

# **SITE REVIEW MEETING MINUTES**

## **FORMER DEFENSE DEPOT MEMPHIS, TENNESSEE (DDMT)**

### **13 February 2013**

#### **ATTENDEES:**

Army, Base Realignment and Closure (BRAC) Division (DAIM-ODB): Carolyn Jones, Bill Millar  
U.S. Army Corps of Engineers, Tulsa: Tyler Jones

CALIBRE, BRAC Environmental Coordinator (BEC): Joan Hutton

Tennessee Department of Environment and Conservation (TDEC), Division of Remediation, DDMT  
Project Manager: Jamie Woods

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

HDR EOC: Tom Holmes, Denise Cooper

Ms. Jones, Mr. Millar and Mr. Ballard attended by conference call. The others were present in  
Memphis.

#### **RESTORATION STATUS:**

##### **MAIN INSTALLATION (MI)**

MI Long Term Monitoring (LTM); additional Enhanced Bioremediation Treatment (EBT) began  
11/12/12.

*MI Remedial Action Work Plan Addendum, Rev 0* (Oct12) approved by USEPA and TDEC on  
1/13/13.

*EBT Injection Summary Report November 2012* (Jan13) submitted to EPA and TDEC on 1/28/13.

*Annual LTM Report-2012 Rev 0* (Jan13) site wide report submitted to EPA and TDEC on 2/1/13.

Quarterly EBT performance monitoring and injections currently being performed.

#### **2012 MI LTM**

New wells, MW-257 to MW-259, met goals and provided useful information on site hydrogeology  
and contaminant extent.

- MW-257 –No chlorinated volatile organic compounds (CVOCs) above reporting limit (RL);  
up gradient limit of the Building 835 trichloroethene (TCE) plume.
- MW-258 – Steeper gradient southwest toward the ‘window’. Tetrachloroethene (PCE) and  
TCE were detected at 22.1 micrograms per liter (µg/L) and 93 µg/L in October; up gradient  
wells MW-103 and MW-104 have lower TCE concentration and PCE has not been detected.  
Additional contaminant source impacting that area with PCE concentrations near the level  
used to select areas for EBT.
- MW-259 – Analytical results consistent with location down gradient of target treatment area  
(TTA)-2. Contaminant migration from TTA-2 is to the southwest and not toward the  
‘window’. Boundary wells MW-24 and MW-93 on the southern property line did not have  
CVOCs detected in the October 2012 samples and have not since 2004.



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### **13 February 2013**

Sampling procedures at most MI LTM wells changed from low-flow sampling to permeable diffusion bags (PDBs). Analytical results from PDB samples were consistent with past results, except at MW-253.

MW-253 was non-detect for TCE in both 2012 samples, after concentrations increased from June 2010 to September 2011. Previously observed increase may have been due to leakage from the overlying fluvial aquifer during purging prior to sampling.

Analytical results for 2012 LTM samples were generally similar to previous results. Continued increases in CVOC concentrations were observed at MW-97 and MW-256.

- TCE concentrations at MW-97, located east of TTA-1 South, have increased from 2.2 µg/L in March 2004 to 62 µg/L in October 2012
- PCE concentrations at Intermediate Aquifer (IAQ) well MW-256 located down gradient of the 'window' have increased from 8.7 µg/L in August 2010 to 39.5 µg/L in October 2012. EBT in the fluvial aquifer should reduce CVOC concentrations in the IAQ over time.

Recommendations include installing additional monitoring wells - one near MW-258 and another near MW-97 based on increasing concentrations. Proposed well locations will be provided for discussion with USEPA and TDEC. Depending on the results, a well in each of these areas could be recommended for EBT injections.

#### **2013 MI LTM**

- Twenty wells used for EBT injections or performance monitoring will be sampled during EBT and therefore omitted from MI LTM in 2013.
- Five former EBT performance monitoring wells not selected for abandonment will be incorporated into LTM.
- MW-253 is not properly located to monitor contaminant migration from the 'window' and is recommended for abandonment. Request regulators to review and include comments/approval to abandon MW-253.
- No other changes to MI LTM are recommended.

#### **EBT Injections**

The planned volume and concentration of sodium lactate solution was successfully injected in 42 of 45 wells.

WILCLEAR PLUS® was much more viscous than expected. The batch had not been properly diluted prior to shipment. The issue was discussed with the vendor and the remaining material was replaced.

- Field measurements of water quality and groundwater samples were collected 6-11 February 2013.
- Field measurements of Oxidation Reduction Potential (ORP) were used to adjust the concentration injected at each well. Volume remained 250 gallons.



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### **13 February 2013**

- Groundwater sample results will be used to evaluate the effects of the initial injections.

USEPA noted concentration at MW-256 above MCLs and potential for off-site migration, and suggested EBT injections at additional locations warranted further review.

HDR noted that LTM sampling results will show the affect of EBT injections on these concentrations over time and requested USEPA and TDEC note this and other issues in their comments on the 2012 LTM report currently in review.

#### **DUNN FIELD**

Air Sparge/Soil Vapor Extraction (AS/SVE) operations are in Year 4. Fluvial SVE shut down. Off Depot LTM is underway.

*Fluvial SVE Annual Operations Report Year Five Rev 0* (Sep12) approved by USEPA and TDEC (email) on 12/12/12.

*Annual LTM Report-2012 Rev 0* (Jan13) site wide report submitted to USEPA and TDEC on 2/1/13.

