



# Environmental Restoration News

U.S. Army Alaska

Fort Richardson

Volume 10, Number 1

March 2004

## RAB Update

The Fort Richardson Restoration Advisory Board (RAB) met at the Russian Jack Chalet on January 29, 2004. Agenda items included a discussion about the frequency of RAB meetings and an update on Operable Unit C (Eagle River Flats) and Operable Unit E (Building 35-752 and the Armored Vehicle Maintenance Area).

Information from the RAB meeting is summarized in the Site Updates section of this newsletter.

## RAB Roundtable

The Alaska Forum on the Environment was held from February 9 through 13, 2004. The RAB Roundtable meeting was held on February 12, 2004. Dr. Mark Prieksat, the Army Co-Chair, and Mr. John Hopkins, the Community Co-Chair, attended the RAB Roundtable. In addition, Dr. Prieksat and Mr. Louis Howard, with the Alaska Department of Environmental Conservation (ADEC), gave a presentation on the chemical demilitarization project that was conducted last summer to treat the chemical agent identification sets recovered from the Poleline Road Disposal Area on Fort Richardson and from Tin City, Alaska.

## Site Updates

### ***Three-Party Agreement or CERCLA Operable Unit Sites***

#### **Operable Unit B Poleline Road Disposal Area**

The Cold Regions Research and Engineering Laboratory (CRREL) is planning a tracer test for the Operable Unit (OU) B site, with the injection planned for June 2004. CRREL will update the three-dimensional geologic and groundwater contaminant model (Earth Vision Model) to include the ground-truthing information from the new wells. A contract has been awarded to install a fence around the cluster bomb area; however, due to difficulty in clearing the area, the fence installation has been postponed until spring 2004. The Army is currently working on a Cleanup Operations and Site Exit Strategy (CLOSES) evaluation to determine if sufficient data exists to suggest long-term trends in contaminant reduction. The U.S. Army Corps of Engineers, Alaska District (USACE) will drill 4 additional soil borings in the vicinity of monitoring well MW-14 to assess if a residual source of tetrachloroethene (PCE) exists at the site. Borings will be drilled in spring 2004.

### ACRONYMS

<b>RAB</b>	Restoration Advisory Board
<b>ADEC</b>	Alaska Department of Environmental Conservation
<b>CERCLA</b>	Comprehensive Environmental Response, Compensation, and Liability Act
<b>CRREL</b>	Cold Regions Research and Engineering Laboratory
<b>OU</b>	Operable Unit
<b>CLOSES</b>	Cleanup Operations and Site Exit Strategy
<b>USACE</b>	U.S. Army Corps of Engineers, Alaska District
<b>PCE</b>	Tetrachloroethene

