FORMER MEMPHIS DEPOT

EnviroNews

Winter 2017/2018

FORMER MEMPHIS DEPOT ENVIRONMENTAL RESTORATION PROGRAM
THE DEPOT
RESTORE, REUSE, REVITALIZE

Investigation Continues on Main Installation

The Supplemental Remedial Investigation (SRI) at the Main Installation (MI) will enter Phase 3 in 2018. The Army is continuing the SRI to further define groundwater flow and areas of contamination at the former Memphis Depot in order to revise the MI cleanup actions to meet the cleanup objectives.

The Army will continue the Supplemental Remedial Investigation by installing Phase 3 monitoring wells (green dots) in 2018. The Phases 1 and 2 monitoring wells (blue dots) were installed in 2015 through April 2017.

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 of the shallow Fluvial Aquifer. The untreated areas with lower CVOC levels were expected to meet cleanup objectives over time through natural attenuation. The MI ROD also called for long term monitoring (LTM) to track changes in groundwater contamination levels and to detect contaminant movement off the MI or into deeper aquifers.

Groundwater contamination levels came down in 2014 after the Army conducted two rounds of EBT in 2006 to 2009 and 2012 to 2014. The 2014 LTM results showed that levels were lower in the treatment areas, but some wells still had levels above the cleanup objectives, the Safe Drinking Water Act maximum contaminant levels (MCLs). Also, the expected effect of natural attenuation on levels outside the treatment areas was less than expected.

The Army, the United States Environmental Protection Agency (U.S. EPA) and the Tennessee Department of Environment and Conservation (TDEC) agreed to conduct the SRI and prepare a Focused Feasibility Study (FFS) of alternative cleanup actions. The SRI includes reviewing previous studies of natural attenuation and contaminant movement to deeper aquifers as well as installing more groundwater monitoring wells on and bordering the MI.

SRI Phase 1 was completed in 2015 with installation and sampling of 12 monitoring wells, and Phase 2 was completed in April 2017 with installation and sampling of 10 monitoring wells. Water level data show that groundwater in the shallow Fluvial Aquifer flows onto the MI from all directions and then flows into deeper aquifers through gaps in the underlying clay layer. The sample results improved definition of the areas of MI groundwater contamination and identified places where off-site contamination moves onto the MI.

Phase 3 includes installing 24 monitoring wells to study areas of groundwater flow into deeper aquifers and to better define contamination areas on and off the MI. See photo for well locations. U.S. EPA and TDEC are reviewing the Phase 3 work plan, and work will begin in 2018. The Army is also updating the groundwater risk assessment, developing a computer model of groundwater and contaminant movement, and studying the potential for vapor intrusion on the MI.

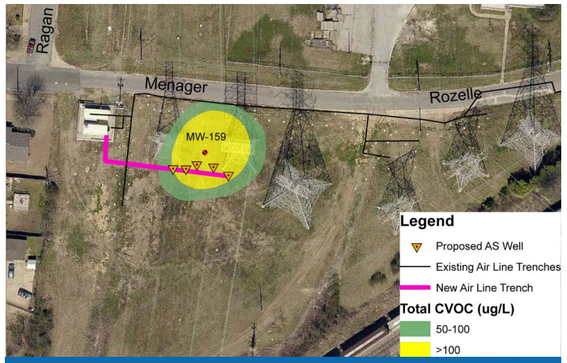
The Army's initial vapor intrusion assessment in 2017 found that the potential risk of vapors from areas of groundwater contamination entering buildings and impacting human health was slightly above acceptable risk levels. The Army will collect soil gas samples on the MI next to and under some buildings and in areas most likely to present a vapor risk. U.S. EPA and TDEC are reviewing the soil gas sampling work plan. Sampling will occur in 2018.

SRI Phase 4 will fill remaining data gaps before Army's review of alternative cleanup actions. If a new or revised cleanup action is selected, the Army will provide a decision document with opportunities for community involvement.

