

## Site Name and Location

Site LF04  
Elmendorf Air Force Base, Alaska  
Operable Unit (OU) 6

## Statement of Purpose

The purpose of this document (Memorandum to the Site File) is to present a non-significant or minor change to the Record of Decision (ROD) signed for Operable Unit (OU) 6 at Elmendorf Air Force Base (EAFB), Alaska. OU 6 includes three former landfills (LF02, LF03, and LF04), two sludge disposal pits (SD15 and WP14), a surface disposal area around a rock testing laboratory (SD73), and a former storage bunker (SS19). The minor change to the *OU 6 ROD* involves changing the frequency of debris removal at LF04 North from annually to once every three years.

The *ROD* signed by the United States Environmental Protection Agency (USEPA) on 4 Dec 1996, Alaska Department of Environmental Conservation (ADEC) on 2 Jan 1997, and United States Air Force (USAF) on 27 Jan 1997, presents the selected remedial actions for OU 6. It was prepared in accordance with Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Chapter 40 of the Code of Federal Regulations (CFR), Section 300.430 of the National Oil and Hazardous Substances Pollution Contingency Plan.

The *OU 6 ROD* has been revised by two memorandums to the site file and an explanation of significant differences (ESD). The first revision was the *OU6 Memorandum to the Site File*, September 2003, which outlined changes to the sampling frequency of groundwater wells and the inclusion of portions of the shallow soils at site SD15 in a high-vacuum extraction (HVE) treatability study. The second revision was the *OU 6 ESD*, June 2007, which allowed for the termination of the high-vacuum extraction (HVE) system at SD15, established 18 AAC 75.345 as a chemical-specific Applicable or Relevant and Appropriate Requirements (ARAR) for sites LF02 and SD15, resulting in a new cleanup level for 1,1,2,2-tetrachloroethane and provided clarification on how land use controls (LUCs) would be implemented at OU 6 sites. The most recent revision was the *LF04 Memorandum to the Site File*, March 2008, which removed the reference to the “beach area” for the LF04 North remedy in acknowledgement of the Port of Anchorage Expansion.

This Memorandum to the Site File was prepared in accordance with the USEPA *A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents*, July 1999, Section 7.3.1 and Highlight 7-1, and will become part of the administrative record for OU 6 and EAFB, Alaska.

## Site History, Contamination, and Selected Remedy

### Site History

EAFB was proposed for the National Priorities List (NPL) in 1989 and placed on the NPL in August 1990. In November 1991, a Federal Facilities Agreement (FFA) was negotiated between the USAF, USEPA and ADEC. The FFA established a procedural framework and schedule for all CERCLA activities conducted on EAFB. Twenty-nine disposal/source areas were identified and organized into seven OUs on the basis of geographic proximity and similar source characteristics or contaminants. In accordance with the Base Realignment and Closure (BRAC) Act, EAFB

merged with the Fort Richardson Army Post forming Joint Base Elmendorf-Richardson (JBER) in October 2010. Cleanup of LF04 continues to be managed under the EAFB FFA.

LF04 is located east of the Knik Arm Bluff and west of the east-west runway on EAFB. The landfill parallels the Knik Arm for a distance of approximately 3,000 feet and is approximately 600 feet wide. The ground surface along the southern end of the landfill slopes toward Knik Arm, where the bluff is less pronounced.

LF04 was used as a surface dump from 1945 and 1957. Old cars, construction rubble, and small quantities of general refuse were dumped at the landfill, in addition to an unknown number of 55-gallon drums. Observations made from the former beach area suggest that the landfill material was also burned in place. The surface of the landfill is covered with soil and vegetation; however, former tidal action along the base of the bluff has eroded the bluff face and exposed portions of the landfill. Over time, debris has drifted downslope from the landfill onto the former beach area. Expansion work at the Port of Anchorage was completed in 2009 and has filled most of the former beach area adjacent to LF04, eliminating tidal influence along the base of the bluff. The rate of erosion and exposure of landfill debris has been substantially reduced.

