

SITE REVIEW MEETING SUMMARY

FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE

4 November 2014

Location: Memphis Depot Industrial Park, 2241 Truitt Street, Memphis, Tennessee

CALIBRE, BRAC Environmental Coordinator: Joan Hutton

Tennessee Department of Environmental and Conservation (TDEC), Division of Remediation,

DDMT Project Manager: Jamie Woods

U.S. Environmental Protection Agency (USEPA), Region 4, DDMT Project Manager: Diedre Lloyd

U.S. Army Corps of Engineers (COE)-Mobile, Technical Manager: Laura Roebuck

HDR EOC: Tom Holmes, Denise Cooper, Justin Bills

Site Tour

The attendees arrived at the HDR EOC field office and made introductions. The attendees made a site tour of DDMT: monitoring well locations for the designated plumes on the Main Installation (MI) including enhanced bioremediation treatment (EBT) areas; Dunn Field including the fluvial soil vapor extraction (SVE) well locations and former thermal SVE (in situ thermal desorption) treatment areas; MW-33 location on Kyle-Rozelle Street west of Dunn Field; the air sparge (AS)/SVE treatment compound on Menager Road; and locations of past TDEC investigations for the off-site plume northeast of Dunn Field.

The project team then returned to the field office. Ms. Hutton made introductory remarks and Mr. Holmes reviewed the site activities as listed on the meeting agenda and documented in the meeting handouts.

Main Installation Update

Mr. Holmes noted the key documents and actions that have occurred on the MI including the *MI Record of Decision* (ROD), EBT, long-term monitoring (LTM), land use controls (LUCs), and *MI Interim Remedial Action Report* (IRACR).

Mr. Holmes summarized the conceptual site model with groundwater flowing into the central portion of the MI and then to the southern boundary or into the window and the Intermediate aquifer (IAQ) and Memphis aquifer (MAQ). Flow within the IAQ and MAQ at the MI is toward the northwest. Remediation in the fluvial aquifer is expected reduce levels in the IAQ.

He then updated the team on current MI activities beginning with the contaminant plumes (Target Treatment Area (TTA)-1 North, TTA-1 South, TTA-2, Building 835, North-Central, South-Central and West-Central) and primary CVOC, historical flow patterns and EBT activities. The team discussed the well location maps, initial EBT activities, contaminant rebound and the additional EBT. Quarterly EBT injections began in November 2012 for eight quarters ending in October 2014. Treatment occurred in an expanded footprint that included the original EBT treatment areas as well as other locations and consisted of 45 injection wells (IWs) and 13 performance monitoring wells (PMWs).

The first three quarterly sampling results are provided in technical memorandums (TM) with results from the fourth event presented in the annual report. The quarterly and annual reports are secondary documents and the FFA does not require agency review and revision; the Army would appreciate USEPA and TDEC review to make sure agency concerns are identified and addressed.

SITE REVIEW MEETING SUMMARY

FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE

4 November 2014

Location: Memphis Depot Industrial Park, 2241 Truitt Street, Memphis, Tennessee

Mr. Holmes described the MI LTM program that consists of 99 monitoring wells. He provided the sampling frequency (54 semiannual, 30 annual and 15 biennial) and well categories (background, performance, boundary and sentinel). He described the sampling procedures. Results for the spring LTM event are presented in a TM with the fall results presented in the annual report.

Mr. Holmes updated the team on recently submitted MI and site wide reports - *Annual LTM Report-2013*, *MI Year 3 EBT Annual Report*, *April 2014 LTM Summary Report*, *MI Annual LUC Site Inspection*, and *August 2014 EBT Summary Report*. The annual LUC inspection was completed in August with no deficiencies.

Mr. Holmes asked USEPA to provide comments on the Year 3 EBT annual report, but would prefer to incorporate the comments in the Year 4 report rather than revise the Year 3 report. Preparation of the Year 4 report will begin in late November following the final performance monitoring to begin 5 November. Ms. Lloyd agreed to provide comments in 30 days. The team then discussed how to provide comments – in the document PDF or on a Word table. Ms. Lloyd will review each comment method and determine which best suits her needs.

Ms. Lloyd also agreed to review the Federal Facilities Agreement to determine what constitutes a primary and secondary document. Ms. Lloyd asked that the Army send documents on CD and hard copy, for now, and she will determine which format best suits her needs.

