



# Environmental Restoration News

U.S. Army Alaska

Fort Wainwright

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## Restoration Advisory Board Update

The U.S. Army Alaska is hosting the final Restoration Advisory Board (RAB) meeting on July 15, 2003, at the Noel Wien Library from 7:00 p.m. until 8:00 p.m. If additional interest is shown or specific requests to reconvene the RAB are expressed, the Army will consider re-establishing regularly scheduled RAB meetings. However, at this time, the RAB will be disbanded until further notice.

Please join the Army at the RAB meeting in July to hear the latest information on each of the Operable Units on Fort Wainwright.

The Army wishes to thank the RAB members for all their years of service and interest in the environmental restoration activities at Fort Wainwright. This newsletter will continue to be published quarterly to keep interested parties informed on the status of site work.

If you have any questions or comments about environmental activities on Fort Wainwright or questions concerning the adjournment of the Fort Wainwright RAB, please call Ms. Therese Deardorff at (907) 384-2716 or email her at:

[therese.deardorff@richardson.army.mil](mailto:therese.deardorff@richardson.army.mil).

## Message from the RAB Community Co-Chair

By Christine Storey

The Fort Wainwright Restoration Advisory Board was started several years ago by the Department of the Army to ensure that the Fairbanks community was fully informed of the decisions that were to be made in achieving successful cleanup of identified sources of hazardous materials.

I have served as community co-chair on the RAB since the board's inception. During this time, the Department of the Army has held quarterly meetings in Fairbanks for the board and interested persons in the community. At these meetings, the board was brought up to date on the ongoing site activities and the cleanup efforts. Consultants working with the Army and the various environmental agencies made presentations at the meetings to inform the public of the activities that were occurring at that time. The RAB meetings were geared to the general public with minimal technical jargon, and there were always opportunities for questions. The meetings were informative both for the RAB members and other interested community members.

Over the past years, cleanup has occurred on post and the end is in sight. Originally 10 people volunteered for the RAB; however, over time that number has declined due to the efficiency of the cleanup.

In 1996, the Army environmental staff at Fort Wainwright won the Department of Army, Environmental Security Awards Program, Environmental Cleanup Award. The receipt of this award was based on the Army's fast-track decision-making and partnering with the Alaska Department of Environmental Conservation (ADEC) and the U.S. Environmental Protection Agency (EPA).

Because RAB member interest in the cleanup program at Fort Wainwright has waned, and because the majority of the cleanup has occurred to the satisfaction of the

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EPA and ADEC, I recommend that the RAB be disbanded at this time.

I personally would like to thank the Army environmental staff for their efforts in working with the public and their commitment to keeping interested parties informed as the cleanup process at Fort Wainwright continues.

## Operable Unit Updates

### OPERABLE UNIT 1

Operable Unit 1 includes the phytoremediation soils that are located across the street from the Fort Wainwright landfill and the 801 Drum Burial Site.

**Phytoremediation Soils:** The draft removal plan and confirmatory soil sampling plan are being finalized. The Army plans to move the soils generated during the phytoremediation project to a cell at the Fort Wainwright landfill. In order to transfer the soils to the landfill, the Army is required to get approval from ADEC, which includes ADEC's approval on a work plan to construct a lined cell at the landfill. The Army expects to transfer the soils to the landfill late summer 2003.

### ACRONYMS

**RAB**

Restoration Advisory Board

**ADEC**

Alaska Department of Environmental Conservation

**EPA**

U.S. Environmental Protection Agency

**OU**

Operable Unit

**CLOSES**

Cleanup Operation Systems Site Exit Strategy

**DRMO**

Defense Reutilization and Marketing Office

**ROLF**

Railroad Off-Loading Facility

**FFA**

Federal Facilities Agreement

**801 Drum Burial Site:**

The annual groundwater monitoring event at the 801 Drum Burial site occurred this past spring. This round of sampling, per the long-term groundwater monitoring plan for the site, included sampling all 16 groundwater monitoring wells located on the site and down-gradient, toward the Chena River. Results from this sample event indicate there has been no significant changes from past

sample results. The next sampling event will take place in Spring 2004. The site will be evaluated with Cleanup Operation Systems Site Exit Strategy (referred to as CLOSES) in 2004.

