FORMER DEPOT

Winter 2020

EnviroNews

Studies Continue at Former Memphis Depot

In 2020, the Army continued studies at the Main Installation and Dunn Field to show where contamination levels remain above the cleanup objectives in the Records of Decision (RODs) and to decide where more cleanup action might be needed. The Main Installation studies were the Supplemental Remedial Investigation (SRI), a soil vapor extraction pilot test, a conceptual model for vapor intrusion at the Depot, and a Feasibility Study of other possible cleanup actions. Groundwater studies at Dunn Field were for the offsite area north and east of Dunn Field and for the area near monitoring well (MW) 87 where recent sampling results show contaminant levels are going up.

Main Installation Investigations

The Army began the SRI in 2015 to provide information needed to study other cleanup actions because groundwater contaminant levels were not brought down to the cleanup objectives by the cleanup actions that ended in 2014. The SRI was done to better understand where the groundwater contaminants were on the Main Installation and where contamination may be moving on to the Main Installation. The Army provided the SRI Report to U.S. Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC) for review in September 2020.

The SVE pilot test location was selected based on vapor samples collected at three areas of suspected soil contamination. An area in the southeast Main Installation had the highest contaminant levels and was selected. The test ran from August 2019 until May 2020, removed almost 200 pounds of contaminants, and reduced contaminant levels in the soil vapor and in groundwater. The test results showed that soil vapor extraction is an effective cleanup strategy where high levels of chlorinated volatile organic compounds are found in soil vapor.

After reviewing contaminant levels in groundwater and in soil vapor samples collected in 2018, the Army decided that if contaminant vapors moved into buildings on the Main Installation then there could be a health risk for workers. A more detailed study was needed. The Army met with EPA in February 2020 to discuss the study and agreed to prepare a conceptual model for vapor intrusion on the Main Installation. The model should be completed in early 2021. The Army will then prepare a sampling plan and begin sampling soil vapor later in 2021.

A Feasibility Study to suggest changes to the selected groundwater cleanup action in the Main Installation ROD started in 2020. The new cleanup actions should be able to meet the groundwater cleanup objectives within a reasonable period of time. The Feasibility Study will be provided to EPA and TDEC for review in 2021. After their review, the Army will provide a revised cleanup strategy for public review and comment. The revised cleanup plan will be followed by a new decision document, either an Explanation of Significant Differences or a Record of Decision Amendment, that will be placed in the Information Repository along with the SRI report and Feasibility Study.

(Continued on Page 2)

The Army finished the Main Installation Supplemental Remedial Investigation and soil vapor extraction pilot test to find a more effective cleanup action for soil and groundwater in 2020. The Army continued studying groundwater contamination to the north and east as well as the west-central side of Dunn Field.

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(Continued from Front Page)

Dunn Field Investigations

The Army continued studying groundwater contamination offsite to the north and east of Dunn Field in 2020. Long term groundwater monitoring has shown contaminant levels above the cleanup objective in monitoring wells on and off the property along the northern boundary of Dunn Field. The Army suspects an offsite source is located northeast of Dunn Field based on the monitoring results. TDEC has studied sites northeast of Dunn Field, including groundwater sampling from monitoring wells and soil vapor sampling north east of Dunn Field, but their results did not identify an offsite source. In 2017, the Army conducted a study in the northeast corner of Dunn Field and found no soil contamination.

The Army continued the study in 2020 by installing nine monitoring wells to the north east of Dunn Field and collecting groundwater samples in June and July 2020. Samples from a few wells north of Dunn Field showed high contaminant levels. The new wells and the TDEC wells in the area will be sampled every three months for one year beginning in October 2020. The Army's goal is to decide whether an offsite source exists and give that information to EPA and TDEC. Sample results will be provided in the Off-Site Groundwater Investigation Report.

The Army began an investigation on the west side of Dunn Field in May 2020 to find why contaminant levels at MW-87 were going up. MW-87 is near two treatment areas where excavation, soil vapor extraction, and soil heating were used from 2007 to 2012 to remove contaminants from soil and groundwater. By 2011, the cleanup actions had lowered contaminant levels in MW-87 to below the cleanup objectives, but the contaminant levels began to go up in 2013.

The Army collected soil samples from 16 soil borings near MW-87 and collected groundwater samples from two borings. The Army then installed 10 vapor monitoring points and collected soil vapor samples in July and October 2020.

One monitoring well was installed near the western boundary of Dunn Field and sampled in August. Samples were also collected from other monitoring wells in the area in May, July, and October 2020. A health risk assessment will be done using the sample results for soil, soil vapor, and groundwater to find out if the property meets requirements for transfer by Army. The Dunn Field ROD includes land use restrictions that prevent residential use of Dunn Field.

The MW-87 Area investigation and risk assessment report will be available to the public in the Information Repository. The Army will work with EPA and TDEC to develop a cleanup plan for the area if needed, based on the risk assessment results or regulatory requirements.

Definitions

Aquifer: An underground geological formation, or group of formations, containing water. Aquifers are sources of groundwater for wells and springs.

Air Sparge: A cleanup action where air is pumped into wells drilled below the water level of an aquifer. The air bubbles through the groundwater carrying contaminant vapors into the soil above the aquifer. The air and vapors are then removed using soil vapor extraction.

Conceptual Model: A three-dimensional picture or description of site conditions - what is known or suspected about contaminant sources; how contaminants move; how people may come into contact with contaminants; and potential risks to human health or the environment. The conceptual model is based on current information and updated as more information becomes available.

