



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: 475.38.006

June 19, 2015

Lisa Geist
USACE, AK District
P.O. BOX 6898
JBER, AK 99506-0898

Re: Site Closure Documentation for Davidson's Landing

Dear Ms. Geist:

The Alaska Department of Environmental Conservation (ADEC) has completed a review of the environmental records associated with the Davidson's Landing Formerly Used Defense Site (FUDS), F10AK0086. Based on this review we are issuing a Cleanup Complete determination. This decision letter memorializes the site history, cleanup actions, and standard conditions for long-term site management. No further remedial action is required.

Site Name and Location

Davidson's Landing
Davidson's Landing, AK

DEC Site Identifiers

File No: 475.38.006
Hazard ID: 1152

Regulatory Authority for Determination

18 AAC 75.380

Site Description and Background

The Davidson's Landing FUDS is located approximately 32 air miles east of Teller and 41 air miles north of Nome, Alaska. It is situated along the west bank of the Unnamed Slough, approximately 1/4 mile east of the Kaviruk River. Both bodies of water drain southwards to the Imuruk Basin on the Seward Peninsula of western Alaska. It is located in Township 3, Range 3, Section 8 of the Kateel River Meridian, at latitude 65°14'8" North and longitude 165°16'17" West. There are no roads to Davidson's Landing and the area is uninhabited. There are no commercial or residential water sources at the site.

Davidson's Landing was established in 1906 as a supply landing point on the Kaviruk River as support for the Kougarok gold mining district and was developed while under control of the Department of the Interior (DoI). The site was transferred to the military in 1945 and was developed as an emergency satellite airfield and fuel cache during World War II. In 1949 the site was transferred back to the DoI, Bureau of Land Management; ownership of the site has since been transferred to Mary's Igloo Native Corporation and a native allottee.

Davidson's Landing has been a petroleum, oil, and lubricants (POL) contaminated site. The emphasis of cleanup activities has been to remove all leaking or non-leaking drums and drum carcasses and any associated contaminated liquids and contaminated soils.

Contaminants of Concern and Cleanup Levels

The United States Army Corps of Engineers (USACE) has been conducting investigations and restoration activities at Davidson's Landing since 1985. As provided in the September 2013 Decision Document titled *Hazardous, Toxic, and Radioactive Waste (HTRW), Project #F10AK0086-03, Davidson's Landing Formerly Used Defense Site (FUDS), Davidson's Landing, Alaska*, analytical results for soil, sediment, and water in all previously remediated areas were below applicable ADEC cleanup levels used to determine risk to human health and the environment. Because sediment cleanup levels have not been promulgated in the State of Alaska, sediment sample analytical results were compared to the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRTs) threshold effects level (TEL) and probable effects level (PEL) values for inorganics and organics. The TEL represents the concentration below which adverse effects are expected to occur only rarely and the PEL represents the concentration above which adverse effects are frequently expected. The NOAA SquiRT values are intended for screening purposes only and do not represent official NOAA policy or constitute cleanup levels. All sediment results were below TEL criteria and the ADEC Table B migration to groundwater soil cleanup levels (as available) with the exception of naphthalene. The highest concentration of this analyte in sediment was 0.0954 mg/kg, an amount slightly above the TEL value, but below both the PEL value and the ADEC Table B migration to groundwater (most stringent) cleanup level of soil of 20 mg/kg.

The 2013 Decision Document identified one remaining remedial action to be completed before site closure could be recommended for the Davidson's Landing site- the removal of four partially buried drums located on the west bank of the Unnamed Slough. The primary contaminant of concern was diesel range organics (DRO), with an ADEC Method 2 Under 40-Inch Zone Migration to Groundwater cleanup level of 250 mg/kg.

Characterization and Cleanup Activities

The USACE identified six areas of potential concern in 1985 and led several investigations between 1985 and 1993 to evaluate environmental contamination at Davidson's Landing. The first removal action was undertaken in 1994. The following table (adapted from the 2013 Decision Document) provides a summary of removal actions taken since 1993:

Table 1 – Cleanup Activities

Year	Description of Action
1994	A total of 165 tons of debris were shipped to Nome for disposal. A total of 73 tons of wood debris were burned onsite. Eight drums of fuel/oil, two 5-gallon buckets of oil, and eight drums of lead batteries were shipped offsite for disposal. Soil, sediment, and surface water samples were collected. A biovent cell was 1995constructed and DRO-contaminated soils were placed in the cell.
1995	An additional biovent cell and a landfarm treatment area were constructed and filled. Work included soil excavation, field screening, sampling, soil boring and test trenching. Soil, sediment, and surface water samples were taken from the Unnamed Slough (aka Mary's Lake Extension). Results were below cleanup levels. Twenty drums were removed from the slough and transported offsite. Lead contaminated soil was excavated from the West Area and shipped offsite.
1996	Biovent and landfarm cells were tilled twice and soil samples were collected in the spring and fall. Analytical results indicated that approximately 74 cy of contaminated soils remained in the biovents and landfarm.
1998	Additional testing determined that soils in one of the biovents and the landfarm were below cleanup levels. Two of 34 samples of the first biovent cell were in excess of cleanup levels. Arsenic exceeded ADEC cleanup levels but was within background ranges.
2000	Fifteen cy of contaminated soils were removed from the biovent area and shipped offsite for disposal. No further cleanup was required based on excavation floor sampling.
2008	Soil, sediment, and surface water samples were collected from the second biovent area, landfarm, and the Unnamed Slough. No further action was recommended for the biovent and landfarm areas. No further cleanup action was necessary for the sediments of the Unnamed Slough. An underwater survey was recommended to determine if additional drums were present in the slough.
2009	Four drums were located in the west bank of the slough and 4-5 drum carcasses were located within the slough. Removal of the drums, drum carcasses, and any contaminated soil along the west bank was recommended.