The team talked about the progress made on the MI toward remedial action objectives (RAOs) and planned future activities. Mr. Holmes noted the handout contained tables listing wells with concentrations above maximum contaminant levels (MCLs). Recent EBT samples showed 21 of 58 wells exceeded MCLs. From the spring 2014 LTM sampling, 41 of 54 MI wells exceeded MCLs. Reductive dechlorination has not advanced past vinyl chloride in one well and will be further evaluated moving forward. An issue to resolve is the groundwater concentration appropriate to consider active treatment complete.

The *2014 Site Management Plan* (SMP) noted that the schedule for meeting RAOs should be addressed, so it will be revised in 2015 SMP with the end date pushed out past 2016. The MI Supplemental Remedial Investigation (SRI) results will provide a better idea of the time needed to meet RAOs.

HDR completed the October 2014 site-wide LTM sampling and is awaiting the data. November 2014 EBT monitoring will begin on November 5 and will be the final EBT sampling event under the MI RAWP Addendum (and current COE Tulsa Task Order). Some LTM wells that were used for EBT injection or monitoring will not return to LTM wells again until after the SRI.

Mr. Holmes reviewed the objectives for the SRI and Focused Feasibility Study (FFS):

- Review previous natural attenuation study and groundwater modeling. (Mr. Holmes noted that sampling results indicated that biological activity occurred only because of EBT otherwise there was no significant biological activity reducing contaminant levels.)
- Establish chlorinated volatile organic compound (CVOC) concentrations or locations in the fluvial aquifer that require active treatment versus natural attenuation.

SITE REVIEW MEETING SUMMARY

FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE

4 November 2014

Location: Memphis Depot Industrial Park, 2241 Truitt Street, Memphis, Tennessee

- Re-evaluate potential for VOC transport in the Memphis Aquifer (MAQ) from the MI to the nearest well in the Allen Well Field (see modeling in MI IRACR) using information available (Mr. Woods noted Memphis Light, Gas and Water (MLGW) has not provided data from their wells.)
- Evaluate need for response action in the Intermediate Aquifer (IAQ) – as opposed to cleanup fluvial and allowing IAQ to naturally attenuate;
- Clarify selection of monitored natural attenuation (MNA) as an MI remedy component for fluvial aquifer;
- Evaluate on-site impacts from possible off-site sources by installing additional wells to provide better understanding of potential upgradient impacts; and
- Evaluate response actions in addition to EBT in the fluvial aquifer.

The SRI and FFS will be conducted under a new task order through COE Mobile. Phase 1 of the SRI will begin in 2015 with the installation of 13 wells; Mr. Holmes noted the locations shown in the handout were discussed at the May 2014 project meeting and incorporated in the new task order. HDR is currently working on the Phase 1 work plan and will include DQOs for the wells; the work plan will be submitted for review by USEPA and TDEC. Phase 2 will include installation of about seven additional wells to be identified after Phase 1. The FFS will begin after the SRI is underway.

The team discussed the requirements for a ROD amendment versus an explanation of significant differences (ESD) as well as the community relations requirements for each. The FFS results are needed to determine which will be necessary.

Dunn Field Update

Mr. Holmes noted the key documents and actions that have occurred on Dunn Field beginning with the *Dunn Field ROD* selected remedies of excavation of disposal sites; SVE in subsurface soils; zero valent iron (ZVI) injection in most contaminated groundwater; installation of permeable reactive barrier (PRB) in offsite areas; MNA, LTM and LUCs. He outlined actions that led to the *Dunn Field ROD Amendment* selected remedies of in situ thermal desorption with SVE in the Source Areas and AS/SVE instead of PRB in the Off Depot area. Remedy implementation led to the following reports: *Disposal Areas RACR*, *Early Implementation of Selected Remedy IRACR*, *Source Areas IRACR* and *Off Depot Groundwater IRACR*.

The Fluvial SVE system on Dunn Field operated from July 2007 to July 2012. Currently the system is passively venting with rebound monitoring as part of the LTM sampling. Modeling presented in the Year 4 FSVE annual report predicted that contamination in loess would take three years to rebound. If there is no rebound by the end of 2015, the Army will consider a recommendation to abandon the system.

AS/SVE system operations began in December 2009 with 90 AS points and 12 SVE wells. Lightning damage in February 2014 shut down the system and repairs are underway.

