The Alaska Department of Environmental Conservation, Contaminated Sites Program (ADEC) has completed a review of the environmental records associated with the Dutch Hbr (Harbor)-General's Hill UST 1 through Dutch Hbr-General's Hill UST 4 sites (the Sites) located in Unalaska Valley in the City of Unalaska. Based on the information provided to date, it has been determined that the contaminant concentrations remaining on sites 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 Sites, which is located in the ADEC office in Anchorage, Alaska. This decision letter summarizes the site history, cleanup actions and levels, and standard site closure conditions that apply.

**Site Name and Location:**

Dutch Hbr-General's Hill UST 1,  
Dutch Hbr-General's Hill UST 2,  
Dutch Hbr-General's Hill UST 3, &  
Dutch Hbr-General's Hill UST 4,  
Unalaska, AK 99685

**Name and Mailing Address of Contact Party:**

Andrew Sorum  
USACE  
CEPOA-PM-C (FUDS)  
P.O. Box 6898 (Elmendorf AFB)  
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**DEC Site Identifiers:**

File No.: 2542.38.012  
Hazard ID.: 2870, 2871, 2872, & 2873

**Regulatory Authority for Determination:**

18 AAC 75

### **Site Description and Background**

Unalaska Valley is located on Unalaska Island southeast of the City of Unalaska. During World War II (WWII), defensive infrastructures and associated supporting facilities were built on Unalaska Island and the area was occupied by a large group of troops. The Army Corps of Engineers (the Corps) managed the demolition and disposal of the abandoned buildings and debris in various landfills on Unalaska Island during the mid- to late-1980's. Underground fuel storage tanks (USTs) associated with the buildings were abandoned in place.

The General's Hill area is located at the end of Eagle Drive, overlooking the southern end of Unalaska Lake, on Unalaska Island. The four General's Hill USTs are located on undeveloped land south of Eagle Drive, as shown in Figure 1. Except for residential developments on Eagle Drive, the General's Hill area is largely surrounded by undeveloped properties. Most of the property is currently owned by Ounalashka Corporation.

Unconsolidated deposits are present in a relatively thin layer above bedrock, consisting primarily of gravel and cobbles with lesser amounts of fine-grained materials. Bedrock was encountered in some of the excavations and, therefore, is believed to be very shallow throughout the General's Hill area. Bedrock in this area was observed to be volcanically derived and somewhat fractured.

Depths to groundwater are estimated to be greater than 100 feet (ft) below ground surface (bgs) and occur in the fractured bedrock at the Sites. The volume of groundwater and the yield of the bedrock are expected to be limited. No surface water features were observed during the UST removal and sampling activities. Much of the General's Hill area where field activities were conducted was observed to be moderately to steeply sloping, therefore limiting the potential for standing surface water bodies to exist. Unalaska Lake is located 0.3 mile or more north of the Sites.

In 1996, four 675-gallon USTs used to store diesel fuel/heating oil were removed, cleaned and disposed as scrap metal. Contaminated soil of 10 to 30 cubic yards (cys) were removed from each UST location. The tanks were observed to be standalone and were probably filled by fuel trucks instead of by a fuel distribution system since there was no evidence of a pipe distribution system. These USTs were installed either on or near bedrock and were covered with a layer of fill. Confirmation sampling indicated diesel ranged organics (DRO) remaining at up to 3,300 mg/kg in soil.

### **Contaminants of Concern**

The four General's Hill USTs were removed, cleaned and disposed of in 1996. All of them were 675-gallon in capacity and used to store diesel fuel/heating oil. Two soil samples beneath each of the USTs were collected and analyzed for DRO, residual ranged organics (RRO), and semi volatile organic compounds (SVOCs). Volatile organic compounds (VOCs) were also analyzed at UST GH-01 & GH-02. DRO was detected above the most stringent ADEC Method Two cleanup level in one of the two samples collected at each UST, ranging from 252 to 3,300 mg/kg. Other analytes were all below the most stringent cleanup criteria. Based on these analyses, DRO was considered the only Contaminants of Concern (COC) at these Sites:

- DRO

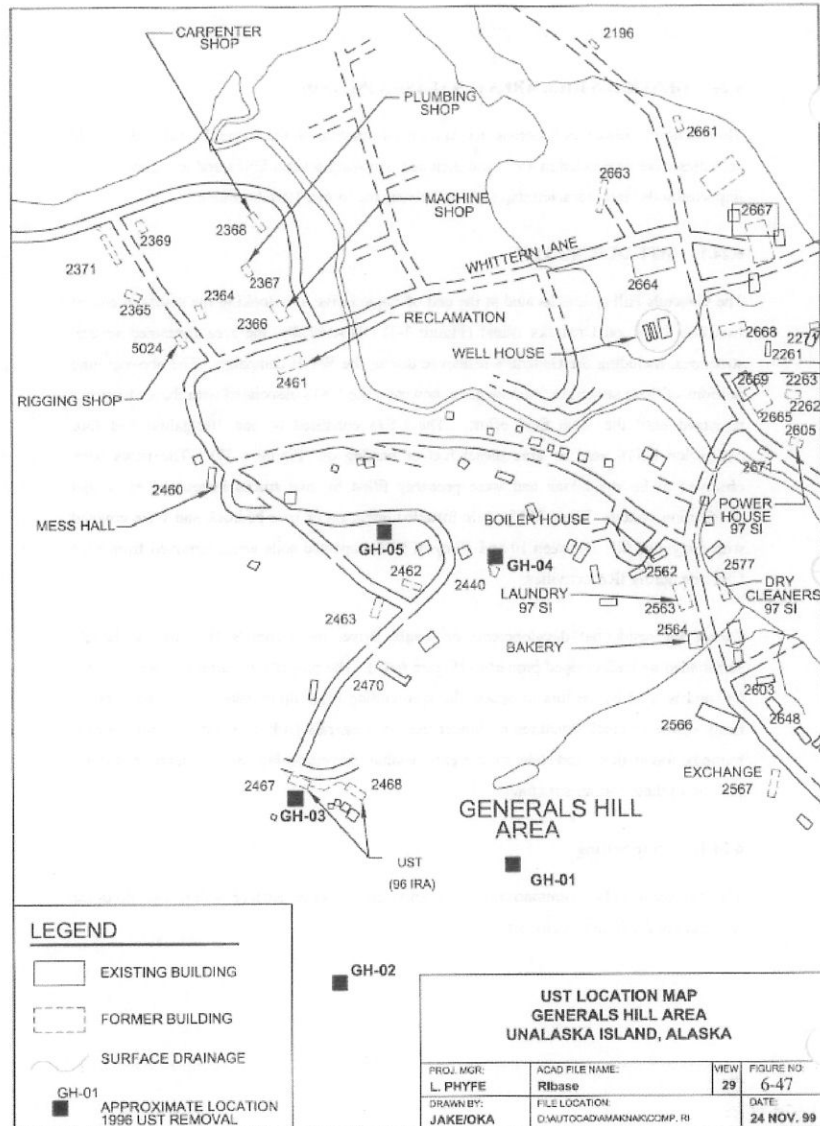


Figure 1 - Layout

### Cleanup Levels

ADEC has approved a site-specific alternative cleanup level (ACL) for DRO of 8300 mg/kg, calculated by ADEC Method Three - Procedures for Calculating Cleanup Levels (September 2016).

Table 1 – Approved Site-specific Cleanup Level

Contaminant	Soil (mg/kg)
DRO	8,300

mg/kg = milligrams per kilogram

### Characterization and Cleanup Activities

The four General’s Hill USTs are located on undeveloped land south of Eagle Drive. The original structures associated with the USTs have been demolished and removed; only the concrete slab foundations remain. The

four USTs were most likely used to store heating oil supplied to the associated structures. All of them were approximately 675 gallons (USTs GH-01, -02, -03, and -04) in size.

In June 1995, EMCON Alaska, Inc. conducted a geophysical survey that included the General's Hill area, with the purpose to locate potential USTs using a magnetometer and ground penetrating radar. Anomalies were identified and characterized as potential USTs. Based on the results of the geophysical survey, one UST anomaly was identified at General's Hill. Additionally, three other USTs were visually identified and documented in another report. Both above-mentioned surveys formed the basis for the following UST removal action.