A Focused Feasibility Study was conducted in 2012 in which previous site activities were summarized and potential remedial action alternatives were identified. The above referenced Decision Document was completed in 2013; the selected remedy was the removal of drum carcasses from the Unnamed Slough, excavation and disposal of any POL contaminated soil, and re-vegetating the excavated areas.

The selected remedy was carried out in 2014. A total of seven semi-intact drums (including the four drums identified in the 2013 Decision Document) were removed from the west bank of the Unnamed Slough, five of them submerged in a small tributary slough. Additional drum pieces were removed from four distinct but adjacent areas within the Unnamed Slough. Drums and drum pieces were disposed of off-site. Soil samples were taken from within and under the drums and analyzed for gasoline range organics (GRO), DRO, residual range organics (RRO), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), Resource Conservation Recovery Act (RCRA) metals, nickel (Ni), and vanadium (V). Sediment samples from beneath the submerged drums and drum pieces were analyzed for DRO, RRO, polychlorinated biphenyl (PCB), PAH, benzene, toluene, ethylbenzene, and xylenes (BTEX), and the metals arsenic (As), barium (Ba), cadmium (Cd), chromium (Cr), lead (Pb), Ni, and V. All results were less than the applicable action levels with the exception of DRO in samples collected from beneath the five drums in the small tributary slough. Concentrations of DRO in the sediment ranged from 530 to 1060 mg/kg and from 454 to 857 mg/kg with silica gel cleanup analysis; these concentrations were found over a combined area of less than 30' x 15'. There are no cleanup levels for sediment in the State of Alaska and the sediment was left in place, however, the updated Conceptual Site Model for human health and ecological risk shows that there is low to no risk posed by this.

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 of one across all exposure pathways.

The cumulative risk evaluation is calculated from soil and groundwater analytical results. Based on a review of the environmental record for soil and groundwater analyses, ADEC has determined that residual contaminant concentrations do not pose a cumulative human health risk at the Davidson's Landing site.

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 for the Davidson's Landing site show eight of the nine pathways evaluated to be Pathway Incomplete, and one pathway to be De Minimis Exposure. A summary of this pathway evaluation is included in Table 1.

Table 2 – Exposure Pathway Evaluation

Pathway	Result	Explanation
Surface Soil Contact	Pathway Incomplete	Contamination is not present or is below cleanup levels in surface soil (0 to 2 feet below ground surface). Concentration of DRO remaining in sediment is less than the ADEC soil action levels for ingestion.
Sub-Surface Soil Contact	Pathway Incomplete	Contamination is not present in subsurface soil (2 to 15 feet below ground surface).
Inhalation – Outdoor Air	Pathway Incomplete	Contamination in soil is not present or is below the most stringent cleanup levels.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Soil vapor is not an issue.
Groundwater Ingestion	Pathway Incomplete	The site is underlain by permafrost approximately 2-4 feet below ground surface. There are no wells and the site is uninhabited.
Surface Water Ingestion	De Minimis Exposure	No current use of surface water for drinking water and future use by humans is not expected due to site location
Wild and Farmed Foods Ingestion	Pathway Incomplete	Contaminated soil above cleanup levels for ingestion has been removed; DRO remains in a small area of sediment, but the sediment does not provide a source for wild or farmed foods at this site.
Exposure to Ecological Receptors	Pathway Incomplete	Potential ecological receptors include vegetation rooted in sediments, incidental exposure by fish, foraging for food by birds and terrestrial animals, or dermal contact by burrowing organisms. No endangered or threatened species are known to inhabit the area and the site is not part of or adjacent to a national forest, park, or wildlife reserve.

Note to Table 2: A ranking of "Pathway Incomplete" means that in ADEC's judgment contamination has no potential to contact receptors; a ranking of "De Minimis Exposure" means a determination by ADEC that exposure to receptors is negligible due to the nature of the hazardous substance and/or the magnitude or location of the contamination.

ADEC Decision

The decision to close this site is based on analytical results from previous investigations as summarized in the 2013 Decision Document, and the analytical results from the completion of activities carrying out the selected remedy of removal and disposal of the remaining drums and drum carcasses. 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. 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 any questions regarding this letter, please contact me at (907) 269-7578 or at Meredith.Savage@alaska.gov.

Sincerely,



Meredith Savage
Environmental Program Specialist