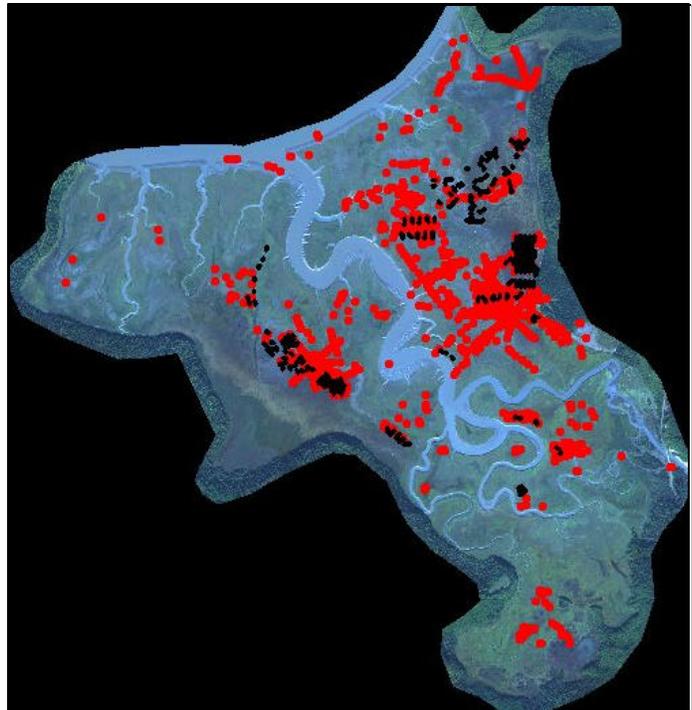
# Site Updates *(Cont'd)*

## Operable Unit C Eagle River Flats

In the past, white phosphorus was fired into the Eagle River Flats training area. The pieces that ended up underwater did not sublime or break-down. When dabbling ducks eat the undissolved white phosphorus during feeding, it acts as a neurological toxin and results in death. Eagle River Flats is a wetland environment, which makes it a complicated environment to clean up. It took several investigations to determine that white phosphorus was the cause of the duck mortality. The selected remedy outlined in the Record of Decision (ROD) calls for draining ponds in Eagle River Flats to expose the white phosphorus, which will cause the white phosphorous to oxidize or sublime into harmless phosphate compounds. Over the last 5 years, pumps have been installed in ponds located in areas suspected to be contaminated with white phosphorous particles.

In Spring 2003 a tide control gate was installed in the Bread Truck Ditch, six pumps were installed in Area C/D and in the C Marsh area, and dataloggers and web cameras were deployed to monitor conditions in treated pond areas. Data and images of this information are available on the CRREL website. Sampling also occurred in a portion of Area C/D and in the C Marsh area. At the end of the 2003 season, the areas identified as still being contaminated are limited to the C Marsh area.

In March 2003 a tide control structure was installed to prevent flooding at high tide. The tide gate was constructed in a gully using rip-rap (see photograph at right). In Spring 2003 ditches were added to the C Marsh to drain several areas. Trenches were installed in contaminated areas and trenches were blasted on Racine Island to connect ponds to keep the area dry without pumps. Six pumps were also installed in Area C. Because it was warm and dry without many flooding tides, 2003 was a very effective year for drying out areas within the wetland.



Several thousand discrete and composite samples collected and analyzed for white phosphorus form 1990-2003.



Tide control structure installed using rip-rap in March 2003.

## Site Updates *(Cont'd)*

In May 2003 Area C and Area C/D were sampled. White phosphorus had previously been found in this area and now determined to be contained in small mud ponds. These small ponds are not good duck habitat but are still used occasionally by some ducks. These ponds do not drain naturally; therefore, efforts were made to connect the ponds in order to drain them. Small sump pumps were deployed to assist in these draining efforts, which has been effective.

A mortality study associated with Eagle River Flats has been ongoing. In 2003, aerial census data was collected, but aerial telemetry was not collected. Previously, 125 ducks were captured and tagged with a transmitters so that the fall migration could be tracked. If the ducks died while wearing the transmitter, attempts were made to find the ducks to discover cause of death, specifically to see if white phosphorus was the cause. In 2003 it was decided not to use telemetry. Aerial counts during the fall migration were carried out, and ground searches were conducted to find dead ducks. Three dead ducks were found in 2003, all in Pond 730 – which is a suspected area of contamination. Waterfowl mortality has decreased significantly in Eagle River Flats since 1996. For example, in the early 1990s, groups of dead ducks could be spotted during aerial survey of the Eagle River Flats area. Larger numbers of dead waterfowl have not been detected in any area since remedial action began in 1999. The mortality rate is now less than the short-term (within 5 years) remedial action objective (RAO) stated in the ROD, which is to reduce mortality to 50% of the

1996 figure (i.e., 500). The long-term goal is to reduce mortality to less than 1% of the total population within 20 years of signing the ROD. Mortality has been decreasing over the years and is currently measured at 100 to 200 per year.

In summary, 2003 was a successful drying year, with the highest ever sublimation rates for white phosphorus. The remaining areas of concern are small ponds located in the C/D and C areas. This year (2004) is not a good year for cleanup work in Eagle River Flats due to the large number of high tides forecast, which will prevent effective drying in the wetland. The Army has not yet decided if mortality studies will be limited to the ground-based mortality study or to continue with the aerial telemetry program. Monitoring at suspect areas in Area C, Northern C, and Racine Island will continue as well.

