

Natural cleanup methods tested at Main Installation

Tiny organisms with an appetite for chemical contaminants will soon be put to work in the groundwater beneath the Main Installation (MI) eating, digesting, and breaking down contaminants into safe, natural compounds.

The process is called enhanced bioremediation, and it is the selected cleanup remedy for groundwater at the Main Installation. The Depot is currently preparing a work plan for a pilot project that will determine how effective enhanced bioremediation will be at reducing contaminants in the groundwater at the MI.

There are two contaminants in the groundwater beneath the MI that the Depot has identified as chemicals of concern: industrial solvents called tetrachloroethene (PCE) and trichloroethylene (TCE). As part of the pilot project, data from other successful bioremediation programs for solvents at other cleanup sites will be studied.

After the Base Realignment and Closure (BRAC) Cleanup Team (BCT) approves the pilot project work plan, the Depot will construct two test sites in the southwest corner of the MI to test different methods of enhanced bioremediation. Construction of the test sites is scheduled to begin in November.

Different natural substances will be added to the groundwater through an injection well to help create the perfect conditions for the organisms and speed up, or enhance, the natural bioremediation process. Vegetable oil made from soybeans will be added to the groundwater at one test site, while other

organic nutrients such as molasses, whey and lactate will be combined with hydrogen at the other site.

“One of our cleanup objectives for groundwater is to reduce the level of PCE and TCE to within the health protective standards,” said Steve Offner, Project Manager for the Depot’s environmental contractor, CH2M Hill. “Enhanced bioremediation is a natural cleanup remedy that protects the safety of the community, environment and our workers. This test will help us evaluate the most appropriate enhanced bioremediation method for the specific conditions at the Depot.”

The test sites will be closely monitored for approximately six months to determine the distance the injected materials travel and the effectiveness of the different substances at breaking down certain amounts of PCE and TCE. Monitoring will also determine how enhanced bioremediation performs in the specific geological conditions at the Depot.

The results will be used to design a full-scale enhanced bioremediation program for the MI that may also be adapted for groundwater cleanup at Dunn Field. A technical memorandum on the results of the enhanced bioremediation pilot project is expected to be completed by the summer of 2002.

For more information on enhanced bioremediation and the Depot’s pilot project, call the Community Relations Office at (901) 544-0613. □

RAB Member Profile:

Diane Arnst

As the Technical Manager of the Pollution Control Section for the Memphis/ Shelby County Health Department, Diane Arnst’s professional expertise serves her well in her new role as a member of the Memphis Depot Restoration Advisory Board (RAB).

In her professional capacity, Arnst makes sure that facilities throughout Shelby County comply with the Clean Air Act and don’t pollute the drinking water aquifer. As a RAB member, she has found the chemical warfare materiel removal project, completed in May 2001, and ongoing groundwater monitoring particularly interesting.

“People are interested in the environmental cleanup projects at the Depot and have followed the cleanup process for several years. Depot community members show lots of pride in making sure the goal of a clean environment is achieved,” said Arnst.

A member of the RAB since February 2001, Arnst served for nine years as the Staff Attorney for the Hamilton County Air Pollution Control Program in Chattanooga, Tennessee, before she joined the Memphis/Shelby Health Department.

A native of suburban Chicago, Arnst enjoys her cat Pilsner, hiking and visiting historic sites around Memphis, especially downtown.

