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### For Your Information

#### Former Memphis Depot Information Repository

Tennessee Department of Environment  
and Conservation (TDEC)  
8383 Wolf Lake Dr.  
Bartlett, TN 38133-4119  
(901) 371-3900

Please call ahead for an appointment!  
The TDEC staff will assist you in viewing documents.

### Information Repository

#### New Documents

- 2014 Site Management Plan, January 2014
- Annual Long Term Monitoring Report - 2013, July 2014
- MI Year Three Enhanced Bioremediation Treatment Annual Report, April 2014
- Annual Site Inspection, August 2014
- Off Depot Groundwater AS-SVE System Annual Operations Report, Year Four, August 2014

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EnviroNews is published by the former Memphis Depot to update the public on the environmental cleanup program. If you have comments, questions or suggestions for future articles, please call the Community Involvement Line at (901) 774-3683.

# EnviroNews

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## Army Meets Cleanup Challenges

The environmental cleanup systems maintained by the Department of Army at the former Memphis Depot faced challenges this year, but continued to make progress towards the required cleanup objectives. Long term monitoring (LTM) groundwater sampling results show that while the environmental cleanup actions at the Off Depot Groundwater Area, Dunn Field Source Areas, and Main Installation (MI) continue to bring down chlorinated volatile organic compound (CVOC) levels there are some locations that need more study. The Army with the U.S. Environmental Protection Agency (U.S. EPA) and the Tennessee Department of Environment and Conservation (TDEC) have a plan to meet these challenges and are committed to meeting the cleanup objectives set in the Records of Decision for the MI and Dunn Field.

### Main Installation Enhanced Bioremediation Treatment

In August 2014, environmental contractors finished the last scheduled quarterly enhanced bioremediation treatment (EBT) injection on the MI to bring down CVOC levels in groundwater.

The Army's proactive response was made to improve progress toward groundwater cleanup and reduce the potential for impacts to the deeper Memphis Aquifer. The Army prepared, and the U.S. EPA and TDEC approved, an addendum to the previous MI Remedial Action Work Plan. The addendum called for injections at five locations: Building 835 Area, Target Treatment Area (TTA)-1 North Area, TTA-1 South Area, West-Central Area and TTA-2 Area. It is available to the public at the Information Repository (IR).

EBT was injected into the groundwater quarterly from November 2012 to August 2014. Groundwater samples were collected after each injection to track changes in CVOC levels. The last samples were collected in November 2014.

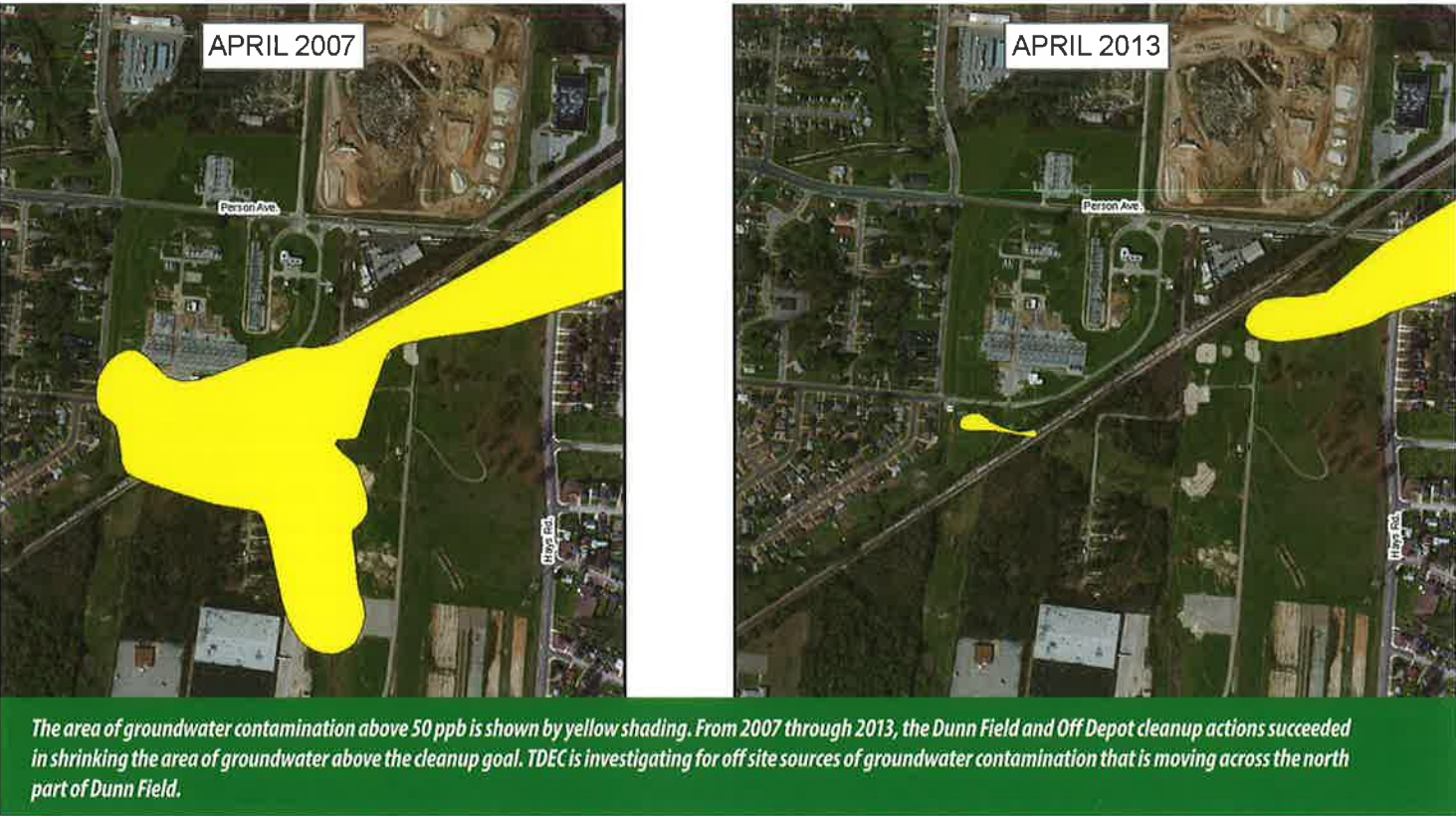
EBT speeds up a natural cleanup process by injecting an organic nutrient, sodium lactate, into the groundwater to increase the ability of naturally occurring organisms to break down CVOCs in groundwater turning them into safe, natural compounds. EBT injections from September 2006 to February 2009