### Operable Unit E - Building 35-752 and the Army Vehicle Maintenance Area

There are two sites within OUE: Building 35-752 (high frequency antenna array) and the Army Vehicle Maintenance Area (AVMA). Building 35-752 had a generator building on site that housed four generators, underground storage tanks (USTs), and transformers containing polychlorinated biphenyl (PCB) oil. There was evidence that oil from these transformers had been burned, which could release dioxins and furans. The issue at the AVMA was a groundwater plume; the remedial action focused on finding a source for the contaminants, including trichloroethene (TCE - a common cleaning solvent) and fuel. At both sites the fieldwork has been completed, and the reports are being reviewed. Risk assessments are also being reviewed. A feasibility study is being produced to move forward to the Proposed Plan and ROD.

The focus of investigations at Building 35-752 was dioxins and furans generated from the combustion of transformer oil containing PCB. Samples were collected from four suspected release areas: the transformer mounting area, reported burn pit, former PCB-contaminated soil pile, and a road area around the site. A total of 76 soil samples were collected at multiple depths. PCBs were detected at concen-

### ACRONYMS

**ROD**

Record of Decision

**RAO**

Remedial action objective

**AVMA**

Army Vehicle Maintenance Area

**UST**

Underground storage tank

**PCB**

Polychlorinated biphenyls

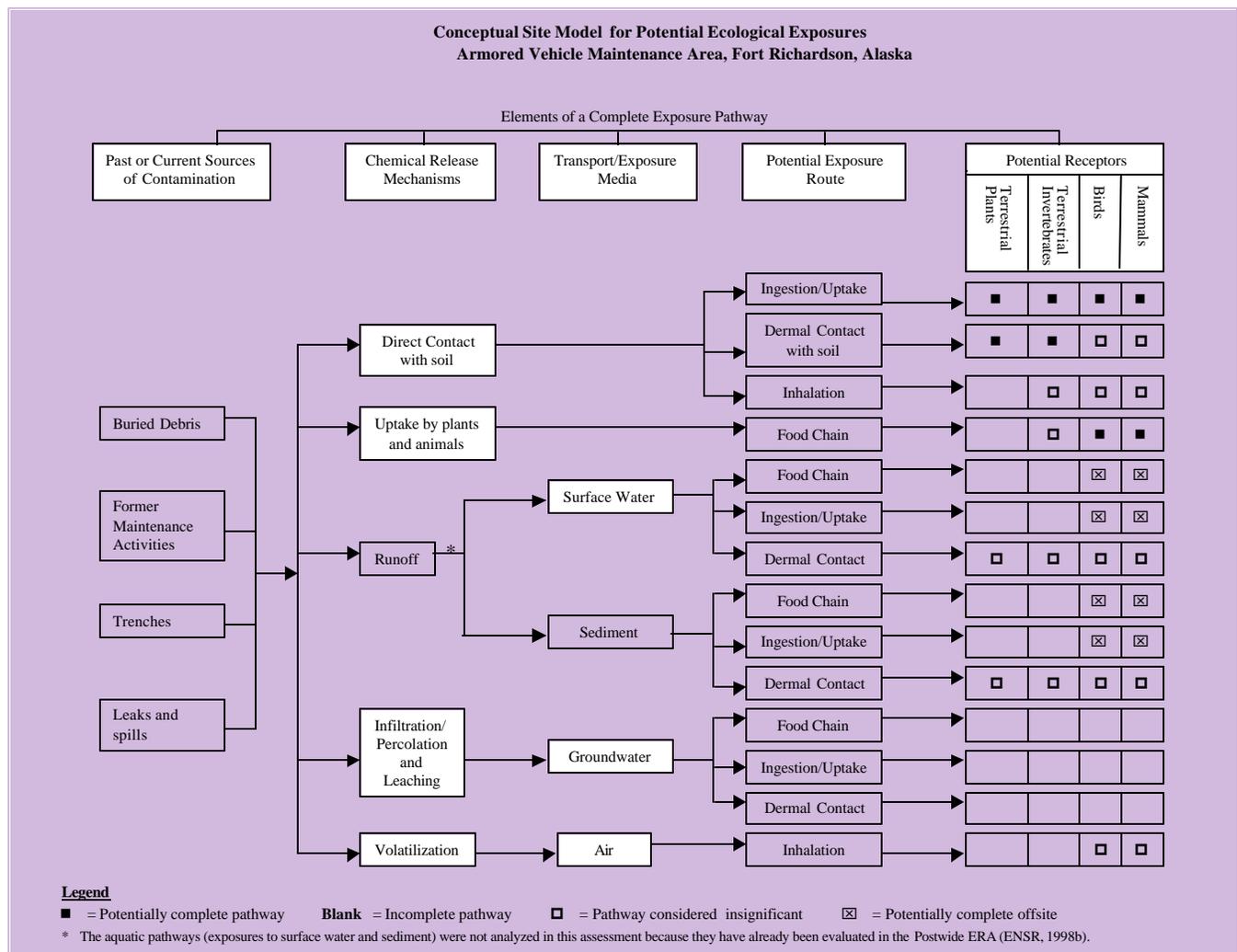
**TCE**

Trichloroethene

trations from 0 to 99 milligrams per kilogram (mg/kg). Dioxins and furans were detected at low levels, with one sample exceeding the screening level. Low level petroleum contamination was also detected in the road area, possibly associated with previous road paving activities. Groundwater was monitored at seven wells. Low levels of volatile organic compounds (VOCs), TCE, and semi-volatile organic compounds (SVOCs) were detected. PCB was detected above screening levels in one well, benzene was detected above screening levels in one well, and some metals were also detected. As part of the Remedial Investigation/Feasibility Study process, a human health and ecological risk assessment is required. The human health risk was calculated, and no excess cancer risk was determined.

The AVMA remedial action focused on finding the source of groundwater contamination. The investigation was expanded as the original suspected site was determined not to be the source area. Ground-

