



King Salmon Air Station 2005 Fact Sheet



2004-2005 RPO, Monitoring, Operation, and Maintenance Activities

This Fact Sheet, presented by the U. S. Air Force 611th Civil Engineer Squadron and the Air Force Center for Environmental Excellence, provides information on environmental restoration activities performed at King Salmon Air Station in 2004 and 2005. The primary activities performed in 2004 and 2005 are listed below and summarized in this Fact Sheet.

- Implementation of recommendations from the Air Force's Remedial Process Optimization (RPO) program, in which nationwide third-party experts evaluated remediation strategies for all KSAS contaminated sites and identified ways to make improvements. The final RPO report is due out in November or December 2005.
- Preparation of the first five-year review of remediation at KSAS contaminated sites. The final five-year review report is due out in November or December 2005.
- Operation and maintenance of the South Bluff and Eskimo Creek groundwater treatment systems.
- Operation and maintenance of seven full-scale soil bioventing systems. Remediation completed and closure of five of the soil bioventing sites.
- Long-term monitoring in compliance with Records of Decision (ROD) for Groundwater Zones 1, 2, 3, 4, and 6.
- Ongoing preparation of a ROD for landfills and fire training areas (in Groundwater Zone 5) and for Naknek Recreation Camp II (Lake Camp).
- Continuation of Restoration Advisory Board (RAB) meetings.



Restoration Advisory Board Information:

The King Salmon Restoration Advisory Board (RAB) provides a forum for communication among community members, local government representatives, the U.S. Air Force, and regulatory agencies.

The next meeting will be held on September 20, 2005 at 7 pm in the base lounge. For more information contact David Hertzog at dave.hertzog@elmendorf.af.mil or call him at (800) 222-4137

Eskimo Creek and South Bluff Treatment Systems

The RPO team recommended modifications to the Eskimo Creek and South Bluff treatment systems which were explained in a June 2005 Fact Sheet and discussed in April 19 and June 21, 2005 public meetings. The recommendations are summarized below.

- The French Drains at the Eskimo Creek Treatment System are no longer effectively removing petroleum product from the groundwater. Therefore, use of the Eskimo Creek Treatment System will be phased out, and the upgradient bioventing system will be expanded to provide additional source treatment.
- The South Bluff Treatment System has been found to be treating uncontaminated groundwater. Therefore, a bypass line was installed from the lift station discharge directly to the leach field. In the unlikely event of a potential future contaminant release, the wetland will act as a treatment system for the groundwater before it is discharged to King Salmon Creek.

Both treatment systems will be maintained in standby mode in case they need to be restarted.

Seven Bioventing Systems

In 2004, soil confirmation sampling at five of the seven bioventing systems operating to reduce petroleum hydrocarbon contamination levels in soil (Buildings 154, 157/159, 306, and 307 in the Base Industrial Area and Building 76-200 in the Base Living Area) indicated that cleanup levels had been met. The bioventing systems were shut down in November 2004 (except Building 157/159 is scheduled for shut down in fall 2005).

The two remaining bioventing systems (Bio4x in the Base Living Area and RAPCON in Groundwater Zone 5) continue to operate.

What is Bioventing?

Bioventing is a soil treatment method in which naturally-occurring biological processes are enhanced to treat contaminated soil. Bioventing consists of air injection, vacuum extraction, or a combination of the two, to increase oxygen content in the soil, thereby increasing the biodegradation rate.

OT027-Base Living Area (Groundwater Zone 1)

Long-Term Monitoring: The third long-term monitoring event required under the Interim ROD for OT027 was performed in 2004. Monitoring results from 2004 indicate that the trichloroethene (TCE) and diesel-range organics (DRO)/free product plumes above cleanup levels are generally similar to previous years', indicating that the plumes are stable or shrinking. The RPO team performed a more intensive sampling and analysis, and their results are summarized below.

RPO Investigation and Recommendations: The RPO team installed numerous sampling points to perform an intensive investigation of the **TCE plume**. They concluded that the TCE plume is very complex and recommended further investigation for 2005, including pilot tests for enhanced bioremediation of the TCE. The RPO team also recommended a decrease in sampling frequency for surface water/sediment sampling and the **DRO/free product plume** long-term monitoring, since it has been stable over the duration of the long-term monitoring. For the **DRO/free product source area**, the RPO team recommended expansion of the current Bio4x bioventing system, periodic collection of free product samples, and expanded free product monitoring.