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brought down CVOC levels over 80 percent in wells with high initial levels. In 2010, U.S. EPA and TDEC approved the Interim Remedial Action Completion Report that described the initial EBT activities and determined that EBT was successful at reducing groundwater contaminant levels on the MI. It is available at the IR.

The most recent LTM sample results for the MI from April 2014 showed some contaminant decreases in the EBT areas with a few locations reaching contaminant cleanup objectives. Results also showed locations inside the EBT areas with levels above the cleanup objectives and locations outside the EBT treatment area with contaminant increases.

Next year, the Army will install more monitoring wells to gather information about groundwater contaminants and flow direction in these areas and to update the cleanup plan. LTM for the MI will continue until groundwater contaminant levels reach the final required cleanup objectives which are the Safe Drinking Water Act maximum contaminant levels (MCLs).

The Army will document the recent EBT operations in a final report, and groundwater monitoring results will be provided in annual LTM reports. The reports will be available to the public in the IR.

### Off Depot Groundwater Area

Beginning in 2009, the air sparge-soil vapor extraction (AS-SVE) system has treated the Off Depot Groundwater Area by pulling CVOCs out of groundwater west of Dunn Field. The AS-SVE system will operate until levels in groundwater that have not yet passed through the system meet the cleanup goal of bringing down the level of each CVOC to below 50 parts per billion (ppb). Naturally occurring processes, called natural attenuation, are expected to bring down CVOC levels to the required cleanup objectives set in the Dunn Field Record of Decision (ROD).

A lightning strike in February 2014 damaged several key parts of the AS-SVE system and caused an automatic shut-down. Equipment repairs are being completed and the system is to be re-started in late 2014.

The groundwater contamination treated by the AS-SVE system began in the Dunn Field Source Areas, where the Fluvial SVE (FSVE) system operated from 2007 to 2012 and reduced the amount of groundwater that must be cleaned up by the AS-SVE system.

In 2007, the groundwater area to be cleaned stretched from Dunn Field up to the Off Depot Groundwater Area and the highest contaminant level was 12,219 ppb of total CVOCs in a well near the western edge of Dunn Field. By 2013, the groundwater area to be cleaned was much smaller and only one well in the Off Depot Groundwater Area was above the AS-SVE cleanup goal with a total CVOC concentration of 259 ppb.

The LTM results also show groundwater contamination from an unknown off site source moving across the north end of Dunn Field. TDEC has installed and sampled monitoring points along E. Person Avenue trying to locate the source of the contamination. TDEC plans to perform more investigation in 2015.

Details of these activities and the impacts on the cleanup schedule will be included in the Off Depot Groundwater AS-SVE annual operations report and the annual LTM report that will be available to the public in the IR.