water wells, soil borings, and trenches were added to locate potential sources. A conceptual site model (CSM) was developed in order to aid the direction of remedial actions. An example of a CSM developed for ecological exposure is shown in Figure XX. Dr. Prieksat described the process and concepts of the CSM to the RAB. Nine trenches were excavated, one trench contained diesel range organic (DRO) contamination related to asphalt paving. VOCs and SVOCs were detected at low levels. PAHs (polynuclear aromatic hydrocarbons) were also detected but at low levels; PCBs were not detected. Arsenic was detected in six trenches, but these concentrations are consistent with naturally occurring levels. Fourteen soil borings were completed. PAHs were detected as well as some naturally occurring metals. A total of 38 groundwater wells were completed over a period of 18 months; some low levels of benzene and dro, and low levels of SVOCs were detected within these wells. Total metals were detected in nine of the wells.



# Site Updates *(Cont'd)*

Future actions associated with OUE include peer review of remedial investigation and risk assessment documents, completion of the feasibility study, and development of the Proposed Plan and ROD over the next 6 to 7 months.

Part of the Proposed Plan process involves a public meeting on the proposed action for OUE. The public comment period and public meeting are scheduled for late summer 2004.

## ACRONYMS

**mg/kg**  
Milligram per kilogram  
**VOC**  
Volatile organic compound  
**SVOC**  
Semi-volatile organic compound  
**CSM**  
Conceptual site model  
**PAH**  
Polynuclear aromatic hydrocarbon  
**DRO**  
Diesel range organics

## Two-Party Agreement Sites

Little or no action has occurred at the following Two-Party Agreement Sites since the November 2003 newsletter: Building 986 (petroleum, oil, and lubricants [POL] laboratory), Building 987 (pump house at the former POL storage facility), Building 28008 (water treatment facility), and Building 59000 (small arms range).

### Building 762

This site is actually comprised of two distinct but related sites. The Building 762 site, located near the corner of 5th and D Streets, is a former gas station site that has most recently been used for drivers' training. The Building 786 site, located near the corner of 6th and D streets, was also most recently used as a drivers' training area.

The Army has been monitoring at these sites for some time, due to persistent fuel and benzene contamination in groundwater. Upgradient and downgradient sentinel wells were installed and sampled in December 2003. The report on this sampling effort is expected to be finalized by the end of March 2004.

