Defense Supply Center Richmond's Environmental Commitment

- Ensure safety and health of employees and neighbors
- Comply with all applicable laws and regulations,
- Meet or exceed Defense Logistics Agency's goals for reducing pollution,
- Set objectives and targets to minimize adverse environmental impacts, and
- Continually improve our Environmental Management System.

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Community News

DSCR Public Affairs Winter 2006

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Groundwater treatment technologies considered at DSCR

A Public Meeting took place on April 5, 2005, at Bensley Community Center to discuss DSCR's proposed Remedial Action Plan for Operable Unit 12 (OU-12). DSCR is assessing the viability of several treatment technologies for groundwater Operable Units at the facility. With a conceptual site model nearly complete, the center's restoration program will focus on evaluating the most current groundwater treatment technologies available and how effective they may be at specific sites.

The DSCR restoration team's challenge, with the support of the U.S. Environmental Protection Agency and the Virginia Department of Environmental Quality, will be to treat groundwater containing chlorinated volatile organic compounds (CVOCs). CVOCs are a component of a once widely used class of industrial solvents and are commonly found in groundwater at industrial facilities. Their chemical attributes allow them to "sink" into groundwater, while being adsorbed by some subsurface soils.

Treating source zones, or areas where undissolved chemicals remain, can be a crucial step in the long-term restoration of groundwater sites. Several treatment methods are being considered as part of the remediation effort. One method involves injecting solutions into the ground which will react with the compounds in the groundwater and produce a harmless byproduct. This technique is a form of "In Situ" remediation, meaning the treatment is performed in the subsurface. The restoration team is considering the method of injecting a zero-valent iron (ZVI) solution of powdered iron filings into the subsurface. The ZVI solution is designed to induce processes that break down chemical compounds into harmless byproducts.

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Groundwater treatment technologies considered at DSCR continued

Another method being evaluated is called chemical oxidation. This process involves using oxidants to destroy chemical compounds in soil and groundwater. It works by pumping oxidants into the ground with specially designed injection wells. Once in the ground, the oxidants completely destroy chemical compounds, leaving only water and harmless chemicals as byproducts.

In the coming months, DSCR's cleanup team will evaluate these and other methods to find the most effective solution. The evaluation process includes a myriad of engineering questions that have to be answered before any technology is implemented. Questions such as determining the proper amount of cleanup solution to be inserted, evaluating how technology will affect natural subsurface environments and choosing the best application method will need to be answered. This research will enable DSCR to implement groundwater solutions which effectively protect human health and the environment.

Management Action Plan

Defense Supply Center Richmond has revised its Management Action Plan (MAP). The MAP serves as a key document for DSCR to manage its environmental restoration program. DSCR is using the MAP to:

- identify and monitor environmental restoration projects, schedules and cost estimates
- serve as the basis for DSCR's input to overall program planning, budget development and execution decisions
- serve to identify regulatory agency support requirements that fall under the Defense-State Memorandum of Agreement program

The MAP describes an integrated, coordinated approach for conducting ongoing environmental restoration activities required at DSCR's fourteen sites with active, ongoing environmental restoration efforts. Included in this year's MAP is a description and history of the installation, a summary of DSCR's environmental restoration program, costs to date and projected future completion costs, program milestones and a one-page descriptions devoted to each site.

The MAP was updated based on plans for site reuse, consideration of new information and environmental data collected at the installation to enhance the conceptual site model and changes in environmental restoration technologies over the past several years.

MACTEC researched historic site-specific information and government databases to collaborate with DSCR's environmental staff, the Defense Logistics Agency's program management and independent third-party reviewers in preparation of the MAP. MACTEC received and incorporated comments from the United States Environmental Protection Agency, the Virginia Department of Environmental Quality and the DSCR Restoration Advisory Board into the MAP. The review process allows regulatory agencies and the community to contribute to DSCR's environmental restoration program.

As a planning tool, the MAP is a dynamic document. If new information becomes available and new remedial technologies become cost effective to implement, the schedules, costs to complete and path forward section for each site will be refined. A copy of the MAP is available at www.

Results of Three-Year Creek Monitoring Program (2001 – 2004)

Under contract with the Air Force Center for Environmental Excellence (AFCEE) and MACTEC Engineering and Consulting, Inc. completed a three-year monitoring program for three creeks near Defense Supply Center Richmond. The program monitored portions of Kingsland Creek, No Name Creek and Falling Creek Tributary adjacent to and downstream of DSCR. The program included evaluating characteristics of the creeks and sampling of water, sediment and benthic communities (sediment-dwelling animals) from November 2001 through April 2004. The purpose was to characterize and assess the available habitat and conditions within the creeks and to determine whether installation-related activities have had environmental impacts.

The findings concluded the creeks near the installation are naturally fast-flowing and turbulent, and have little sediment accumulated on the creek bottom to provide a suitable environment for plants and animals. Trees growing near the creeks reduce sunlight needed for aquatic plant growth and natural food sources are low. These creek characteristics are similar to those observed in other creeks of the same size in Richmond, Virginia.

Surface water quality samples had low concentrations of tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cDCE) in No Name Creek and Kingsland Creek. These constituents are associated with installation-related activities. However, the concentrations detected for these constituents were all below the federal and Virginia surface water quality standards. Only lead, copper and zinc in No Name Creek and copper in Kingsland Creek were found above surface water quality standards and background concentrations.

Sediment samples were also collected, analyzed and compared to federal sediment screening levels. Metals and semi-volatile organic compounds were detected, although most were less than the screening levels. However, PCE, TCE and cDCE were not found in sediments above screening levels.

Sediment-dwelling animals (benthic macroinvertebrate) populations upstream of the installation were compared to populations downstream of the installation. The comparison indicated the benthic populations downstream are similar to those upstream, and in some cases, show greater numbers and species diversity downstream. Furthermore, sediment-dwelling species sensitive to pollution and evidence of fish reproduction were also observed at downstream locations.

MACTEC determined the benthic communities observed during the study are typical for creeks in the Richmond, Virginia area. The natural available habitat is the primary limiting factor for benthic communities. Based on results of this study, constituents associated with installation-related activities are not affecting the creek environments.

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2006 RAB Presentation Schedule

January – **Chemical Flow and Transport, Phase II**

February – **Focused Feasibility Study**

March – **Chemical Flow and Transport, Phase III**

April – **Applicable or Relevant and Appropriate Requirements (ARAR)**

May – **Biannual Groundwater Results**

June – **Outreach Program**

July – **How to Apply & Use the Technical Assistance for Public Participations program (TAPP)**

August – **TBD**

September – **OU 10 and OU 11 Path Forward**

October – **OU 9 Treatment System Update**

November – **Air Force Center for Environmental Excellence (AFCEE) Projects**

December – **Year in Review**

Meetings are held at 7:30 p.m. in the Bensley Community Building located at 2900 Drewry's Bluff Road.

The public is encouraged to attend