Off Depot System Enhancements

The Army plans to expand 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 levels would reach the active treatment goal in 2014. One monitoring well, MW-159, has not reached the goal. U.S. EPA and TDEC approved the work plan to install five more air sparge (AS) wells. Once a property access agreement is completed with Memphis Light Gas and Water, the new wells will be installed near MW-159 with piping to connect them to the existing AS/SVE system.

The AS/SVE system was designed to capture most of the groundwater contamination that moved off Dunn Field, to reduce individual CVOC levels below the active treatment goal of 50 parts per billion (ppb) within the treatment area, and to continue operating until levels from Dunn Field are below the active treatment goal. AS/SVE and natural attenuation should reduce levels to the cleanup objectives, which are the MCLs. Groundwater contaminant levels are below MCLs at most monitoring wells on



The Army will install five more air sparge wells at the Off Depot Groundwater Air Sparge/Soil Vapor Extraction System to bring down CVOC levels at MW-159.

Dunn Field and the Off Depot area and have been reduced 95 percent from the previous high concentration at MW-159. AS/SVE operations are currently planned to continue through 2018.

Investigation of Possible Off Site Source Continues

For many years, LTM results have shown groundwater contamination along the northern boundary of Dunn Field; therefore, an off-site contaminant source is suspected. In 2017, the Army began studies to confirm an off-site source with a soil investigation followed by sampling of monitoring wells installed by TDEC during previous investigations.

The soil investigation included a membrane interface probe (MIP) survey and soil sampling in the northeast corner of Dunn Field. The MIP survey included about 60 locations with soil samples at selected locations to confirm the MIP results. The MIP system is designed to identify CVOCs in soil or groundwater. The investigation included both sides of Hayes Road because the Army transferred land along the eastern boundary of Dunn Field to the City of Memphis in 2004 for re-alignment of the road. The soil investigation confirmed past reports that waste was not disposed in that area and supported an off-site source for the groundwater contamination moving onto Dunn Field. The MIP Survey report will be placed in the Information Repository (IR) following approval.

The Army also collected groundwater samples from the TDEC wells and measured water levels in the TDEC wells and nearby

After the MIP survey of Dunn Field's northeast corner, Army contractors sampled groundwater from LTM and monitoring wells installed by TDEC searching for a possible off-site source of the contamination.

LTM wells to better understand groundwater and contaminant movement. See well locations on the above photo. U.S. EPA and TDEC are currently reviewing the TDEC well sampling results.

Annual Land Use Controls Inspection Completed

The Army performed the annual Land Use Controls (LUCs) inspection in July 2017. 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 of the property.

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 2017 inspection confirmed that LUCs were being properly maintained on the MI and Dunn Field. The LUC inspection report will be placed in the IR following approval.

Groundwater Monitoring Update

Groundwater monitoring results are provided in annual LTM reports that are available to the public in the Information Repository.

Main Installation

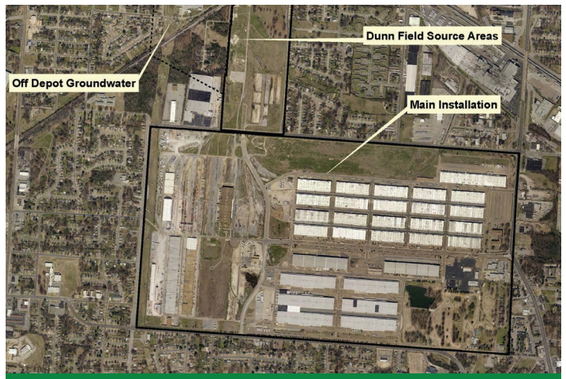
Groundwater LTM includes sampling of 148 wells on and around the MI, including the new SRI wells. The April 2017 LTM sampling results show that CVOC levels were higher than the cleanup objectives at 87 wells, which was similar to results in 2016.

EBT injections completed in 2014 reduced CVOC levels in the treatment areas within the Fluvial Aquifer. The effect of EBT continues in several EBT wells as shown in April 2017 LTM sampling, but CVOC levels have risen in other EBT wells.

LTM results also showed that CVOC levels in several LTM wells outside the treatment areas are consistently above the cleanup objectives and groundwater contaminants are moving onto the MI at a few locations. Additional SRI wells will be installed to better define areas needing further action to meet the cleanup objectives and areas with CVOCs from off-site sources. Areas with increasing CVOC levels in former treatment areas will also be investigated. MI LTM will continue until CVOC levels are reduced to the MCLs.