## Cleanup Operations and Site Exit Strategy

CLOSES - U.S. Army Alaska Site Managers must make decisions about a variety of remediation activities at sites throughout the state. Decisions are made after the collection of information, which can take a long period of time. For example, many sites must go through a site investigation process, followed by an evaluation of cleanup options and/or strategies, agreements with state and federal agencies, design of a cleanup system, operation and maintenance of a cleanup system, and ultimately closing the site.

All of these cleanup decisions are intended to improve environmental quality and balance environmental risks within a reasonable amount of time and cost. The decisions take into account an understanding of the cleanup process, the cost of a cleanup system, and balancing environmental risk with benefits and costs.

CLOSES is a strategy designed to help U.S. Army Alaska decision makers evaluate all the aspects of a project and evaluate the progress of a cleanup action. The strategy is based on developing a site-specific

# Cleanup Operations and Site Exit Strategy (Cont'd)

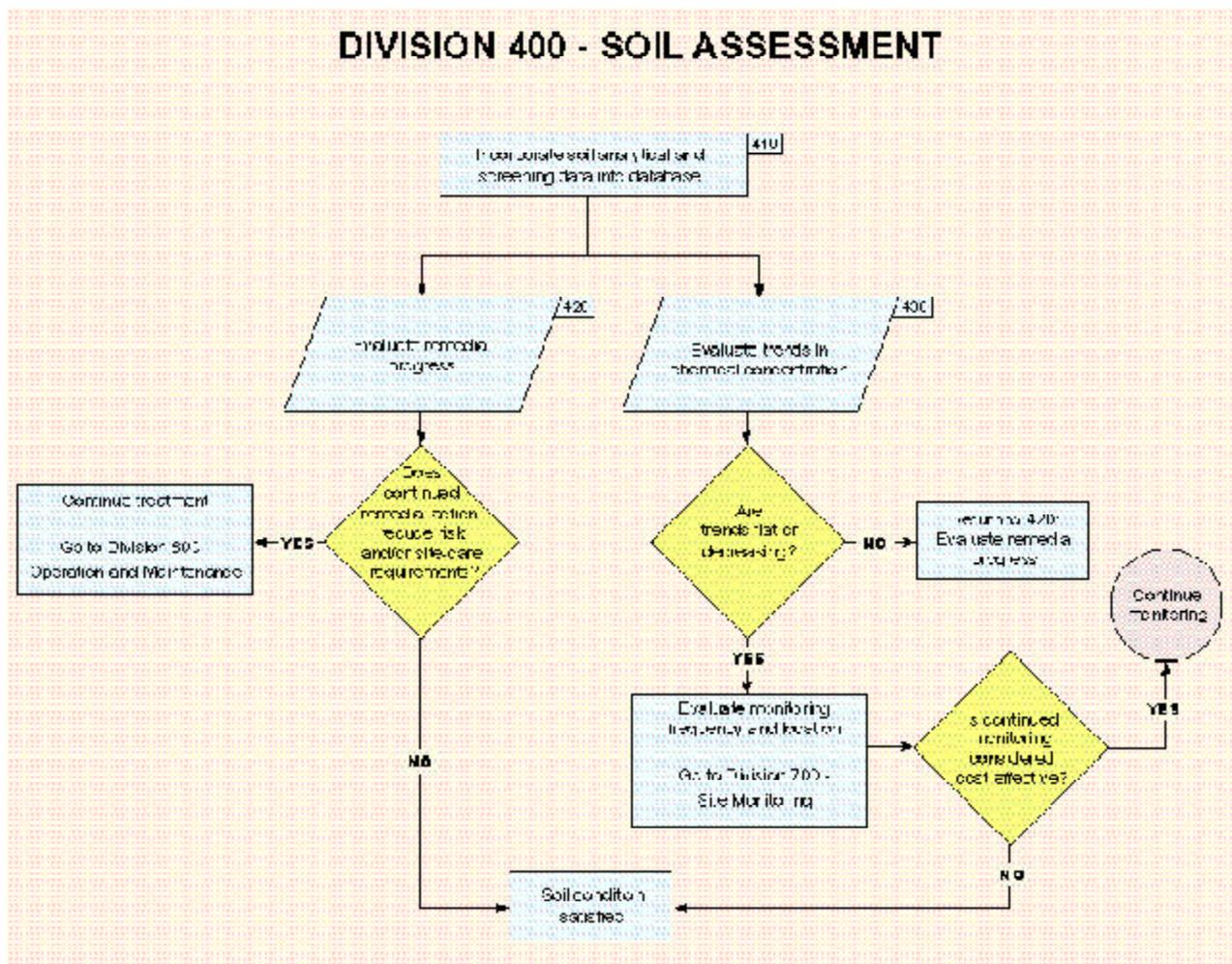
understanding of the environmental process controlling contaminant migration and reductions in contamination as a result of the cleanup action.

