

Supplemental Investigation Continues

In April 2015, the Department of Army began Phase 1 of the Supplemental Remedial Investigation (SRI) at the Main Installation (MI). The SRI is a multi-phased investigation to determine the extent of the contamination at Memphis Depot. A total of four phases are planned. The results of the SRI will be used to update the strategy for meeting cleanup objectives on the MI.

The groundwater cleanup action selected in the MI Record of Decision (ROD) was enhanced bioremediation treatment (EBT) of chlorinated

volatile organic compounds (CVOCs) in the most contaminated areas. The untreated areas with lower CVOC concentrations were expected to meet cleanup objectives over time through natural attenuation. The MI ROD also called for long term monitoring (LTM) to document changes in concentrations and to detect potential contaminant movement off the MI or into deeper aquifers. The cleanup objectives for groundwater are the Safe Drinking Water Act maximum contaminant levels (MCLs).

The Army conducted EBT at the MI from 2006 until 2009 with positive results. After 2009, annual LTM reports and the Third Five-Year Review identified rebound in CVOC concentrations in the treatment areas and noted that concentrations outside the treatment areas may not reach the objectives by the time estimated in the MI ROD. The Army, with approval from the U.S. Environmental Protection Agency (U.S. EPA) and the Tennessee Department of Environment and Conservation (TDEC), conducted additional EBT on the MI from 2012 through 2014.

The 2014 LTM results showed that concentrations came down, but some wells in the treatment areas still had levels above the cleanup goals. Also, the expected effect of natural attenuation on concentrations outside the treatment areas was less than predicted. The Army,



The Army continued the Supplemental Remedial Investigation by installing Phase 2 monitoring wells (yellow dots) in the fall of 2016 and will install the Phase 3 monitoring wells (blue dots) in 2017.

U.S. EPA and TDEC agreed to conduct a SRI and prepare a Focused Feasibility Study (FFS) of alternative cleanup actions to reduce concentrations to MCLs.

The SRI includes reviewing previous natural attenuation studies and models of contaminant movement to deeper aquifers as well as performing additional field study. SRI Phase 1 began in April 2015 with installation and sampling of 12 monitoring wells on and bordering the MI.

The SRI Phase 1 Summary Report completed in 2016 identified several data gaps that required further study and recommended installing 29 additional monitoring wells. The budget for Phase 2 was not enough for all the recommended wells. The U.S. EPA and TDEC agreed with the Army to install 9 wells in Phase 2 and to continue the SRI with Phase 3 to install the remaining 20 wells and with Phase 4 for additional investigation if needed to gather enough data to review alternative cleanup actions.

Following approval by U.S. EPA and TDEC of the SRI Phase 2 Work Plan in August 2016, the wells were installed in October and November 2016. Phase 3 for the remaining 20 monitoring wells is scheduled in 2017. See photo below for well locations. Phase 4 well locations will be determined after completion of Phase 3 with installation scheduled in 2018.

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After the SRI, the Army will prepare a FFS that will include a detailed analysis of the most promising cleanup actions for MI groundwater. If a new or modified cleanup action is selected, then

Enhancements Planned for Off Depot System

The Army plans to enhance the Air Sparge/Soil Vapor Extraction (AS/SVE) system in the Off Depot Groundwater area. The system was installed in 2009 and the Dunn Field ROD estimated CVOC concentrations would reach the cleanup goals in December 2014. One monitoring well, MW-159, has not reached the goal so more air sparge (AS) wells will be installed.

The AS/SVE system was designed to capture most of the groundwater contamination that had moved off of Dunn Field, to reduce individual CVOC concentrations below the cleanup goal of 50 parts per billion (ppb) within the treatment area, and to continue



Sampling Dunn Field Area

For many years Dunn Field LTM results have identified an area of groundwater contamination at the northeast corner of Dunn Field thought to be from an off-site source. The Army plans to conduct a soil investigation in the area within the original property boundary for Dunn Field to confirm past reports that no waste was disposed in that area of Dunn Field and to support the presence of an off-site source of the groundwater contamination in that area.