### Dunn Field Source Areas

The Dunn Field Source Areas FSVE system was installed to remove CVOCs from soil that is 30 to 70 feet below ground surface (bgs). The system operated from July 2007 until July 2012 when it was shut

down with approval from the U.S. EPA and TDEC. The FSVE system removed more than 4,000 pounds of CVOCs while operating.

Monitoring wells around the FSVE system are included in the Dunn Field LTM program. LTM sample results from April 2014 show that CVOC levels have not increased since the system was shut down. If concentrations increase above the cleanup goal, further cleanup action will be taken. If levels do not increase, the FSVE equipment will be removed to promote reuse of the property.

Details of these activities will be included in the annual LTM report that will be available to the public in the IR.

### Additional Investigation at Main Installation

The Army has made progress towards meeting the groundwater cleanup objectives since re-starting EBT in November 2012. The April 2014 LTM results show that contaminant levels have come down, but challenges remain as about half of the wells sampled still have levels above the cleanup objectives and may not reach the Safe Drinking Water Act maximum contaminant levels (MCLs) in the time estimated in the MI ROD.

In order to keep the cleanup moving forward, the Army will perform a Supplemental Remedial Investigation (SRI) and Focused Feasibility Study (FFS) to determine if the actions selected in the MI ROD are still appropriate and to update the cleanup plan, if necessary.

The SRI will be done in two phases throughout the MI. The first phase is scheduled for 2015 and includes installing 13 monitoring wells on and bordering the MI to gather more information about groundwater and contaminant movement. The second phase calls for installing more monitoring wells based on results of the first phase. The FFS will present other cleanup options based on the information gathered during the SRI.

The Army is preparing an SRI work plan that will be available to the public in the IR. The Army will also continue LTM for the MI until contaminant levels in groundwater reach the MCLs.

### Off Depot Groundwater System Repairs

In February 2014, a lightning strike shut down the Off Depot Groundwater AS-SVE system. The lightning damaged the electrical system which caused damage to the air sparge compressor motor and the two vapor extraction blowers.

Contractors are repairing the electrical wiring to the AS-SVE system, installing an electrical surge protection system, replacing the damaged air sparge motor, and reinstalling the repaired extraction system blowers.

Based on the schedule in the remedial design, the AS-SVE system was to be shut down at the end of 2014 if the system achieved the cleanup goal. At present, only one LTM well does not meet the goal. The Army will revise the shut down schedule after re-starting the AS-SVE system and reviewing the next round of LTM groundwater sample results.

Information about the lightning damage and impacts on the AS-SVE system will be included in the annual operations report that will be available to the public in the IR.

## Steps to Site Closure

The selected cleanup remedies for the former Memphis Depot are moving the site closer to the groundwater cleanup objectives and the final goal of deleting the Depot from the National Priorities List (NPL).

The timeline for site closure includes the following:

#### Main Installation

- Complete SRI Phase 1, SRI Phase 2 and FFS by 2017
- Revise the selected remedy, if needed, and provide appropriate opportunity for public involvement in 2018
- Perform additional cleanup actions from 2018 through 2021
- Continue MI LTM until contaminant levels are below MCLs in 2022
- Complete the MI Remedial Action Completion Report in 2023

#### Dunn Field

- Operate Off Depot Groundwater AS-SVE through 2016
- Continue Off Depot LTM until contaminant levels are below MCLs in 2019
- Complete the Dunn Field Remedial Action Completion Report in 2020

#### Site-Wide

- Conduct 4th Five Year Review in 2017
- Complete the Final Closeout Report in 2024

## Newly Appointed Remedial Project Manager

In September 2014, the U.S. EPA appointed Ms. Diedre Lloyd as their remedial project manager (RPM) on the former Memphis Depot project team. She attended a project team meeting at the Memphis Depot Business Park in November 2014 that included a tour of the site and surrounding community. "I am committed to protecting the health and safety of the community while achieving site cleanup goals in a timely fashion," Ms. Lloyd told the team.

She has experience meeting many kinds of environmental cleanup challenges for private firms, local organizations and state agencies including the Florida Department of Environmental Protection. Ms. Lloyd joined U.S. EPA Region 4 in 2008 as an on scene coordinator responsible for cleaning up sites that needed immediate attention. In 2011, she transferred to the Superfund, Federal Facilities Branch, as an RPM on Department of Energy and Department of Defense NPL sites.



"Please feel free to call me with any concerns or questions about the ongoing cleanup in your community," said Ms. Diedre Lloyd, the newly appointed U.S. Environmental Protection Agency remedial project manager on the former Memphis Depot project team.