### OPERABLE UNIT 2

Operable Unit 2 includes the groundwater beneath the Defense Reutilization and Marketing Office (DRMO) Yard.

The Army has evaluated whether the expansion of two of the on-site treatment systems – DRMO-1 and DRMO-5 – is necessary and has decided, with concurrence from EPA and ADEC, that the treatment system can be shut down and evaluated for rebound. The Army will install two additional groundwater monitoring wells.

The CLOSES Evaluation has been completed for DRMO Areas 1 and 5.

### OPERABLE UNIT 3

Operable Unit 3 consists of three sites: 1.) mileposts 2.7 and 3.0, 2.) the Railcar Off-Loading Facility (ROLF), and 3.) the Birch Hill Tank Farm.

Spring and summer quarterly groundwater sampling has occurred. The results of the spring groundwater sampling will be discussed at the June Federal Facilities Agreement (FFA) meeting and included in the next newsletter.

After the successful results of the hydroshock pilot study (see related article on page 3) conducted last July 2002, the Army conducted the hydroshock treatment on wells in OU3. This treatment has proven to be effective in its technology and cost.

Other work that has been conducted at OU3 for the past two quarters includes the following:

- ◆ Quarterly groundwater sampling was completed in January 2003;
- ◆ Spring groundwater samples were collected at Birch Hill;
- ◆ Background dye tracer samples were collected from the same wells sampled during the spring sampling event in support of a short-term dye tracer study;

- ◆ A pump was pulled out of an old water well at the base of Birch Hill in order to start including that water well as a sample point in the semiannual groundwater sampling events (the well may also be used for dye tracer studies); and
- ◆ Weekly and monthly maintenance activities were conducted on the treatment systems operating during the winter at OU3.

In addition, the treatment systems turned off during the winter (Valve Pits A and B, Building 1173, and the Truck Fill Stand) have been restarted. A long-term dye tracer study will be conducted at Birch Hill when the Product Recovery System has been turned off. Additional seismic and geophysical testing will also be conducted to continue gathering data to update the computer model of groundwater flow in the Birch Hill area.

## OPERABLE UNIT 4

Operable Unit 4 includes the Former Post Landfill and the Coal Storage Yard located behind the power plant.

The Army is required to sample groundwater associated with the Fort Wainwright landfill twice per year to ensure that groundwater contamination is not migrating from the landfill. Data collected in spring and fall 2002 indicate that no migration is occurring. One well at the landfill was replaced and another was repaired.

Semiannual soil and groundwater samples are collected at the Coal Storage Yard in order to ensure protection of a supply well located downgradient. Results of the spring and fall sampling events indicated that natural attenuation is occurring at this source area. Two wells

were decommissioned at the Coal Storage Yard because they were damaged in a power plant construction project.

## ACRONYMS

AS

Air Sparging

SVE

Soil Vapor Extraction

A CLOSES evaluation for the Coal Storage Yard has been completed. The evaluation determined that there were no data gaps that needed to be filled, additional monitoring wells were not needed, that soil sampling should be discontinued, and that the frequency and number of wells monitored for groundwater can be decreased.

## OPERABLE UNIT 5

Operable Unit 5 consists of two sites: the Birch Hill Tank Farm site and the Former East Quartermaster's and West Quartermaster's Fueling System sites.

There are several different types of treatment systems in place at OU5. These systems have continued to operate and are being maintained for optimal operation. The types of treatment systems in place at OU5 are:

- ◆ An air sparge curtain;
- ◆ A source area treatment system;
- ◆ A horizontal well/vertical probes treatment system; and
- ◆ The building 1060 treatment system with an electric oxidizer.

A CLOSES evaluation has been completed for the West Quartermaster's Fueling System site.

