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Depot cleanup going deep

Plan would put 'bugs' to work on pollutants underground

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To clean up years worth of toxic contamination at the old defense depot, environmental officials plan to conduct something akin to an elaborate chemistry experiment 80 feet underground.

The $17 million-plus in proposed cleanup measures for the South Memphis facility call for injecting substances into the ground that will make chemical contaminants vulnerable to attack by naturally occurring micro-organisms that render them innocuous.

The practices, some of which have never been used in the Memphis area, are newly developed alternatives to costly and inefficient measures that involved pumping contaminated groundwater to the surface and disposing of it.

"This is the way it should be working. I wish we'd known about this (process) years ago," said Jim Morrison, technical project manager for the Tennessee Department of Environment and Conservation's division of superfund. "We're just setting up conditions for Mother Earth to start mending itself."

The proposals sprang from lengthy investigations involving the federal Defense Logistics Agency, the U.S. Environmental Protection Agency and TDEC. They will be discussed at a public briefing that follows a meeting of the depot's Restoration Advisory Board at 6 p.m. Thursday at South Memphis Senior Citizens Center, 1620 Marjorie.

The 642-acre depot has been a focus of environmental studies and cleanup activity for more than a decade. The base, which opened in 1942 and closed in 1997, handled a variety of solvents, chemical warfare materiel and other toxic substances — many buried in a disposal field or spilled into the ground.

Although much of the depot has been restored for use by private industry, underground contamination problems persist. The most severe lie beneath a vacant field on the northwest corner of the facility, where a shallow aquifer contains some solvent contaminants in concentrations more than 1,000 times the level allowed in drinking water.

In recent years, neighbors and citizen groups have complained of possible health problems from depot pollution. But the tainted aquifer is not used for drinking water, and studies by a federal health agency failed to link the pollution

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to any effects on the public.

Still, federal officials have sought to remove or treat soil and groundwater pollutants.

The logistics agency's proposals would deal with groundwater pollutants by injecting an iron slurry.

When it contacts such solvents as tetracholorethane, the iron will induce an electron exchange in atoms making up the compounds. The exchange will alter the compounds' chemical makeup enough so that naturally occurring "bugs" can attack them and break them down, Morrison said.

To deal with some of the other pollutants,, officials plan to inject sodium lactate into the ground. It will provide a carbon source for fuel for the micro-organisms that break down the substance.

Another feature of the plan involves installation of a 1,000-foot-long chemical barrier on the edge of the polluted zone.

Officials who have lured 29 businesses onto the depot site say the cleanup should go a long way toward resolving environmental issues.

"I think they're going in the right direction. (But) it's going to take them some time," said Jim Covington, president of the Memphis-Shelby County Depot Redevelopment Corp.

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