



THE STATE  
of **ALASKA**  
GOVERNOR SEAN PARNELL

Department of  
Environmental Conservation

DIVISION OF SPILL PREVENTION & RESPONSE  
Contaminated Sites Program

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File No: 151.38.001

September 9, 2014

Gary Fink  
AFCEC/OLAJ  
10471 20th Street, Suite 317  
JBER AK 99515

Re: Clear AFS Site 13 SS012 Cleanup Complete Determination

Dear Mr. Fink;

The Alaska Department of Environmental Conservation (ADEC) has reviewed the environmental records for Clear Air Force Station, Site SS012, and Abandoned DDT Drum Disposal Area. 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:**

Clear AFS Site 13, SS012  
Clear Air Force Station  
Clear Alaska

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

Gary Fink  
AFCEC/OLAJ  
10471 20th Street, Suite 317  
JBER AK 99515

**DEC Site Identifiers:**

File No: 151.38.001  
Hazard ID: 1120

**Regulatory Authority for Determination:**

18 AAC 75

**Site Description and Background**

Site SS012 was a former dichlorodiphenyltrichloroethane (DDT) drum storage area. DDT, which was banned in the United States in 1972, was historically used to control insects. DDT drums were stored at Site SS012 until sometime between 1981 and 1984, long after DDT was banned. In 1981, a Phase I Preliminary Assessment was conducted at SS012 which identified the site as potentially hazardous. From 1986 through 1988, seven additional boreholes were drilled to maximum depths of 80 ft. bgs to delineate the contamination's vertical extent. Soil samples were collected and two of the borings were converted to monitoring wells for additional groundwater characterization. Samples from these wells were analyzed for dissolved lead, pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and petroleum hydrocarbons. DDT and associated isomers were not detected in the groundwater samples. In 1989, the most heavily DDT-contaminated areas were excavated to 1 ft. bgs. The

excavated soil, which reportedly contained 9,000 milligrams per kilogram (mg/kg) DDT, was containerized in 55-gallon drums for disposal by the Defense Reutilization and Marketing Office. Excavation confirmation sampling indicated that residual DDT contamination remained.

### **Contaminants of Concern**

The following 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.

- 4,4'-DDT,
- 4,4'-dichlorodiphenyldichloroethane (DDD),
- Dichloroethene (DCE)
- methylene chloride,
- 2-methylnaphthalene,
- and naphthalene.

### **Cleanup Levels**

The cleanup levels for soil are based upon the migration to groundwater pathway for the under 40" zone in 18 AAC 75.341, Table B1 for the COCs at this site as documented in the CERCLA Record of Decision

**Table 1 – Approved Cleanup Levels**

DDT	7.3 mg/kg
DDD	7.2 mg/kg
DCE	0.03
Methylene Chloride	0.016 mg/kg
2-Methylnaphthalene	6.1 mg/kg
Naphthalene	20 mg/kg
mg/kg = milligrams per kilogram	

### **Characterization and Cleanup Activities**

In 2006, a supplemental remedial investigation was conducted to fully characterize remaining contamination. The initial investigation included installing groundwater monitoring wells upgradient and downgradient of the source area and collecting samples. The data collected during this investigation were considered insufficient, and additional soil and groundwater samples were collected in 2008. Soil samples had concentrations of DDT, 1,1-dichloroethene (DCE), methylene chloride, 2-methylnaphthalene, arsenic, and chromium above the most stringent ADEC cleanup levels. Pesticides and VOCs were not detected in groundwater.

A Feasibility Study (FS) was completed in 2009 to evaluate remedial alternatives, and in 2010, an amendment to the FS was completed. The FS evaluated six remedial alternatives, including a no action alternative, and the FS Amendment evaluated two additional remedial alternatives. Based on that evaluation, a preferred remedy (Alternative 4C: Human Health Risk and Migration to Groundwater Based Cleanup/Off-Site Disposal) was selected.