### **Site Contamination**

Soil contamination identified at the site in 1996 include pesticides, dioxins and furans, metals, polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), and fuel-related constituents (*OU 6 Remedial Investigation/Feasibility Study*, 1996). Similar contamination was identified in groundwater, as well as, halogenated volatile organic compounds. Several principal sources of contamination were identified at LF04, including past waste management practices, leaking fuel facilities, and migration from upgradient sources. Past waste management practices included dumping of automotive and aviation batteries, drums, old transformers, metallic waste, and pesticides.

The contaminants of concern (COC) at LF04 were developed in the *OU 6 ROD* by evaluating the risk assessment results and considering applicable preliminary remediation goals (PRGs). Each constituent having an individual carcinogenic contribution greater than  $1 \times 10^{-6}$  or a hazard quotient greater than 0.1 was considered a COC. In addition, any constituent exceeding PRGs was retained as a COC. Groundwater COCs include benzene, ethylbenzene, toluene, 1,2-dichloroethane, and methylene chloride. Exposed landfill waste was the only concern identified in shallow soils (0 to 5 feet below ground surface [bgs]). No COCs were identified for soils deeper than 5 feet bgs.

### **Selected Remedy**

The following three remedial action objectives were developed and presented in the ROD for LF04:

- For LF04 South Bluff groundwater, prevent the ingestion, dermal contact, and inhalation of vapors from groundwater having benzene, toluene, ethylbenzene, 1,2-dichloroethane, and methylene chloride in excess of maximum contaminant levels (MCLs) and/or resulting in a cancer risk greater than  $1 \times 10^{-4}$  or hazard index greater than 1.0.

- For LF04 North soil, mitigate human dermal exposure to landfill waste or debris, to the extent practicable.
- Mitigate exposure of environmentally sensitive receptors to landfill waste, to the extent practicable. Relevant exposure pathways for wildlife include incidental ingestion of contaminated soil, ingestion of contaminated vegetation, and ingestion of contaminated animals (e.g., insects and earthworms).

To accomplish these objectives, the selected remedy for LF04 South groundwater was long-term groundwater monitoring with institutional controls and product removal. The selected remedy for LF04 North soil was annual removal of debris that had fallen or eroded onto the Port of Anchorage fill.

The specific components of the selected remedy in the *OU 6 ROD* and subsequent revisions are stated below:

#### **Groundwater (North)**

- No further action is required for the groundwater at LF04 North.

#### **Groundwater (South)**

- Access to groundwater at LF04 South will be institutionally controlled. LF04 is currently designated as a “restricted use area” in the Base General Plan. This designation provides for recreational use of the parcel (e.g., cross country skiing) and for construction of unmanned facilities such as a parking lot, storage building, or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. Drilling into the shallow aquifer is also restricted by the Base General Plan to prohibit residential or agricultural use of contaminated groundwater. (Land Use Controls will be managed and implemented in accordance with the *OU 6 ESD*, Section 4.3.).
- Groundwater will be monitored and evaluated as indicated by the Decision Guide in the *OU 6 Memorandum to the Site File*, Appendix A to determine contaminant migration and to track the progress of contaminant degradation and dispersion, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site conditions, as long as contamination remains above cleanup levels.
- Recoverable quantities of free product found on top of the water table at LF04 will be regularly removed during groundwater monitoring events.
- Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events, in which case, no further action for groundwater will be required.
- During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded MCLs during the 1994 investigation, including volatile organic compounds (VOCs), SVOCs, and metals. These results will be evaluated before a final

determination is made that groundwater meets all cleanup requirements. (Table 3.1 of the *OU 6 ESD* provides a list of specific constituents to be sampled and analyzed.).

- All groundwater is expected to be cleaned up within 14 years.