CLOSES is not only a strategy but a way of thinking about a site with respect to its cleanup. The CLOSES process also allows for consistency in approach to different sites by different site managers.

One way to describe the CLOSES process is that it is a series of decision flow charts, like the one shown in the figure below (to the right, where ever). There are eight areas or divisions that may be evaluated for each site, depending on site-specific conditions: source area assessment, diagnostic tools, non-aqueous phase liquid (NAPL) assessment, soil assessment, vapor assessment, groundwater assessment, site monitoring assessment, and operations and maintenance.

The information that is used is presented in a CLOSES report prepared for each site. The report summarizes results of the evaluations performed for each of the eight divisions and presents supporting data and analysis in attached appendices. The CLOSES report also provides recommendations (if needed) for improving cost-effectiveness of system operations and site monitoring. The reports are reviewed by ADEC and the U.S. Environmental Protection Agency (EPA), as appropriate.

The CLOSES process has been used successfully for sites on Fort Wainwright, Fort Richardson, and at the Haines Fuel Terminal. U.S. Army Alaska hopes to make this process more broadly available for use as needed at other Army installations nationwide.



# Administrative Record/Information Repository

The Administrative Record/Information Repository for Fort Richardson has been updated with site documents and related information through July 2003. The documents were placed at publicly accessible locations in Anchorage and Fort Richardson. The Administrative Record update consists of 23 binders of information. A set of binders were delivered to the Alaska Resource Library and Information Services (ARLIS), University of Alaska-Anchorage, the Post Library, and the Directorate of Public Works office on Fort Richardson in late February.

## ACRONYMS

**POL**  
Petroleum, oil, and lubricants

**NAPL**  
Non-aqueous phase liquid

**EPA**  
U.S. Environmental Protection Agency

**ARLIS**  
Alaska Department of Environmental Conservation

**U.S. Army Alaska  
Directorate of Public Works  
Environmental Resources Department**  
730 Quartermaster Road, Bldg 724  
Fort Richardson, AK 99505-6500  
(907) 384-3042

Hours: Monday through Friday, 8 a.m. to 5 p.m.  
(This location maintains the Administrative Record in paper form, on microfiches, and on CD-ROM.)

### **Fort Richardson Post Library**

Building 6363  
B Street  
Fort Richardson, AK 99503  
(907) 384-1648

Hours: Tuesday, Wednesday, Thursday 11 a.m. to 8 p.m.  
Friday and Saturday 11 a.m. to 5 p.m., Closed on Sunday and Monday

### **Alaska Resources Library and Information Services**

3150 C Street  
Anchorage, AK 99503  
(907) 272-7547

Hours: Monday through Friday, 8 a.m. to 5 p.m.

### **University of Alaska Anchorage Consortium Library (Reserve Desk)**

3211 Providence Drive  
Anchorage, AK 99508  
(907) 786-1871

Hours: Monday through Thursday, 7:30 a.m. to 11 p.m.; Friday 7:30 a.m. to 8 p.m.; Saturday, 10 a.m. to 6 p.m.; Sunday, noon to 11 p.m.





U.S. Army Alaska  
Attn: Mark Prieksat  
Environmental Resources Department  
730 Quartermaster Road  
Fort Richardson, AK 99505-6500