In 2011, 150 cubic yards (CY) of soil was excavated from an approximate 25 ft. by 13 ft. area to about 14 ft. bgs. Following excavation, confirmation samples were collected from the base and



sidewalls. VOCs and SVOCs were not detected at concentrations above the ADEC Method 2 cleanup levels. However, one sample collected from the excavation had a DDT concentration of 21 mg/kg, which was above the ADEC Method 2 cleanup level (7.3 mg/kg). Since contaminated soils remained on-site, the excavation was not backfilled. A construction fence was assembled around the open excavation for safety purposes. One monitoring well located within the excavation was abandoned in accordance with the ADEC Monitoring Well Guidance (2009)

On 27 August 2013, after receiving a copy of the dig permit, excavation activities began using a dedicated excavator bucket. Prior to working in the excavation footprint, a bench and steps were constructed to provide a level and stable working area for the excavator. Clean soil removed from outside the excavation footprint during bench and step construction was stockpiled on site for later use as backfill. The clean soil from outside the excavation footprint was not mixed with contaminated soils, which were placed directly into super sacks. Overburden (less than 1 CY) that had sloughed into the open excavation was removed and placed in super sacks for off-site disposal. The excavation was originally advanced to a depth of 12 ft. bgs where compact, previously undisturbed soil was encountered. One analytical sample was collected to confirm the location of previously identified contamination. An additional 2 ft. of soil was excavated to a total depth of 14 ft. bgs and staged in 1 CY super sacks. In total, 17 CY of contaminated soil was loaded into super sacks and disposed.

On 27 August 2013, confirmation soil samples were collected directly from the excavator bucket. One sample (was collected between 11 and 12 ft. bgs to confirm the location of previously identified DDT contamination. After additional soil was removed to depth of approximately 14 ft. bgs, confirmation samples were collected from the excavation base and sidewall.

Confirmation samples collected following the excavation indicated that residual 4,4'-DDT remained in the excavation base, but at concentrations below the applicable ADEC cleanup criteria of 7.3 mg/kg. The excavation sample collected between 11 and 12 ft. bgs, had a 4,4'-DDT concentration of 5.6 mg/kg. The excavation base sample collected at 14 ft. bgs, had a 4,4'-DDT concentration of 3.3 mg/kg. The sidewall confirmation sample, collected from 12 to 13 ft. bgs, had a 4,4'-DDT concentration of 0.0088 mg/kg. DDD was also detected in all of the confirmation samples at a maximum concentration of 0.16 mg/kg, which is below the ADEC cleanup criteria (7.2 mg/kg). Methylene chloride was not detected at concentrations above the ADEC Method 2 cleanup level (0.016 mg/kg) in the samples. There were no other analytes detected above the ADEC cleanup levels.

### **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 noncarcinogenic risk standard at a hazard index 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, 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	Contamination is not present in surface soil (0 to 2 feet below ground surface).
Sub-Surface Soil Contact	De-Minimis Exposure	Contamination remains in the sub-surface, but is below ingestion cleanup levels.
Inhalation – Outdoor Air	Pathway Incomplete	Contamination is not volatile.
Inhalation – Indoor Air (vapor intrusion)	Pathway Incomplete	Contamination is not volatile.
Groundwater Ingestion	Pathway Incomplete	Groundwater contamination is not present.
Surface Water Ingestion	Pathway Incomplete	There is no surface water present.
Wild and Farmed Foods Ingestion	Pathway Incomplete	The area is not used for harvest.
Exposure to Ecological Receptors	Pathway Incomplete	All contamination has been removed to 14' bgs

**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

### ADEC Decision

Remaining contamination in soil is below 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



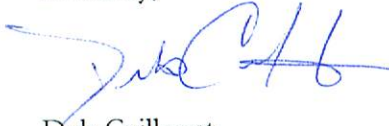
requiring additional assessment and/or cleanup action if future information indicates that this site may pose an unacceptable risk to human health or the environment.

**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) 269-0298.

Sincerely,



Deb Caillouet  
Environmental Program Specialist