

Off-site monitoring wells installed at Dunn Field



Depot community to help gather data needed to design the

ProSonic Corporation drilled boreholes and installed the monitoring wells under the direction of MACTEC Engineering and Consulting.

MACTEC conducted the additional sampling to monitor groundwater conditions in the shallow aquifer beneath the Depot community. The Memphis Depot Base Realignment and Closure Cleanup Team (BCT) will use the data to design a Permeable Reactive Barrier (PRB) to treat the affected groundwater.

The PRB is recognized by the EPA as a cost-effective and reliable technology to treat groundwater containing chemicals such as the solvents, also known as volatile organic compounds (VOCs). At many sites, PRBs have replaced the traditional pump-and-treat systems as the preferred method for treating groundwater.

The PRB will be similar to an underground wall made of a permeable material, which means it has tiny holes that allow the groundwater to flow through. The wall is filled

with zero-valent iron (ZVI) particles, which break down chemicals in the groundwater into safe compounds. For sites with groundwater deeper than 50 feet, such as at the Depot, a PRB is formed by injecting a gel containing ZVI into the ground through a series of boreholes spaced five to 15 feet apart.

The Depot's environmental team has proposed a 1,000-foot-long PRB on property owned by Memphis Light, Gas and Water that is in the natural path of the groundwater flowing from Dunn Field. As the groundwater flows through the wall, the ZVI will act as a catalyst to breakdown the VOCs into safe compounds.

The Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) will review the design prior to installation of the PRB. When installed, the effectiveness of this remedy will be reviewed at five-year intervals to ensure it is working as planned. □

Checking groundwater flow on Dunn Field

The Dunn Field groundwater recovery system was turned off twice this summer – once in June to evaluate groundwater flow conditions and a second time in July to accommodate City of Memphis road work project.

Before shutting down the system in June, the Depot's contractor, MACTEC Engineering and Consulting, collected water level measurements from monitoring wells located on and near Dunn Field. Once the system was off, field staff waited four days to allow the groundwater flow to stabilize and return to normal conditions before measuring water levels again. The system shutdown and the procedures for water level measurements were approved by the BCT Cleanup Team (M. Dobbs of DDC, T. Ballard of EPA and J. Morrison of TDEC) ahead of time.

“The purpose of the Dunn Field groundwater recovery system is to limit affected groundwater from leaving the Depot property until a permanent remedy is in place,” said Tom Holmes, MACTEC's Project Manager. “We know that the estimated groundwater flow rates are fairly slow. And we're

confident that shutting down the system for a short period of time will only have a minor impact on groundwater conditions beyond the Depot property.”

The results of the water level measurements will be used to evaluate the effect of the recovery system on groundwater flow in the areas where wells are located. The information will be used, along with data from the long-term monitoring wells, to design the final groundwater remedy approved in the Dunn Field Record of Decision (ROD).

In July, the groundwater recovery system was turned off to accommodate a City of Memphis project to widen Hays Road and

improve the intersection at Person Avenue. City workers replaced a section of sewer pipe that connects the groundwater recovery system to the municipal wastewater system. The pumps were shut down using approved maintenance procedures to ensure maximum safety and prevent exposure to affected groundwater.

For more information on the groundwater recovery system, call the Memphis Depot Community Relations Office at (901) 544-0613. □



A City of Memphis road works crew widens Hays Road