#### **Soil (North)**

- Access to soil at LF04 North will be institutionally controlled. LF04 is currently designated as a "restricted use area" in the Base General Plan. This designation provides for recreational use of the parcel (e.g., cross-country skiing) and for construction of unmanned facilities such as a parking lot, storage building, or taxiway, but prohibits the construction of any sort of manned facility, such as an office building or a residence. (Land Use Controls will be managed and implemented in accordance with the *OU 6 ESD*, Section 4.3.).
- No further action is required for soil contamination at LF04 North; however, landfill debris on the Port of Anchorage fill that is at the base of LF04 will be removed annually as the specific remedy for this area.
- The removal of debris will include all LF04 landfill material which has fallen onto the Port of Anchorage fill that is at the base of LF04 that can be reasonably collected for disposal, as well as debris on the bluff slope or other low-lying areas that can be accessed and removed without hazard.
- Hazardous materials encountered during the annual removal events will be handled according to appropriate regulations.
- The removal of debris from the Port of Anchorage fill at the base of LF04 is expected to continue annually for 30 years or as long as the landfill remains subject to erosional action by tides. Five-year reviews will assess the protectiveness of the remedial action, including evaluation of any changed site conditions.
- No further action will be required as a means of closing the LF04 landfill.

#### **Soil (South)**

- No further action is required for the soil at LF04 South.

The selected remedies for groundwater, seeps, and soils have been implemented. Groundwater samples are collected from LF04 South seeps as part of the Basewide Groundwater Monitoring Program.

The LF04 North soil remedy is implemented through debris surveys and removal actions conducted annually since 1997. The implementation of the remedy is addressed in the *LF04 Operations and Maintenance Plan*, July 2010.

The remedy also calls for a 5-year review, as required by CERCLA. This review was conducted in 2003, 2008, and 2014 to determine whether the selected remedy remains protective of human health and the environment. The results of the 2014 5-year review indicated that debris removal levels at LF04 have decreased by 99.9% from 2007 to 2008, and have remained extremely low for the past 7 years (2009 through 2015). The remedial action selected remains protective of human health and the environment.

### Basis for This Document

This minor revision to the ROD will reduce the debris removal frequency from “annually” to “once every three years”. Since the Port of Anchorage expansion in 2007/2008, tidal action is no longer eroding the LF04 bluff and the amount of debris collected annually has steeply declined from 8.5 tons in 2007 to less than 0.05 tons (approximately 100 pounds) in 2015. The following table lists the amount of debris removed each year since 1997.

LF04 Debris Removal Summary				
Year	Quantity of Debris Removed (tons)		Year	Quantity of Debris Removed (tons)
1997	98		2007	8.5
1998	25		2008	0.14
1999	29		2009	0.15
2000	12		2010	0.25
2001	34		2011	0.42
2002	18		2012	0.025
2003	16.9		2013	0.48
2004	3.6		2014	0.23
2005	11.1		2015	0.05
2006	7.2			

The following table summarizes the components of the ROD and the minor changes that are proposed.

ROD Component	Explanation of Minor Differences	Rationale for Change
<b>Source Area LF04</b>		
<b>Groundwater (North)</b>		
No further action is required for the groundwater at LF04 North.	No change.	
<b>Groundwater (South)</b>		
Access to groundwater at LF04 South will be institutionally controlled. LF04 is currently designated as a "restricted use area" in the Base General Plan. This designation provides for recreational use of the parcel (e.g., cross country skiing) and for construction of unmanned facilities such as a parking lot, storage	No change.	