Dunn Field LTM consists of 86 wells. Mr. Holmes described the sampling frequency (38 semiannual, 32 annual and 16 biennial) and well classification (background, background northeast –

SITE REVIEW MEETING SUMMARY

FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE

4 November 2014

Location: Memphis Depot Industrial Park, 2241 Truitt Street, Memphis, Tennessee

upgradient of Dunn Field source areas, sentinel, performance, and FSVE performance). The response to comments on the 2013 LTM report included historical data for LTM wells.

Mr. Holmes noted the one well, MW159, with concentrations above the active treatment goal of 50 ppb. The latest LTM and AS/SVE reports recommended the AS/SVE system operate on alternating months to help move contamination to the system. The system shut down from the lightning damage prior to implementation of the recommendation. The team continues to evaluate how long to run the system to reach the active treatment goal; additional action could include adding more sparge points. The overall objective is achieving cleanup objectives, MCLs and risk-based target concentrations.

Mr. Holmes presented plume maps from 2007 through 2013 that show the decrease in plume configuration and size since remedy implementation. He also reviewed the April 2014 LTM isopleth maps that showed MW-246 had increased levels of trichloroethene and 1,1,2,2-tetrachloroethane since the AS/SVE system has been down; the levels remain below the active treatment goal.

The team discussed the off-site plume crossing Dunn Field. Mr. Holmes noted that the Dunn Field ROD indicated concentrations over 50 ppb would be treated if moving off Dunn Field. Sample results indicate that concentrations above 50 ppb are not moving off Dunn Field, so the off-site plume should not be an issue for AS/SVE system operations. The team discussed trends for wells on the northeast corner of Dunn Field.

Mr. Holmes updated the team on recently submitted Dunn Field reports - *Off Depot AS/SVE System Annual Operations Report, Year Four* and *Dunn Field Annual LUC Site Inspection*. The annual LUC inspection was completed in August with no deficiencies.

The team discussed progress made at Dunn Field toward RAOs and future activities. The overall RAO is either the MCL, or a target concentration to be determined where multiple contaminants are present. Mr. Holmes provided a table that listed the 14 Performance and 5 Background-NE monitoring wells with concentrations exceeding MCL/target concentrations; 4 Performance wells on the northern edge of Dunn Field and down gradient are impacted by the off site plume.

Mr. Woods reported that TDEC had no recent results to report from their investigation of the off site source, but plans to conduct further sampling. Ms. Hutton stated the Army does not accept that it has responsibility for cleaning the off site plume. The Army legal counsel provided input on this issue in the 2013 LTM report response to comments and will review this issue further beginning in January 2015. Ms. Hutton and Ms. Lloyd agreed that both organizations will continue to work as a team to resolve the issue.

Regarding the schedule for meeting RAOs, concentrations continue to decrease at most performance wells. The 2014 SMP schedule indicated removal of the FSVE and AS/SVE systems in 2015. Removal will be pushed back to complete the FSVE rebound monitoring and because of the AS/SVE shut down; the target dates will be revised in the 2015 SMP.

Mr. Holmes stated the impact of the AS/SVE shut down on the 2019 date for meeting RAOs was not clear. Once the AS/SVE has been re-started, the impact can be reviewed. Once concentrations are below the treatment goal, there should not be rebound.

SITE REVIEW MEETING SUMMARY

FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE

4 November 2014

Location: Memphis Depot Industrial Park, 2241 Truitt Street, Memphis, Tennessee

Mr. Holmes reported that the 2015 SMP will incorporate USEPA's 2014 SMP comments. He also stated the Quality Assurance Protection Plan (QAPP) was being revised to address comments provided by Turpin Ballard and to add current and planned activities. HDR has drafted the QAPP and will address Army comments before submitting to USEPA and TDEC.

Mr. Holmes noted that HDR is currently working on the community newsletter, *EnviroNews*, Winter 2014/15 edition. Ms. Cooper provided a copy of last year's newsletter. She will contact Ms. Lloyd for an interview and to request a photo.

The team adjourned the meeting.

Action Items

HDR/Calibre will identify appropriate maps, prepare and provide USEPA with a set of blueprint size baseline maps that include monitoring well data from the annual reports.

HDR will provide USEPA a hard copy for the August 2014 EBT TM in addition to the electronic copy. CDs and hard copies for future reports will be provided as needed based on direction from USACE.

USEPA will provide preference for document comment format – PDF or Word table.

USEPA will provide recommendations regarding primary and secondary documents.

USEPA will provide *MI Year 3 EBT Annual Report* comments in 30 days (12/4/14).

USEPA will provide a photo of Ms. Lloyd for the *EnviroNews*.