



The Former Memphis Depot  
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Memphis, TN 38114

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# EnviroNews

Winter 2012/2013



## Five-Year Review Finds Actions Are Protective

The Department of Army conducted the third Five-Year Review at the former Memphis Depot in 2012 and concluded that the cleanup actions for the Main Installation (MI) and Dunn Field protect human health and the environment.

The U. S. Environmental Protection Agency (U.S. EPA) and the Tennessee Department of Environment and Conservation (TDEC) have completed their initial review and agree that the cleanup actions protect human health and the environment. The Army will issue the final Five-Year Review report in early 2013 once the report has been signed by representatives from the Army and U.S. EPA.

The Army must prepare five-year reviews because contaminants remain at the former Memphis Depot above levels that allow for unrestricted use and unlimited exposure. The first review, approved by U.S. EPA and TDEC in 2003, came five years after starting the groundwater pump and discharge system at Dunn Field in 1998. U.S. EPA and TDEC approved the second review in 2008.

A great deal of progress has been made since the second review. All remedies have been successfully put into action and the status of the cleanup project was raised to construction complete in May 2010. U.S. EPA and TDEC have approved remedial action reports for all cleanup actions and have approved operating properly and successfully (OPS) demonstrations, where necessary. Cleanup goals in soil have been met and groundwater contaminant levels have been greatly reduced, especially at Dunn Field. Annual inspections confirmed the land use controls are being met.

The Dunn Field Source Areas Fluvial Soil Vapor Extraction (SVE) system was shut down in July 2012 after meeting soil cleanup goals. The Off-Depot Groundwater Air Sparge-SVE system continues to operate and is meeting treatment objectives. Enhanced bioremediation treatment (EBT) took place on the MI from 2006 to 2009 and additional EBT was re-started in November 2012 to address recent increases in groundwater contaminant levels. Groundwater long-term monitoring (LTM) continues at the MI and Dunn Field.



The environmental cleanup at the former Memphis Depot has been taking place at three areas: the Main Installation, Dunn Field Source Areas and the Off-Depot Groundwater area. The Five-Year Review states the cleanup actions are protective of human health and the environment.

All federal property has been transferred for re-use by the Memphis Depot Industrial Park, City of Memphis or private businesses, except for 24.5 acres on Dunn Field. The Army anticipates that the remaining Dunn Field property will be put up for sale after completion of the Fluvial SVE activities.

The third Five-Year Review began in early 2012. The community was initially informed of the five-year review through an announcement in the Winter 2011/2012 EnviroNews that came out in January 2012. The Army then sent notification letters to former Memphis Depot Restoration Advisory Board members and local elected officials in March 2012. A notice was published in the *Commercial Appeal* on April 11, 2012, inviting the public to comment on the cleanup actions during the comment period that ended on May 31, 2012. Two comments were received, but neither addressed the cleanup actions or human health and the environment.

The review found two issues with the cleanup on the MI and made recommendations for additional action. Groundwater contaminant levels have gone up in some areas since the first round of EBT was completed in 2009, and the time needed to reach the cleanup goals

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### DATED MATERIALS - PLEASE DELIVER THIS IMMEDIATELY

#### 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.

#### For Your Information

#### New Documents

- Site Management Plan - 2012
- Off-Depot Groundwater Annual Groundwater Monitoring Report - 2011
- Main Installation Annual Long-Term Monitoring Report - 2011
- Off-Depot Air Sparge - Soil Vapor Extraction System Annual Operations Report, Year Two
- Dunn Field Source Areas Fluvial Soil Vapor Extraction System Annual Operations Report, Year Five

#### How to reach us...

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

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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.

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may extend past the current schedule of 2016. The Army has decided to do additional EBT in the initial treatment areas and in two other areas. The additional EBT is expected to reduce groundwater contaminant levels, improve progress toward the cleanup goals and protect deeper groundwater.

The additional work on the MI does not affect the protectiveness of the groundwater remedy because the initial EBT cleanup action from 2006 to 2009 showed that EBT was

## Additional Groundwater Treatment at Main Installation

The Department of Army has approved additional enhanced bioremediation treatment (EBT) on the Main Installation (MI) based on an increase in groundwater contaminant levels at the former treatment areas. The Army's proactive response will improve progress toward groundwater cleanup, decrease the time required for monitoring and reduce the potential for impacts to the deeper Memphis Aquifer.

The groundwater cleanup action selected in the MI Record of Decision included EBT in the most contaminated areas of groundwater, long-term groundwater monitoring (LTM) and land use controls. EBT speeds up a natural cleanup process by injecting an organic nutrient, called sodium lactate, into the groundwater to increase the ability of naturally occurring organisms present in the environment to break down chlorinated volatile organic compounds (CVOCs) in groundwater turning them into safe, natural compounds.

Environmental contractors initially performed EBT from September 2006 to February 2009. Contaminant levels were brought down over 80 percent in wells with high initial levels, but the cleanup goal of reaching Safe Drinking Water Act maximum contaminant levels (MCLs) was not achieved. Investigation of possible CVOC sources in soil impacting groundwater as well as groundwater modeling found that further cleanup actions were not needed and confirmed that the Memphis Aquifer was not significantly affected.