What is Natural Attenuation?

Natural attenuation (also known as intrinsic remediation) is a groundwater cleanup method that relies on natural processes (dilution, dispersion, adsorption, volatilization, and natural biological processes) to degrade groundwater contamination. Long-term monitoring is used to measure the cleanup progress.

OT028-Base Industrial Area (Groundwater Zone 2) and Eskimo Creek Dump

Long-Term Monitoring: The first long-term monitoring event required under the Final ROD for OT028 was performed in 2004. Monitoring results from 2004 show a gasoline-range organics (GRO) and benzene plume and a small TCE plume above cleanup levels. Contamination levels detected in 2004 were similar to or less than contamination levels

detected previously, indicating that the plumes are stable or shrinking and that the contamination is naturally attenuating.

RPO Recommendations: The RPO team recommended a soil gas survey to further investigate the source area for the GRO/benzene plume; depending on the soil gas survey results, bioventing may be expanded to treat soil contamination.

OT029-North and South Bluff (Groundwater Zone 3)

Long-Term Monitoring: The fifth annual long-term monitoring event required under the Final ROD for OT029 was performed in 2004. Samples were collected from the shallow A-Aquifer monitoring wells, deeper B-Aquifer sentry wells (the sentry wells were installed as an early warning system to protect the drinking water supply of nearby residents), surface water, and wetland sediments. The 2004 sample results were generally similar to previous years' results, with only metals detected above groundwater and surface water cleanup levels.

RPO Recommendations: Based on the long-term lack of evidence of contamination at the Bluffs, the RPO team prepared a revised Post Closure Monitoring Plan to assist future decisions regarding sampling frequency. Most metals have been shown to be naturally-occurring and not the result of Air Force activities; therefore analysis for all metals except lead and cadmium has been discontinued. The revised Decision Guide was applied to the 2004 long-term monitoring results. Based on the evaluation in the guide, sampling frequency for the Bluffs monitoring was decreased, and the next monitoring event is scheduled for 2006. Monitoring will be conducted on a reduced basis through 2015.

OT030-Naknek River Storage (Groundwater Zone 4)

Long-Term Monitoring: The fifth annual long-term monitoring event required under the Final ROD for OT030 was performed in 2004. Monitoring results from 2004 A-Aquifer sampling indicate that the two DRO/GRO/BTEX plumes and one DRO plume above cleanup levels are generally similar to previous years', indicating that the plumes are stable or shrinking and that the contamination is naturally attenuating. TCE has not been detected since before 2001, indicating that the

TCE has intrinsically remediated; therefore TCE monitoring can be discontinued.

RPO Recommendations: The RPO team recommended a soil gas survey to further investigate the petroleum hydrocarbon source areas. The soil gas survey was conducted in June/July 2005; based on the soil gas survey results, continued long-term monitoring is recommended. The RPO team also recommended decommissioning the free product recovery system, based on three years of no product accumulation or recovery. The RPO team further recommended a decrease in sampling frequency for the surface water/sediment samples and some of the groundwater monitoring wells.

OT031-Landfills and Fire Training Areas (Groundwater Zone 5)

Record of Decision: A Final Record of Decision (ROD) is in progress to document final remedies selected for the landfills and fire training area sites. Completion of the ROD is expected by early 2006.

OT032-Naknek Recreation Camp I (Rapids Camp Landfill)

Long-Term Monitoring: The fifth annual long-term monitoring event required under the Final ROD for OT032 was performed in 2004. No contaminants were detected above cleanup levels in any of the five long-term monitoring events; therefore, discontinuation of Rapids Camp monitoring is recommended. The Rapids Camp Landfill inspections found the landfill cap to be in good condition. .

OT033- Naknek Recreation Camp II (Lake Camp)

Record of Decision: A Final Record of Decision (ROD) is in progress to document final remedies selected for Lake Camp sites. Completion of the ROD is expected by early 2006.

RPO Investigation and Recommendations: The RPO team collected surface water and sediment samples from the Lake Camp wetland. Due to a quality control problem, the 2004 pesticide results were not useable and will be recollected in 2005; otherwise, sample results showed no evidence of contamination. If the 2005 pesticide samples show no impact, no further action will be recommended for the Lake Camp wetland.