In 2004, property along the eastern boundary of Dunn Field was transferred to the City of Memphis for the re-alignment of Hays Road. The investigation will include locations along the east and west sides of Hays Road. The Army submitted a work plan to U.S. EPA, and TDEC that calls for a membrane interface probe (MIP)

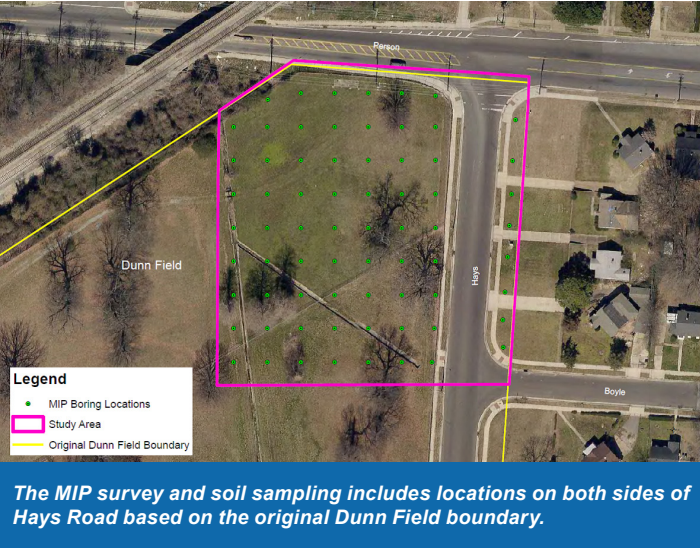
Annual Land Use Controls Inspection Completed

The Army performed the annual Land Use Controls (LUCs) inspection in July 2016. The MI and Dunn Field RODs include LUCs as part of the environmental cleanup actions. The LUCs consist of institutional controls such as lease restrictions, deed restrictions, notice of land use restrictions, zoning restrictions, and Shelby County Health Department Pollution Control Division groundwater well restrictions. The LUCs will remain in place until contaminants have been reduced to levels that allow for unlimited exposure and unrestricted use.

a decision document will be prepared with an opportunity for community involvement. The SRI and FFS reports will be available to the public in the Information Repository (IR).

operating until concentrations from Dunn Field are below the cleanup goal. AS/SVE in combination with natural attenuation is expected to reduce concentrations to the MCLs.

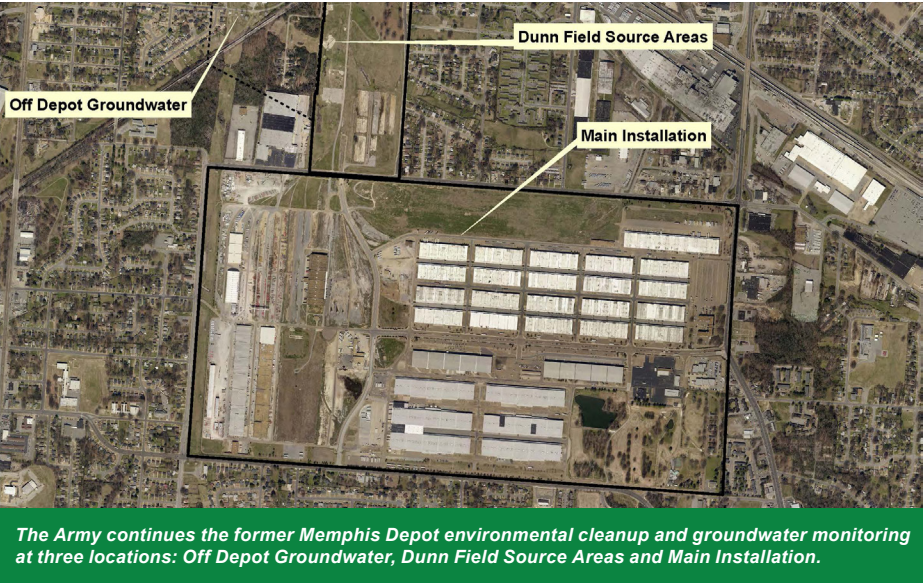
The Army provided the well installation work plan to U.S. EPA and TDEC in August 2016. It details plans to install five AS wells near MW-159 with piping to connect the new wells to the existing AS/SVE system. The new wells will remove CVOCs from groundwater in the area around MW-159. AS/SVE operations are currently planned to continue through 2017.



survey at 60 locations in the 300-foot by 300-foot study area. MIP surveys previously conducted on Dunn Field and the MI were successful in identifying areas of contaminated soil.

A small truck-mounted rig will push the probe to a depth of about 30 feet. During advancement, the probe screens the soil for volatile organic compounds at 1 to 2-foot intervals and gives a detector reading that indicates if contamination is present. Soil samples will be collected to confirm the MIP readings. All MIP and soil borings will be filled with concrete after the investigation is completed. The Army will prepare a report containing the results of the study that will be available in the IR.