## Hydroblasting at Fort Wainwright

By Bryan H. Johnson, Civil Engineer, Fairbanks Environmental Services (FES)

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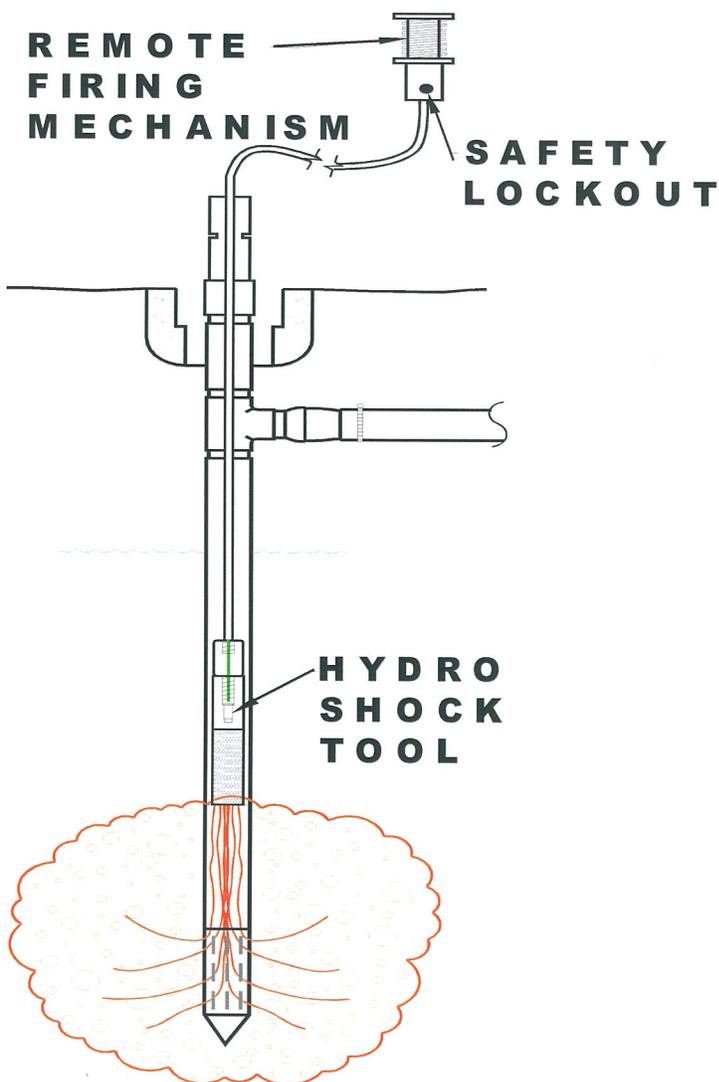
Soil and groundwater contaminated with petroleum hydrocarbons are being remediated *in situ* by air sparging (AS) and soil vapor extraction (SVE) treatment systems at Fort Wainwright, Alaska. Over 1,000 AS probes are being utilized within treatment systems located around the post. The AS/SVE systems have been operated regularly since system startup, as early as 1996. Over the years, natural deterioration has occurred in most AS probes due to iron precipitation and/or silt encrustation of the probe screens. This has resulted in diminished airflow through the AS probes, limiting the overall effectiveness of the AS/SVE treatment systems. To improve treatment system performance, various probe rehabilitation methods have been investigated. Mechanical and chemical well rehabilitation methods were evaluated and proved to be ineffective.

The U.S. Army, Alaska authorized a pilot study to determine the effectiveness of using a shock treatment method to rehabilitate the AS probes. Shock treatment was applied using technology created by Wakefield, Inc., designed to generate a concussion below the water table using a powder charge. The concussion creates impulses that penetrate the screen and formation, loosening encrustations and precipitates. The detritus is removed by pumping the probe following shock treatment. The objectives of the pilot study were to: 1) remove silt and iron precipitation buildup on and around the probe screen that is causing airflow obstruction; 2) increase airflow rates in AS probes; 3) increase volatilization; and 4) increase biodegradation removal rates.

Results of the pilot study following the shock treatment showed that airflow was restored in 39 of 45 probes where shock treatment was applied. In almost all cases, airflow increased from no measurable flow to airflow rates ranging from 10 to 18 cubic feet per minute (cfm). Dissolved oxygen (DO) concentrations increased on average from background levels (0 to 1 mg/l) to between 10 and 14 mg/l and were comparable to DO concentrations recorded when the treatment systems were initially installed. Volatile organic compound (VOC) concentrations increased in soil gas measured in the vicinity of the shocked AS probes, an indication that volatilization had improved. Carbon dioxide (CO<sub>2</sub>) concentrations decreased and oxygen (O<sub>2</sub>) concentrations increased, creating optimal conditions for bioremediation. Additionally, rehabilitating AS probes using the shock method is approximately 25 percent of the cost of replacing AS probes.

