

ENVIRONMENTAL RESTORATION PROGRAM

DP98 REMEDIAL ACTION COMPLETE ELMENDORF AFB, ALASKA

December
2009

The U.S. Air Force has implemented all components of the selected remedy to address contamination at DP98. Operations and maintenance (O&M) of the remedy will continue pursuant to the May 2004 DP98 Record of Decision (ROD) until the remedial action objectives are met. The September 2009 DP98 Remedial Action Report describes how the remedies were implemented.

Site Description

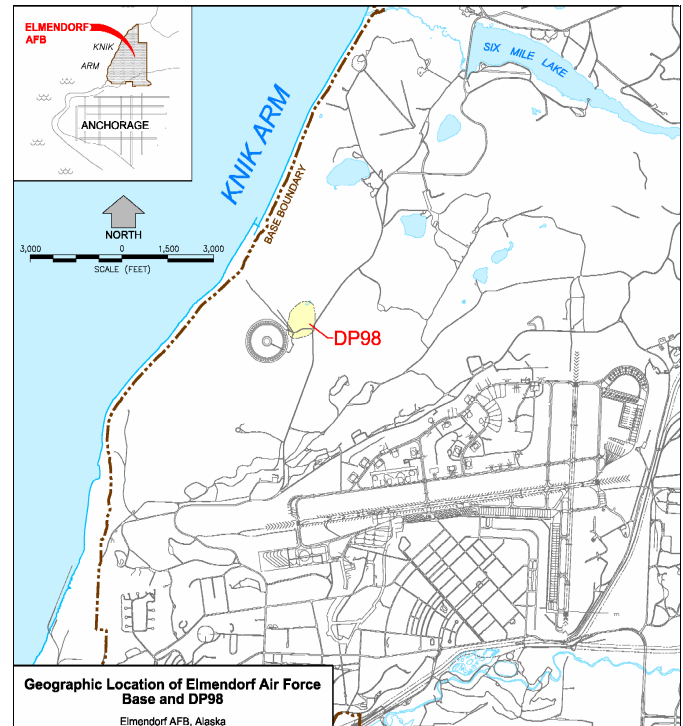
DP98 is located in the northwestern portion of Elmendorf Air Force Base (AFB). The 27-acre site includes a former vehicle maintenance building (Building 18224), two other concrete buildings (Buildings 18218 and 18220), and a fan-shaped area of undeveloped land extending north and west of the perimeter fence. The 381st Intelligence Squadron occupies the structures presently and operates the adjacent antenna array.

The Air Force, in cooperation with the U.S. Environmental Protection Agency and Alaska Department of Environmental Conservation, conducted a Remedial Investigation/ Feasibility Study (RI/FS) regarding contamination at the site in 2003. The results were used to determine appropriate cleanup actions for the site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Contamination at the site appears to have originated from a drain tile extending northwest from Building 18224 and from two underground fuel storage tanks located on the southwest corner of the building. These primary sources are no longer active.

Contaminants at DP98 occur in groundwater, soil and sediment. Soils with high contaminant concentrations are acting as a potential secondary source for groundwater contamination, extending from the former underground storage tanks between Buildings 18224 and 18220 to the southern edge of the wetland. The groundwater contamination is the source of sediment and surface water contamination through discharge at the seeps bordering the wetland.

Contaminants of concern (COCs) identified in the ROD are chlorinated solvents, which may have been used for cleaning parts at the former vehicle maintenance building.



Selected Remedy

The DP98 ROD presents the selected remedy to address the potential threat to human health and the environment from chlorinated solvents in sediment, soil and groundwater. Chlorinated solvents are the COCs that drive the remedial action at the site. Although the site has petroleum hydrocarbon (fuel-related) contamination in soil, sediment and groundwater, remedial actions for petroleum hydrocarbons were excluded from the selected remedy. The presence of these petroleum hydrocarbons is beneficial to the breakdown and remediation of the chlorinated solvents. Petroleum hydrocarbons are expected to degrade by natural processes in the same time frame as the chlorinated solvents.

