



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 759

Groundwater treatment technology put to the test

The Depot's environmental contractors will conduct a state-of-the-art Groundwater Treatability Study this fall on Dunn Field. The purpose of the study is to test the effectiveness of environmental cleanup technologies proposed for the site, as recommended in the Dunn Field Proposed Plan.

The Proposed Plan, which was completed in May 2003, recommends the following treatment methods for groundwater in the shallow aquifer under Dunn Field:

- Zero-Valent Iron (ZVI) injection;
- Permeable Reactive Barrier (PRB); and
- Natural attenuation with institutional controls.

The Groundwater Treatability Study will provide the cleanup team with important information to confirm the size and scope of the "treatment zone."

This is the area on Dunn Field where the ZVI injection remedy will be used. The study will also help scientists to confirm the effectiveness of a PRB for treating the chemicals of concern in the groundwater beneath Dunn Field.

"These technologies have proven very successful at other sites across the country," said Steve Offner, Project Manager for CH2M Hill, the Depot's environmental contractor. "Our goal with the treatability study is to confirm that they will be effective under the specific soil and groundwater conditions here in South Memphis."

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Groundwater wells installed this summer

Groundwater monitoring wells were installed at three locations in the Memphis Depot community this summer to collect additional data on the conditions in the shallow aquifer.

This information, along with data collected from the Depot's other wells, will be used to track changes in the quality and direction of groundwater flowing under the Depot property. This brings the total number of monitoring wells to 129.

Sampling data collected from all monitoring wells allow the Depot's environmental team to monitor changes in groundwater conditions as a result of treatment activities in the shallow aquifer.

The three additional monitoring wells were installed at the following locations:

- At the southeast corner of Person Avenue and Hays Street
- The end of McLean Street, and
- On private property north of Dunn Field.



Depot contractor Boart Longyear installs additional off-site monitoring wells in the community.

An update on this project was presented at the October Restoration Advisory Board (RAB) meeting. □

DATED MATERIALS - PLEASE DELIVER THIS IMMEDIATELY

FOR YOUR INFORMATION.....

The Information Repositories are at the following locations:

The Depot, 2163 Airways Blvd., Bldg. 144,
Memphis, TN (901) 544-0613

The Community Outreach Room is located in Building 144. Please call ahead for an appointment to ensure that we are available to help you.

Memphis/Shelby County Health
Department, Pollution Control Division
814 Jefferson Ave., Memphis, TN
(901) 576-7775

The Pollution Control Division is open Monday
to Friday from 7:30 a.m. to 4:30 p.m.

Memphis/Shelby County Public Library,
Cherokee Branch, 3300 Sharpe Ave.,
Memphis, TN (901) 743-3655

The Cherokee Branch is open Monday to Thursday
from 10 a.m. to 6 p.m. and Saturday from 10 a.m. to
6 p.m. Closed on Friday & Sunday.

HOW TO REACH US....

If you have any questions or comments about the Depot's environmental cleanup program, please feel free to contact any one of the following:

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EnviroNews is published by the Memphis Depot to update the public on the environmental cleanup program. If you have comments, questions, or suggestions for future articles, please call Ms. Alma Black Moore at (901) 544-0613.



Visit the Depot's website at www.ddc.dla.mil/memphis

Groundwater treatment technology put to the test

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"The data we collect from this study will be used in the design of the full-scale treatment in order to ensure the best possible outcome."

ZERO VALENT IRON

When zero-valent iron (ZVI) particles are injected or placed into the groundwater through boreholes or wells, a natural reaction is expected to occur.

The ZVI material has shown to be an effective method for breaking down the volatile organic compounds (VOCs) into safe compounds that will be naturally degraded over time.

The results of ZVI injection can be affected by several factors that may vary from site to site. These factors include the direction and speed of groundwater flow, the type of soil, the size of the affected groundwater area (called a plume), and the concentration levels of VOCs.

The Dunn Field Proposed Plan recommends using ZVI injection to treat those areas of the shallow aquifer where the highest concentrations of VOCs were detected.

PERMEABLE REACTIVE BARRIER (PRB)

A PRB is a wall or barrier that will be installed underground in the natural flow path of

affected groundwater beneath Dunn Field.

The PRB is made of a permeable material, which means it has tiny holes that allow the groundwater to flow through it. This underground wall will contain granular ZVI material that will cause a natural reaction when it comes into contact with VOCs in the groundwater. This reaction is expected to break down the VOCs into safe compounds that will degrade naturally over time.

The Proposed Plan recommends installing a PRB approximately 1,000 feet long. It will be located in an area with lower concentrations of VOCs than the ZVI treatment zone.

MONITORED NATURAL ATTENUATION:

Monitored Natural Attenuation is the preferred alternative for areas where the concentrations of VOCs in the groundwater are the lowest. This will involve monitoring the natural breakdown of VOCs over time to ensure that the



John DeBack, the Depot's Base Transition Coordinator, provides an update on the Depot's environmental program at the June 19, 2003 Restoration Advisory Board meeting.

groundwater quality continues to improve.

The Groundwater Feasibility Study will not affect the deeper aquifer, known as the Memphis Aquifer. This aquifer, which supplies drinking water to Memphis and Shelby County, has not been affected by past operations at the Depot.