## PROBE REDEVELOPMENT USING THE HYDROSHOCK TOOL

ACRONYMS	
cfm	Cubic feet per minute
DO	Dissolved oxygen
VOC	Volatile organic compounds
CO <sub>2</sub>	Carbon dioxide
O <sub>2</sub>	Oxygen



### Objectives of AS Probe Development

- ◆ Remove silt build up causing flow obstruction
- ◆ Increase flow rates in AS probes
- ◆ Increase volatilization
- ◆ Increase biodegradation removal rates

# Two-Party Agreement Sites Update

## ACRONYMS

AS/SVE

Air sparging/soil vapor extraction

There are 14 Two-Party Agreement sites on Fort Wainwright. These are the sites that are being addressed through a formal agreement between the U.S.

Army and State of Alaska because the only contaminant of concern at these sites is petroleum, which is not monitored by the EPA. The Army has and continues to work closely with ADEC to address these sites.

### Building 2250 (at the golf course)

An air sparge/soil vapor extraction (AS/SVE) system is in place and operating. The wells associated with this treatment system will be surveyed and inspected during summer 2003.

### Buildings 2111/2112 (on the runway)

Earlier this year, the air sparge treatment system at this site flooded and was evaluated for damage. It has been fixed and operational since May 2003. The system groundwater samples were collected this spring.

### Building 2077

An AS/SVE system has been in place; however, the Army plans to disconnect and move the treatment system connex for a planned excavation. A “hot-spot” or specific area of petroleum-contaminated soil was identified at Building 2077 and is scheduled to be excavated by Fall 2003. The Army is formulating a long-term groundwater monitoring plan for Building 2077.

### Buildings 1002 and 1168

The wells at these two buildings will be surveyed and inspected during summer 2003. The Army is formulating the long-term monitoring plan for these sites and expects to conduct groundwater sampling this summer. The treatment systems for these two sites are scheduled for decommissioning and removal during summer 2003.

### Neely Road

A site investigation has been conducted at Neely Road. Contaminated soil is present. The Army has determined that additional site investigative work is necessary at the site.

### Building 3483

The treatment system is scheduled for decommissioning and removal in summer 2003.

### North Post Site

New and replacement wells were installed in spring 2003. Three new wells were installed on June 21. This site is being evaluated with CLOSES.

## What We Do Between RAB Meetings

It has been a busy spring and summer at Fort Wainwright as cleanup activities and treatment system improvements continue. We are gearing up for field activities, which include groundwater monitoring, as well as some well "blasting." (See article on hydroblasting page 3).

Non-environmental restoration activities that will be taking place on post this summer include the third phase of the removal and/or "pigging" and capping of old pipelines and valve pits associated with the on-post old fueling systems. In addition, construction of new facilities/buildings for the Army transformation will continue.

During the January FFA meeting, results of the 2002 efforts associated with the Chena River Aquatic Assessment program were reviewed, and it was decided that no further sampling would be required until 2005. Reductions in sampling such as this one and at other sites were agreed to by ADEC and EPA. These reductions will result in a significant cost savings for the Army.

The U.S. Army Restoration Team has been busy attending various training for Army and Department of Defense

automation requirements. These included training on the Army Work Plan data base, which will track funding requirements that come through the Installation; AEDB-R, or the "Army Environmental Data Base-Restoration," which encompasses the old DSERTS and RCTCS data bases into one, and adds a cost-estimating tool (RACER).

These systems will make tracking and projecting requirements a lot easier. We also attended the Alaska Forum for the Environment and the RAB Roundtable on February 13.

The April FFA meeting consisted primarily of a review of reports and information from fall 2002 sampling events and decisions were made for summer activities. We have also been finishing inputting data into the new systems we were trained on in order to complete the Installation Action Plan for Fort Wainwright in August.

I hope to see you at the RAB meeting in July!



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