ROD Component	Explanation of Minor Differences	Rationale for Change
building, or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. Drilling into the shallow aquifer is also restricted by the Base General Plan to prohibit residential or agricultural use of contaminated groundwater. (Land Use Controls will be managed and implemented in accordance with the <i>OU6 ESD</i> , Section 4.3.)		
Groundwater will be monitored and evaluated as indicated by the Decision Guide in the <i>OU6 Memorandum to the Site File</i> , Appendix A to determine contaminant migration and to track the progress of contaminant degradation and dispersion, as well as to provide an early indication of unforeseen environmental or human health risk. Five-year reviews will also assess the protectiveness of the remedial action, including an evaluation of any changed site conditions, as long as contamination remains above cleanup levels.	No change.	
Recoverable quantities of free product found on top of the water table at LF04 will be regularly removed during groundwater monitoring events.	No change.	
Groundwater monitoring will be discontinued if contaminant levels are below cleanup levels during two consecutive monitoring events, in which case, no further action for groundwater will be required.	No change.	
During the final round of monitoring, samples will be collected and analyzed for all constituents that exceeded MCLs during the 1994 investigation, including VOCs, SVOCs, and metals. These results will be evaluated before a final determination is made that groundwater meets all cleanup requirements. (Table 3.1 of the <i>OU6 ESD</i> provides a list of specific constituents to be sampled and analyzed.)	No change.	
All groundwater is expected to be cleaned up within 14 years.	No change.	
<b>Soil (North)</b>		
Access to soil at LF04 North will be institutionally controlled. LF04 is currently designated as a “restricted use area” in the Base General Plan. This	No change.	

ROD Component	Explanation of Minor Differences	Rationale for Change
designation provides for recreational use of the parcel (e.g., cross country skiing) and for construction of unmanned facilities such as a parking lot, storage building, or taxiway, but prohibits the construction of any sort of manned facility such as an office building or a residence. (Land Use Controls will be managed and implemented in accordance with the <i>OU6 ESD</i> , Section 4.3.)		
No further action is required for soil contamination at LF04 North; however, LF04 landfill debris on the Port of Anchorage fill that is adjacent to LF04 will be removed annually as the specific remedy for this area.	No further action is required for soil contamination at LF04 North; however, landfill debris on the Port of Anchorage fill that is adjacent to LF04 will be removed once every three years as the specific remedy for this area.	Since completion of the Port of Anchorage expansion, debris accumulation and removal has steeply declined to levels below 0.5 ton (a 99% reduction in debris). Based on the continued low volume of removed debris (from 2009 through 2015), this change to the debris removal frequency will be protective.
Removal of debris will include all LF04 landfill material that has fallen onto the newly constructed Port of Anchorage fill and can be reasonably collected for disposal, as well as debris on the bluff slope or other low lying areas that can be accessed and removed without hazard.	No change.	
Hazardous materials encountered during the annual removal events will be handled according to appropriate regulations.	Hazardous materials encountered during each removal event (once every three years) will be handled according to appropriate regulations.	Reference to the annual removal event will be changed to once every three years to coincide with the reduced frequency of debris removal events.
Removal of fallen debris from LF04 is expected to continue annually for 30 years or as long as the landfill remains subject to erosional action by tides. Five-year reviews will assess the protectiveness of the remedial action, including an evaluation of any changed site conditions.	Removal of fallen debris from LF04 is expected to continue once every three years for 30 years or as long as the landfill remains subject to erosional action by tides. Five-year reviews will assess the protectiveness of the remedial action, including an evaluation of any changed site conditions. In the event of a significant weather or seismic event, inspection and/or collection activities may occur more frequently than the 3 year schedule.	Reference to the annual removal event will be changed to once every three years to coincide with the reduced frequency of debris removal events. Tidal activity has been reduced since the completion of the Port of Anchorage Expansion; therefore, the timeframe for debris removal may be reduced. Five-year reviews will continue to assess the progress of the remedy.
No further action will be required as a means of closing the LF04 landfill.	No change.	

ROD Component	Explanation of Minor Differences	Rationale for Change
<i>Soil (South)</i>		
No further action is required for the soil at LF04 South.	No change.	

This change in the ROD does not significantly change or fundamentally affect the remedy selected in the ROD; therefore, no public comment is required.

Approved by:



TERESA A. LEE, GS-13  
Team Lead, Environmental Restoration

11/3/16

Date

Concurrence by:



SANDRA HALSTEAD, Remedial Project Manager  
United States Environmental Protection Agency, Region X

11/3/2016

Date



LOUIS HOWARD, Remedial Project Manager  
Alaska Department of Environmental Conservation, Contaminated Sites Program

Nov. 3, 2016

Date