Dunn Field and Off Depot Groundwater Area

Groundwater LTM includes sampling of 85 wells on and around Dunn Field. In April 2017, CVOC levels were above the active treatment goal of 50 ppb at only two wells and were above the cleanup objective at 16 wells, an increase of 3 wells from October 2016. Eight of these wells are located in the northern part of Dunn Field or off-site, within the plume from a suspected off-site source. Four of the wells are located on or just west of Dunn Field; CVOC levels increased slightly above the MCLs in three wells and remained above the MCL in one well. The increased CVOC levels are probably due to contaminant rebound after the Dunn Field soil vapor extraction system was shutdown in 2012. The remaining four wells are in the Off Depot area and have CVOC concentrations similar to 2016 results.



The Army continues the former Memphis Depot environmental cleanup and groundwater monitoring at three locations: Off Depot Groundwater, Dunn Field Source Areas, and Main Installation.

Cleanup actions on Dunn Field removed more than 16,000 pounds of CVOCs from the subsurface soils and met the soil cleanup goals. Dunn Field LTM sample results from April 2017 show that CVOC levels in groundwater on Dunn Field have rebounded at only a few locations since 2012. Further cleanup action is not planned for Dunn Field at this time, but the Army will continue monitoring CVOC levels.

The Off Depot AS/SVE system began operating in 2009 and has removed about 86 pounds of volatile organic compounds from groundwater west of Dunn Field. AS/SVE operations will continue until CVOC levels are below the active treatment goal of 50 ppb in groundwater that has not yet passed through the AS/SVE system.

The Army is currently seeking property access from MLGW to add five air sparge wells to the AS/SVE system in order to reduce CVOC levels at MW-159 below the treatment goal. Dunn Field LTM will continue until groundwater contamination levels meet the cleanup objective of MCLs.

Five Year Review: Cleanup Actions Currently Protective

The Army has completed the Fourth Five-Year Review (FYR) of environmental cleanup actions at the former Memphis Depot. U.S. EPA and TDEC are currently reviewing the FYR report. The review found that the cleanup actions at both the MI and Dunn Field currently protect human health and the environment.

However, the cleanup actions may not be protective in the long-term because of CVOC levels above MCLs at many wells on the MI. The FYR report states that the selected action on the MI (EBT and LTM) has not shown the expected progress toward the cleanup objectives and recommends the SRI and FFS be completed to determine appropriate changes to the cleanup action.

The Army conducts FYRs, which are required by the Comprehensive Environmental Response, Compensation, and Liability Act, to make sure the environmental cleanup actions for the MI and Dunn Field protect human health and the environment. At the start of the review, the Army placed a notice in the Memphis *Commercial Appeal* and contacted local officials and former Restoration Advisory Board members requesting input about the cleanup actions. The FYR report is scheduled for final approval by January 23, 2018. The Army will place a notice in the *Commercial Appeal* and the report will be available to the public in the IR.

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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.

New Documents

- 2016 Annual Long-Term Monitoring Report
- 2017 Annual Land Use Controls Inspection
- Off Depot AS/SVE System Annual Operations Report, Year 5
- Supplemental Remedial Investigation Phase 1 Summary Report
- Supplemental Remedial Investigation Phase 2 Work Plan
- Off Depot Air Sparge Well Installation Work Plan
- Membrane Interface Probe Survey Work Plan
- 2016 and 2017 Site Management Plans

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:

Joan Hutton
CALIBRE
The Former Memphis Depot
2241 Truitt St.
Memphis, TN 38114
(901) 774-3683
joan.hutton@calibresys.com

Diedre Lloyd
United States Environmental Protection Agency
Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, GA 30303-8960
(404) 562-8855
lloyd.diedre@epa.gov

Jamie Woods
Tennessee Department of Environment and Conservation
8383 Wolf Lake Dr.
Bartlett, TN 38133-4119
(901) 371-3041
jamie.woods@state.tn.us

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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.