The selected remedy has been implemented at DP98 and focuses on monitored natural attenuation (MNA) of chlorinated solvents in groundwater, removal of soil thought to be the source of groundwater contamination, and land use controls restricting access to the soil and groundwater until cleanup goals have been met. The components of the remedy include:

- Source material removal
- Monitored natural attenuation
 - Natural attenuation
 - Treatability study
 - Evaluation/compilation of groundwater data
- Land use controls

Contaminants of Concern	Cleanup Level		
	Soil ¹ (mg/kg)	Sediment ¹ (mg/kg)	Groundwater ² (mg/L)
1,1-Dichloroethene (1,1-DCE)	0.03	--	0.007
Cis-1,2-Dichloroethene (cis-DCE)	0.2	0.2	0.07
Tetrachloroethene (PCE)	0.03	--	0.005
Trichloroethene (TCE)	0.027	0.027	0.005
Vinyl Chloride (VC)	--	--	0.002

Notes:
¹18 AAC § 75.341, Table B1 "Method 2 – Soil Cleanup Levels Table". Cleanup levels are based on sites that receive less than 40 inches of precipitation annually.
²40 § CFR 141.61 "Maximum Contaminant Levels for Organic Contaminants".
 "--" = no cleanup level (not a contaminant of concern).

Summary

The table below summarizes the actions that have been taken to implement the remedy. Once it has been documented that groundwater COCs are below chemical-specific requirements, confirmation samples will be collected to verify that sediment and soil COCs are below chemical-specific requirements.

As of October 2008, all remedial actions selected in the ROD have been completed, inspected, and are operational and functional. The completion of these activities is documented in the September 2009 DP98 Remedial Action Report. O&M of the remedies will continue pursuant to the DP98 ROD until the remedial action objectives are met.

The Air Force will continue to sample groundwater in accordance with the MNA component of the selected remedy until groundwater cleanup goals are met. This is expected to occur within 75 years from the signing of the ROD.

The selected remedy will be reviewed every five years until cleanup is achieved for applicability, protectiveness of human health and the environment, and progress toward cleanup.

Glossary

Chlorinated Solvents: Liquid chemical contaminants, such as TCE and PCE, often used as solvents for removing grease from metal or as a dry-cleaning agent. As TCE and PCE break down in the environment, other chlorinated compounds (DCE and VC) are generated. These compounds finally break down to the gas ethene.

Monitored Natural Attenuation (MNA): The mechanism used to track the natural physical, chemical and biological processes that break down contaminants in soil and water.

For More Information

The final DP98 Remedial Action Report and other supporting documents are located at the information repository.

Alaska Resources Library & Information Services
University of Alaska, Anchorage Consortium Library
3211 Providence Drive, Anchorage, AK 99508
Phone: (907) 786-7650

Or contact: Ms. Renée Wright
Environmental Community Relations Coordinator
e-mail: renee.wright@elmendorf.af.mil
3rd Wing Public Affairs (3 WG/PA)
10480 22nd Street Room 118
Elmendorf AFB, AK 99506
Phone: (907) 552-5756

Implementation of Selected Remedy	
Remedy Component	Fulfillment Metric
<i>Source Material Removal</i>	2005: Excavated and disposed of 512 cubic yards of contaminated soil from the outfall area of the drain tile that extended northwesterly from Building 18224.
<i>Monitored Natural Attenuation – Long-term Groundwater Monitoring</i>	2004 – Present: Ongoing collection and evaluation of groundwater data determines whether MNA is addressing COCs as expected. Results are reported annually. Monitoring has identified two areas where natural attenuation may be less effective than anticipated. An ongoing data-gap evaluation seeks to better outline the extent of contamination and rate of natural attenuation in these two areas. The selected remedy will be reviewed every five years for applicability, protectiveness of human health and the environment, and progress toward cleanup.
<i>Monitored Natural Attenuation – Treatability Study</i>	2004 – 2005: A small-scale study of natural attenuation and enhanced bioremediation was performed. 2005 – 2008: A field study of enhanced biodegradation was performed. The study determined that some but not all steps in the natural attenuation process could be accelerated. This limits the overall potential effectiveness of enhanced biodegradation.
<i>Monitored Natural Attenuation – Compilation and Evaluation of Groundwater Data</i>	2008: Groundwater results from 2004 to 2007 were evaluated to determine whether the remedial action was meeting both short-term and long-term objectives. The main plume was found to be attenuating and cleanup is predicted in 64 years (by 2068). The TCE plume to the north was found to contain increasing concentrations and a cleanup date could not be predicted. An ongoing data-gap evaluation seeks to better outline the extent of contamination and rate of natural attenuation in this area.
<i>Land Use Controls</i>	2002: Interim land use controls were put in place. 2004: Revised land use boundaries and language were incorporated into the Base General Plan. The use of contaminated groundwater throughout DP98 for any purpose is prohibited. Any excavation, digging, or drilling at DP98 will meet procedural requirements and use engineering controls to reduce the possibility of migration or exposure to contaminants.