For more information on this study, contact the Depot's Community Relations Office. Phone (901) 544-0613. □

Pre-Design Investigation:

Scientists study former disposal sites at Dunn Field

This fall, environmental experts will begin a pre-design investigation at Dunn Field to determine the most effective cleanup methods for 16 former disposal sites.

The purpose of this in-depth investigation is to confirm the location and contents of the disposal sites on Dunn Field. These sites were identified in the Remedial Investigation (2002) based on information gathered from historical records and employee interviews.

"Our goal for this project is to confirm what materials are buried under the ground at these sites, the conditions of those materials, and the size and boundaries of each disposal location," said John DeBack, the Depot's Base Realignment and Closure (BRAC) Environmental Coordinator. "With that

information, we can continue with the Remedial Design phase of the program to finalize our plan for removal, treatment or other efforts that may be required."

According to available

records, disposal activities at Dunn Field date back to 1946. It is suspected that substances buried at these sites may be the source of solvents and other substances detected in the soil and groundwater under Dunn Field.

As with every phase of the fieldwork, the health and safety of the community and workers remain the top priorities. All work is



being conducted in accordance with the standards used by the Office of Safety and Health Administration (OSHA). Site workers will be using personal protective equipment and are trained to recognize and minimize any potential exposure to themselves and the environment.

A work plan for the investigation has been reviewed and approved by the Tennessee Department of Environment and Conservation

(TDEC) and the Environmental Protection Agency (EPA).

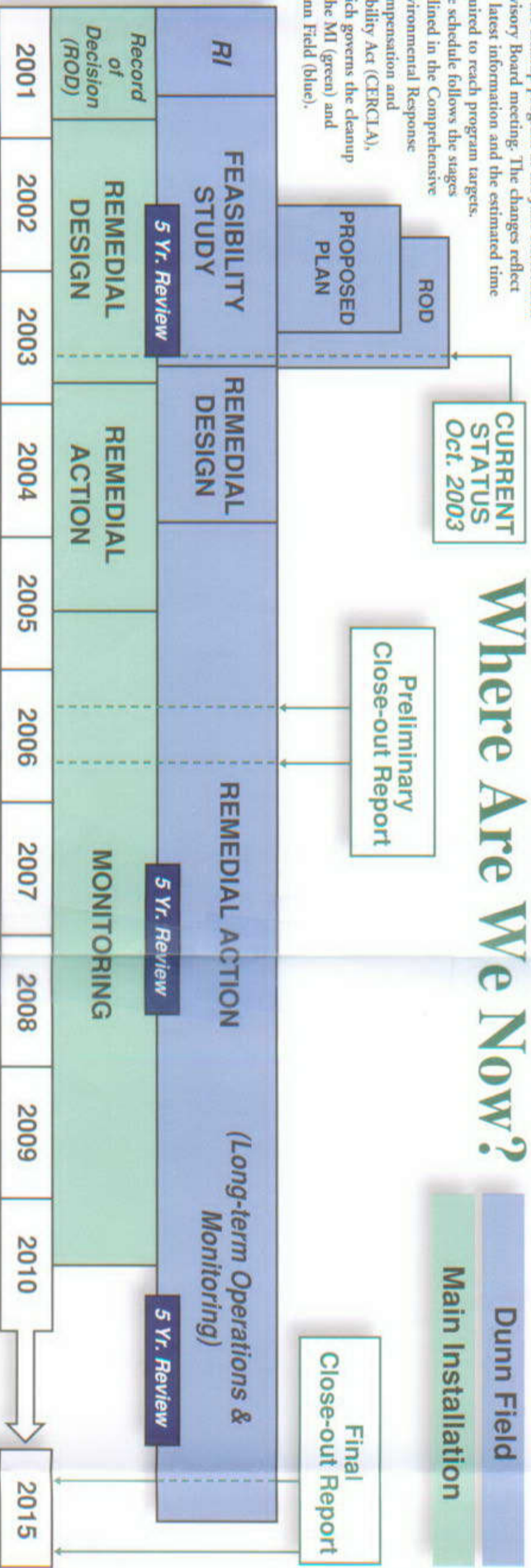
Throughout the study, contractors will follow the best environmental practices outlined in a site-specific Health and Safety Plan. Wetting dry areas and covering excavated soil will minimize dust. Fencing, already in place at Dunn Field, will restrict entrance to the site.

Once the study is completed, the BRAC Cleanup Team will use the results to refine the remedial design for the remediation of the Dunn Field disposal sites.

For background information, refer to the Dunn Field Feasibility Study (FS) and the Dunn Field Proposed Plan, available in the Depot's three Information Repositories. These are located at the Memphis/Shelby County Health Department, the Cherokee Branch Library, and in the Community Outreach Room at the former Memphis Depot.

For general information on the Memphis Depot's environmental cleanup program, please call the Community Relations Office at (901) 544-0613. □

The Depot presented a revised project schedule for the cleanup program at the June Restoration Advisory Board meeting. The changes reflect the latest information and the estimated time required to reach program targets. The schedule follows the stages outlined in the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), which governs the cleanup at the MI (green) and Dunn Field (blue).



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