*Off Depot AS/SVE System Annual Operations Report, Year Three Rev 0* is in preparation.

#### **2012 Dunn Field LTM**

- Total CVOC concentrations decreased in the majority of performance wells at Dunn Field and the Off Depot area, and the overall extent of the plume originating on Dunn Field continued to decrease.
- Few LTM wells had increasing/probably increasing trends and performance wells showed the most decreasing/probably decreasing trends.
- Increasing trends were reported at only four wells for 1,1,2,2-Tetrachloroethane (TeCA) and/or TCE; wells are located near the western end of the AS/SVE system, and the trends likely reflect plume diversion around the system. October concentrations were relatively low in these wells.

The AS/SVE system is meeting the treatment goal, and operations were modified to focus on areas exceeding remediation goals (RGs); this was done to reduce plume diversion around the treatment area and operating costs.

- Total CVOC concentrations in the October 2012 samples decreased in wells MW-149, MW-166 and MW-249 on the southwest side of the AS/SVE system where plume diversion was indicated.
- MW-159 was the only performance well to exceed the treatment goal in either April or October 2012; the only CVOC exceeding the goal in MW-159 was TCE at 275 µg/L in April and 247 µg/L in October.
- Two background-northeastern wells, MW-130 and MW-230, exceeded 50 µg/L for TCE and/or PCE.

Several wells in the northern area of Dunn Field and off site were sampled in April 2012 for the first time in a few years. Figures clearly show contaminant migration on to Dunn Field.



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### **13 February 2013**

TDEC stated further site assessment is planned for spring 2013 to assess a potential up gradient source of the contamination migrating on to Dunn Field. A passive soil gas survey will occur around a suspected source area with monitoring wells to be located based on the results.

LTM wells are being used to evaluate rebound following 2012 shutdown of FSVE system.

- 14 performance-FSVE wells used to evaluate potential rebound in groundwater.
- Vadose zone modeling from the Year 4 report indicated short-term rebound due to residual CVOCs in the fluvial sands - 60 to 90 days after shutdown. Rebound due to residual CVOCs in the loess would not be seen for three to four years.
- Analytical results in the October samples were generally less than in April, and only MW-220 exceeded a Maximum Contaminant Level (MCL) (TCE at 6.65 µg/L). MW-220 is within the area affected by the off-site northeast plume.

Dunn Field Record of Decision (ROD) established RGs for groundwater based on a target cumulative risk level of 1 in 10,000 ( $1 \times 10^{-4}$ ) and a Hazard Index of 1.0. Final RGs may vary based on the individual concentration of each CVOC in a compliance well; however, they are not to exceed MCL or nonzero MCL goal levels.

Risk-based concentrations were determined for the primary CVOCs using revised toxicity factors in the Five-Year Review. The review demonstrated that MCLs will be the primary determinant in meeting the remedial action objective (RAO). TeCA is the only contaminant of concern without an MCL and could meet the RAO at a concentration above the RG in the Dunn Field ROD. Five wells contained TeCA above the RG but had no CVOC concentrations above MCLs in October 2012. In each well, the cumulative risk was less than  $1 \times 10^{-4}$ .

#### **2013 Dunn Field LTM**

The 2011 LTM report recommended 27 wells be removed from LTM in 2012 and be abandoned. These wells will be abandoned in 2013. MW-32, which could not be repaired, will also be abandoned.

Based on criteria in Dunn Field LTM plan, the following changes to sample criteria are recommended:

- Background wells MW-04, MW-80 and MW-126 to be sampled biennially.
- Background-NE well MW-08 to be sampled annually.
- Performance well MW-184 to be sampled semiannually.

Requested USEPA and TDEC comments on the recommendations in their review of 2012 LTM report.

#### **AS/SVE Operations**

- Year 3 uptime was approximately 97%.
- The number of AS wells out of operation increased significantly in 2012 from approximately 10 percent to almost 50 percent of the designated AS wells.



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### **13 February 2013**

- AS well maintenance performed in January returned 17 wells to operations, leaving 10 AS wells closed. 56 of 66 wells are working. Additional AS well maintenance planned in 2013 to return AS wells to operation.

No changes to AS/SVE system operation are currently recommended. However, system monitoring of AS and SVE operations and PID readings at SVE wells will be reduced from weekly to monthly in Year 4 (2013); vacuum and PID readings at VMPs will continue monthly.

The AS/SVE system will continue to operate until the up gradient concentrations from the Dunn Field plume do not exceed 50 µg/L for individual CVOCs. Only one LTM well, MW-159, currently exceeds that standard.

#### **ADMINISTRATIVE AND COMMUNITY RELATIONS SUPPORT**

*2013 Site Management Plan Rev 0* (Nov12) approved by EPA and TDEC on 1/13/13.

*Third Five-Year Review* signed by USEPA on 1/23/13.

Noted documents listed in the SMP for submittal in 2013.

Noted completion of the Five-Year Review in January. The required public notice ran in the *Memphis Commercial Appeal* newspaper on 2/6/13. Reviewed status of action items from the Five-Year Review.

#### **OTHER ISSUES**

- Status of schedule for TDEC's assessment of potential offsite source – TDEC plans to begin a site assessment in spring 2013.
- MW-33 access issues and options – TDEC will provide compliance enforcement guard to accompany HDR personnel upon request.
- BEC to present ideas for future site development of remaining Army-owned acreage to the Memphis and Shelby County Economic Development Growth Engine (EDGE) and Colliers, International.