The Army performs an annual inspection to determine if the LUCs remain effective and that land use restrictions are being achieved. The annual inspection consists of a visual inspection and interviews with government officials, property owners, and property managers. The 2016 inspection confirmed that the LUCs were being properly maintained on the MI and Dunn Field. The inspection report was submitted to U.S. EPA and TDEC, and a copy will be placed in the IR.



Groundwater Monitoring Update

Main Installation

Groundwater LTM at the MI includes 139 wells consisting of 99 LTM wells, 12 Phase 1 SRI wells installed in 2015, and 28 EBT wells previously used for injections and performance monitoring. CVOC concentrations were greater than the MCLs at 75 wells in 2016.

The EBT injections completed in August 2014 reduced CVOC concentrations in the EBT areas within the Fluvial Aquifer. LTM sampling in April 2016 showed that the effect of EBT is still seen in several EBT wells, while concentrations have risen in a few other EBT wells since the final EBT sample event in November 2014.

The Army will complete Phase 2 of the SRI in the fall of 2016 followed by Phase 3 in early 2017 and Phase 4 in 2017-2018. The Army will then prepare an FFS to evaluate cleanup remedy alternatives in order to improve progress toward meeting the cleanup objectives. The Army will document the SRI activities and results in a final report that along with the FFS will be placed in the IR.

LTM for the MI will continue until CVOC concentrations are reduced to MCLs which are the final required cleanup goals. Groundwater monitoring results are provided in annual LTM reports that are available to the public in the IR.

Dunn Field and Off Depot Groundwater Area

The Dunn Field Source Areas Fluvial Soil Vapor Extraction (FSVE) system began operation in 2007 and removed more than 4,000 pounds of CVOCs. The Dunn Field cleanup goals were met, and the system was shut down in 2012 with approval from U.S. EPA and TDEC.

Five-Year Review Begins in 2017

The next five-year review of the environmental cleanup actions at the former Memphis Depot will be conducted in 2017 to meet the required completion date in January 2018. The five-year review is conducted to determine if the cleanup actions for the MI and Dunn Field are protective of human health and the environment. At the start of the review, the Army will place a notice to the community in the Memphis Commercial Appeal and contact local officials requesting input about the cleanup actions.

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Dunn Field LTM sample results from April 2016 show that CVOC levels have not rebounded since 2012, except in a small area near the western boundary. Further cleanup action is not considered necessary but the LTM results will continue to be monitored for rebound.

The Off Depot AS/SVE system began operating in 2009 and has removed about 84 pounds of volatile organic compounds from Off Depot groundwater west of Dunn Field. AS/SVE operations will continue until CVOC levels are below 50 ppb in groundwater that has not yet passed through the system. Natural attenuation, in addition to the air sparging, is expected to bring down CVOC levels to the cleanup objectives.

Dunn Field LTM includes sampling of 85 wells. In October 2015, CVOC concentrations were above the cleanup objective of 50 ppb at one well and above the cleanup goal of MCLs at 12 wells. Of these 12 wells, concentrations above the MCLs at seven wells are what remain from the original Dunn Field plume; the concentration at one well is from rebound following the FSVE shutdown; and concentrations at four wells are from the suspected off-site source.

In late 2016, the Army plans to add additional AS wells to the AS/SVE system at MW-159, located immediately upgradient of the AS/SVE system, to reduce CVOC concentrations below 50 ppb. Natural attenuation is expected to reduce the concentrations until the cleanup goal of MCLs is achieved. Groundwater LTM will continue until MCLs are achieved at Dunn Field and the Off Depot Groundwater area.

As part of the review, the Army plans to evaluate the potential for vapors from groundwater with CVOC concentrations above the MCLs to move up into buildings on the MI. Both the depth to groundwater and the clay in the soil from the surface to about 30 feet below ground surface limit the potential for vapor to move into buildings. The Army, U.S. EPA and TDEC are working together on the best way to evaluate if vapor intrusion is a problem.



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Former Memphis Depot Information Repository

**Tennessee Department of Environment
and Conservation (TDEC)**

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

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

How to File a Claim with the Army

Recently the Army has received public inquiries about health concerns. Currently there is no ongoing or pending restitution at the former Memphis Depot. To file a claim against the government now or in the future, contact the Office of the Staff Judge Advocate at Fort Campbell, Kentucky, at phone number (270) 798-5011. The website is www.campbell.army.mil. The mailing address is Office of the Staff Judge Advocate, 101st Airborne Division (Air Assault), Attn: AFZB-JA-C, Fort Campbell, KY 42223-5208.

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 and leave a message on the Community Involvement Line at (901) 774-3683.