The MI Interim Remedial Action Completion Report, submitted in 2010, described the initial EBT activities, additional investigations and groundwater model results. The U.S. Environmental Protection Agency (U.S. EPA) and

successful in reducing contaminant levels. Because the cleanup actions at both the MI and Dunn Field are protective, the Five-Year Review found the site is protective of human health and the environment.

Once the final Third Five-Year Review report is signed, the Army will publish a notice in the *Commercial Appeal* and place a copy in the Information Repository. The next five-year review for the former Memphis Depot will take place in 2017.



Enhanced bioremediation treatment will be conducted at five areas on the Main Installation.

Tennessee Department of Environment and Conservation (TDEC) approved the report and determined that EBT was successful at reducing groundwater contaminant levels on the MI.

Groundwater LTM continued with semiannual sampling after EBT was halted in 2009. Recent groundwater sample results, from October 2011 and April 2012, showed CVOC levels had increased in the former treatment areas and were above target levels within the shallow groundwater in other areas of the MI. Environmental contractors collected groundwater samples from the former treatment areas in December 2011 to better understand where CVOC levels were increasing and to provide recommendations for additional EBT.

An addendum to the previous MI Remedial Action Work Plan describing the additional EBT has been submitted to U.S. EPA and TDEC for review. They have

approved the Army's proactive plan for EBT at five locations: Building 835 area, Target Treatment Area (TTA)-1 North Area, TTA-1 South Area, West-Central Area and TTA-2 Area (See Figure).

In November 2012, environmental contractors injected sodium lactate in these five areas and will repeat the process every three months for the next year. Depending on results, injections may be continued for a second year. The Army will also continue the LTM program for the MI until contaminant levels in the groundwater reach the cleanup goals.

The Army will document the progress toward meeting the cleanup goals in annual operating reports that will be available to the public in the Information Repository. Annual LTM reports and other documents mentioned are also available in the Information Repository.

## Project Updates

### Cleanup On Right Track To Goals Dunn Field Treatment System Meets Goal

The former Memphis Depot continues on the right track toward environmental cleanup and has reached an important milestone. In July 2012, the Fluvial Soil Vapor Extraction (SVE) system was shutdown because confirmation soil samples met cleanup objectives and soil vapor concentrations have been at low levels for two years.

The Fluvial SVE system was installed to remove CVOCs from soil that is 30 to 70 feet below ground surface (bgs) at the Dunn Field Source Areas. The system began operating in July 2007 and removed more than 4,000 pounds of CVOCs before the shutdown in July 2012. The Fluvial SVE System Annual Operations Report, Year Five is available to the public in the Information Repository.

The main objective of the Fluvial SVE was to prevent further impacts to groundwater from CVOCs in the subsurface soil. Groundwater is found at about 70 bgs beneath Dunn Field. Groundwater contaminant levels began to decrease a few months after starting the Fluvial SVE system and are now below cleanup objectives throughout the Source Areas.

Monitoring wells around the Fluvial SVE system are included in the Off-Depot Groundwater LTM program and will be watched for increasing CVOC levels now that the system is off. If concentrations increase above cleanup objectives, further cleanup action will be taken. If levels do not increase, the SVE equipment will be removed to facilitate reuse of the property.

### Off Depot Groundwater Cleanup Near Completion

The Off-Depot Air Sparge-SVE (AS-SVE) system continues to pull CVOCs out of groundwater west of Dunn Field at the far end of the groundwater contamination area that begins at the Dunn Field Source Areas. System monitoring shows about 80 pounds of CVOCs have been removed from the groundwater since the system started in December 2009.

The Army uses groundwater monitoring to find out how well the AS-SVE system is working. Environmental contractors collect semiannual samples from LTM wells and provide the results to the U.S. EPA and TDEC in annual operations reports.



## Information Repository moves to TDEC Office

The Information Repository for the former Memphis Depot environmental cleanup documents has moved to the TDEC offices at:

8383 Wolf Lake Dr., Bartlett, TN 38133-4119  
(901) 371-3000

In order to view environmental cleanup documents about the former Memphis Depot, please call (901) 371-3000 to make an appointment and

ask to see the Defense Depot Memphis, Tennessee files. The TDEC staff will assist you in obtaining the documents you wish to view. There is also a computer available to view documents on compact disc.

The Community Outreach Room at 2245 Truitt Street within the Memphis Depot Industrial Park is now closed, but you can still reach us if you have a question by calling and leaving a message at (901) 774-3683.



The Fluvial Soil Vapor Extraction system at the Dunn Field Source Areas operated from July 2007 to July 2012 and removed more than 4,000 pounds of contaminants. At the far end of the groundwater contaminant area, the Off-Depot Groundwater Air Sparge-Soil Vapor Extraction system that started in December 2009 has removed about 80 pounds of contaminants and is expected to continue operating into 2014.