In 1996, a total of five General's Hill USTs (GH-01 through -05, but GH-05 is not discussed in this letter) were removed, cleaned, and disposed of as scrap metal. Between 10 and 30 cys of contaminated soil were removed from each UST site, for a total of 90 cys. Two soil samples were collected from the bottom of each excavation and analyzed for DRO, RRO, and SVOCs. The samples from USTs GH-01 and -02 were also analyzed for VOCs as well.

At each of the Sites (GH-01, through -04), one of the two sample results for DRO exceeded the ADEC Method Two cleanup criterion (230 mg/kg). Concentrations exceeding the cleanup criterion ranged from 252 to 3,300 mg/kg DRO. However, all sample results were below the calculated Method Three ACL (8,300 mg/kg DRO) for the Sites. Any remaining contaminated soil is located subsurface at about 5-6 ft bgs, minimal in volume, and near bedrock. All other analytes were below the most restrictive Method Two cleanup criteria. Groundwater was not encountered during excavation activities.

Although all four Sites have residual concentrations of DRO exceeding the ADEC Method Two most restrictive migration to groundwater soil cleanup level, the Sites do not pose unacceptable risk to human health and environment for the following reasons: first, the sources of contamination (the USTs) were removed; second, the impacted soils were removed down to bedrock or extent practicable. The remaining impacted soils are limited due to the proximity to bedrock; furthermore, the depth to groundwater in this area is estimated at 100 ft bgs or greater. The groundwater table most likely exists within the fractured bedrock where transmissivity and storativity are both low. Therefore, the potential risks for human or ecological receptors through groundwater intake are limited. Because the tanks were relatively small in size and filled by truck rather than pipeline, any releases would likely be minimal.

### Exposure Pathway Evaluation

Following investigation and cleanup at the Sites, 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 2.

**Table 2 – Exposure Pathway Evaluation**

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Former USTs and a total of 80 cys of impacted soils have been removed and disposed off-site. Any remaining contamination is 5-6 feet bgs.

Sub-Surface Soil Contact	De-Minimis Exposure	Confirmation sampling indicated DRO remaining at 252 to 3,300 mg/kg at 5-6 ft bgs in soil, which is below the approved Method Three ACL of 8,300 mg/kg. Excavations were down to 5-6 ft bgs and encountered bedrock.
Inhalation – Outdoor Air	De-Minimis Exposure	Confirmation sampling indicated DRO remaining at concentrations lower than ADEC inhalation cleanup level of 12,500 mg/kg. Samples were analyzed for VOCs at USTs GH-01 & GH-02, as well as SVOCs at all USTs. VOC's and SVOC's were not detected in any of the samples.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Buildings associated with the USTs were demolished and disposed. Confirmation samples analyzed for VOCs and SVOCs were not detected in any of the samples.
Groundwater Ingestion	De-Minimis Exposure	Confirmation sampling indicated DRO remaining at concentrations below the site specific Method Three ACL. Groundwater is expected at 100 ft bgs or greater in fractured bedrock. The transmissivity and storativity of groundwater in bedrock are both low and not posing high risk to the environment.
Surface Water Ingestion	Pathway Incomplete	No surface water was observed in the vicinity of the USTs during the field activities. The area is moderately to steeply sloping so that the potential for surface water is low. There is possibility that the groundwater is connected to surface water nearby. But since the contamination in Groundwater is minimal, there is no significant risk in surface water.
Wild and Farmed Foods Ingestion	Pathway Incomplete	Former USTs and most of the impacted soil were removed. The remaining DRO concentration at 5-6 ft bgs is lower than the ingestion cleanup level of 8,250 mg/kg.
Exposure to Ecological Receptors	De-Minimis Exposure	Former USTs and most of the impacted soil were removed. Confirmation sampling indicated DRO remaining at 252 to 3,300 mg/kg at 5-6 ft bgs and is not accessible or bioaccumulative.

**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.

**ADEC Decision**

Soil and groundwater contamination at the Sites have been cleaned up to concentrations below the approved cleanup levels suitable for residential land use. The Sites 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.

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 the Sites 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 the Sites 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) 269-0298, or email at [linda.liu@alaska.gov](mailto:linda.liu@alaska.gov).

Sincerely,



Linda Liu  
Environmental Project Manager

Electronic cc: Spill Prevention and Response, Cost Recovery Unit  
Kimberly DeRuyter