Cleanup Objective: Also known as Remedial Action Objective. A medium-specific (such as groundwater and soil) or area-specific goal for protecting human health and the environment. Cleanup objectives are identified in Records of Decision.

Feasibility Study: The study of possible cleanup actions that explores advantages and disadvantages of each cleanup action.

Land Use Controls: Legal and administrative tools used as part of cleanup actions to maintain protection of human health and the environment such as restricting site use.

Risk Assessment: An analysis using scientific studies and environmental data about substances at a site to provide a complete evaluation of risk for people who might be exposed to these substances.

Soil Vapor Extraction: A cleanup action that removes contaminants by using wells to pull air (vapor) from the soil.

Source Area: An area of contaminated soil that is the starting point or origin for contamination of groundwater or soil vapor.

Vapor Intrusion: The result of vapors from a contaminant source below ground moving up into a building.

Comprehensive Emergency Response, Compensation, and Liability Act (CERCLA) Environmental Cleanup Process

Preliminary Investigation/ Site Assessment	National Priorities List	Remedial Investigation/ Feasibility Study	Record of Decision	Remedial Design/ Remedial Action	Construction Complete	Post Construction Complete	Site Deletion

Former Memphis Depot's Progress in the CERCLA Process

The Depot is currently at the Post Construction stage of the Superfund environmental cleanup process. The environmental cleanup systems required by the Main Installation and Dunn Field Records of Decision have been constructed. Some cleanup actions are complete and some cleanup systems are still operating. Other post construction activities include long term monitoring and additional studies such as the Main Installation Supplemental Remedial Investigation and the Dunn Field groundwater studies. The studies may lead to changes to the cleanup actions required by the Records of Decision. Post construction activities will continue until the cleanup objectives are met. The 2020 Site Management Plan estimated cleanup actions and monitoring will be completed in 2028.

Current and Future Cleanup Activities

2020

- Continued operating and monitoring the Off Depot Groundwater cleanup system
- Added five additional air sparge wells to the Off Depot Groundwater cleanup system
- Conducted Long Term Groundwater Monitoring for the Main Installation and Dunn Field
- Conducted the Annual Land Use Controls Inspection
- Completed the Soil Vapor Extraction pilot test and began planning additional Vapor Intrusion study on the Main Installation
- Completed Main Installation Supplemental Remedial Investigation

2021

- Complete Main Installation Feasibility Study
- Begin preparing a new decision document for changes to the selected Main Installation cleanup actions and conduct a public review and comment period
- Complete the Dunn Field Offsite Groundwater and MW-87 studies
- Continue operating and monitoring the Off Depot Groundwater cleanup system
- Conduct Long Term Groundwater Monitoring of wells on and around the Main Installation and Dunn Field
- Conduct the Annual Land Use Controls Inspection

Barnhart Crane Garden Sampling

In 2017, Barnhart Crane & Rigging Company (Barnhart) partnered with Landmark Training and Development Company to start a job skills program for young adults and working age youth. The program included teaching youth about vegetable and flower gardening in a small area along the northern boundary of the Main Installation.

Barnhart ended the gardening program in June 2018 in response to community concern and EPA questions about compliance with land use restrictions for the Main Installation. The restrictions state no residential use or child-occupied facilities are allowed on most of the Main Installation, including the Barnhart Crane property. Although no removal actions or environmental sites were located near the garden area, the Army tested the garden area for possible soil contamination from past Depot operations.

The soil samples collected in August 2019 were tested for a wide range of possible contaminants. The results were compared to EPA health risk assessment screening levels for residential and industrial land uses. The sample results were provided to EPA for review, which found some results exceeded residential screening levels but not industrial screening levels. EPA found that human health risks for residential and industrial use were within acceptable ranges. In the future, activities will be limited to industrial uses only and not residential-type activities, including gardening. *The Final Garden Soil Sampling Report* is in the Information Repository.

Soil sampling in the former Barnhart Crane garden area was conducted in August 2019. Results showed that residential-type activities, such as gardening, were not appropriate in the area of the Main Installation subject to land use restrictions. The gardening program ended in June 2018.

Expansion of Off Depot Groundwater System

The Off Depot Groundwater cleanup system, located near the intersection of Menager Rd. and Ragan St., has used air sparge and soil vapor extraction since 2009 to remove contaminants from the fluvial aquifer about 70 feet below ground surface in an area west of Dunn Field. Groundwater monitoring in the Off Depot area shows that the cleanup objectives have been met in all but one well.

Five new air sparge wells were installed and connected to the cleanup system in September 2020 to help complete the groundwater cleanup action. Based on past levels of contamination removed by the Off Depot Groundwater cleanup system, it will continue to operate until August 2022 or until groundwater contaminant levels reach the cleanup objectives in the Dunn Field ROD. The annual Off Depot Groundwater cleanup system report is available in the Information Repository.

The Former Memphis Depot
2241 Truitt Street
Memphis, TN 38114

DATED MATERIALS - PLEASE DELIVER THIS IMMEDIATELY

For Your Information

Former Memphis Depot Information Repository

Request documents from the
Tennessee Department of Environment and Conservation (TDEC)
via their document request website at:
https://www.tn.gov/environment/contacts/public-records-request.html. You may also call (901) 371-3000 for assistance in requesting documents.

New Documents

- 2020 Site Management Plan
- 2019 Annual Land Use Controls Inspection
- Annual Long-Term Monitoring Report - 2019
- MW-87 Sampling Plan
- Off Site Investigation Quality Assurance Project Plan – Sampling Analysis Plan
- Final Barnhart Garden Sample Report

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
BRAC Environmental Coordinator

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

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