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## **THE MEMPHIS DEPOT TENNESSEE**

### **ADMINISTRATIVE RECORD COVER SHEET**

AR File Number  $\underline{-930}$ 

FINAL

Memphis Depot BRAC Cleanup Team Meeting Minutes

24 January 2008

BRAC Cleanup Team	Organization	Phone
Michael Dobbs	Defense Logistics Agency (DLA)/Defense Distribution Center (DDC) DDC-DES-EE	717.770.6950
Turpin Ballard	Environmental Protection Agency, Region IV (EPA)	404.562.8553
Jamie Woods	Tennessee Department of Environment and Conservation, Division of Remediation (TDEC-DoR)	901.368.7910
Project Team	Organization	Phone
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Tom Holmes	e <sup>2</sup> M	404.237.3982
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David Nelson	CH2M Hill	678.530.4250
Peter Lawson	CH2M Hill	
John Miller	Noblis	703.610.2560

#### **Previous Meeting Minutes and Action Items**

The BRAC Cleanup Team (BCT) approved and signed the minutes from the 15 November 2007 meeting.

#### Dunn Field

#### Source Areas Fluvial Soil Vapor Extraction (SVE) System

Mr. Holmes reported that the Fluvial SVE system removed 400 pounds (lbs) of volatile organic compounds (VOCs) during the last 2 1/2 months for a total mass removed of 1600 lbs. Effluent samples collected in October indicate the system is still well below the air permit levels. The influent photo ionization detector (PID) reading indicates a steady rate of VOCs coming into the system that is similar to past months.

The Memphis/Shelby County Health Department inspected the SVE system on 15 January 2008. They indicated that the SVE system could be exempted from the permit process if effluent discharge rates decrease.  $e^2M$  intends to maintain the permit as the thermal SVE system will also operate be under the permit.

 $e^{2}M$  replaced the granular activated charcoal (GAC) filter in anticipation of the initial influx from start-up of the thermal SVE system. The next system operations report is to be submitted in mid-February.

#### Source Areas Excavation Transport & Disposal

Mr. Holmes reported  $e^2M$  collected samples of the white material found in the TA-1 excavation in early November. Sample results indicate Chloroform levels exceeded the remediation goals (RGs), but were still relatively low.  $e^2M$  removed all of the accessible white material. Some material remained beneath a concrete storm water drain pipe that would require removal to access the remaining material.

The excavated white material was placed in a covered, lined roll-off and transported off-site for proper disposal. The upper 7 feet of soil was staged, sampled, found to contain no contaminant levels above the RGs and used as back fill.

Mr. Holmes presented the TA-3 Confirmation Sample Locations figure submitted earlier to the BCT.  $e^2M$  has collected the confirmation samples and is comparing the sample results to the RGs, or to the EPA Region 9 Preliminary RGs for substances that have no RG identified.

The team discussed the preliminary results and noted that the poly aromatic hydrocarbons (PAHs) levels exceeded the RGs. PAHs are a common contaminant in the urban environment and their presence is ubiquitous and not unexpected. Therefore,  $e^2M$  plans to move forward with backfilling the TA-3 excavation to avoid schedule impacts in installing the thermally-enhanced SVE.  $e^2M$  will prepare a memo to document the levels remaining above the RGs.

Mr. Dobbs agreed that  $e^{2}M$  can provide the draft document to EPA and TDEC for review and input prior to a formal submittal.

 $e^{2}M$  will prepare a Technical Memorandum for the excavations that will be submitted later this year.

# AI: e<sup>2</sup>M to prepare and provide to BCT written justification for leaving PAHs in place in TA-3.

#### Source Areas Loess/Groundwater Thermal SVE

Mr. Holmes reported that the subcontractor has installed heater well borings, SVE borings, vapor monitoring points, and temperature monitoring points in all areas except TA-3. Construction of the loess thermal SVE system is dependent upon being able to allow the subcontractor access to TA-3 and will continue until mid-March.

Mr. Ballard inquired as to the heating unit start-up sequence. Mr. Holmes will provide an answer on the sequencing of star-up.

Mr. Holmes reported that the subcontractor continues to work with Memphis Light Gas and Water (MLGW) to install the primary power transformer for the heating units. Mr. Holmes indicated that the power must be in place by mid-February.

Mr. Holmes distributed a flow chart for the thermal SVE system that indicates how the team will determine when the loess thermal treatment will be terminated. He then distributed the Enhanced SVE Confirmation Sample Location map and table. The team discussed locations and agreed to collect additional samples from: LSB-04, LSB-05, LSB-16, LSB-23, and LSB-30.

The team agreed that the statistical approach for comparing confirmation sample results to the RG is that the arithmetic average of concentrations from each treatment area (defined as TA-1, -2, -3, and -4) will be at or below RGs with no one constituent in any sample to exceed 10X the RG. For samples that are non-detect, the average will be calculated using 1/2 the SQL (sample

quantitation limit). Some consideration may be required in the case of elevated detection limits in samples (e.g., cleaning up the sample and re-analysis) or any other instances where the sample integrity may be in question.

### AI: e<sup>2</sup>M provide EPA with information regarding thermal SVE heating sequence.

AI: e<sup>2</sup>M to inform BCT if issues related to obtaining power for thermal SVE will impact system start-up.

#### Northeast Off-Depot Plume

Mr. Woods reported that TDEC is compiling a work plan and that there are funds available to conduct an expanded site investigation for the plume migrating onto the northeast corner of Dunn Field. He indicated TDEC has received an updated potentiometric surface map from the previous investigations and will provide it to the team.

#### AI: TDEC to provide the updated potentiometric surface map to the team.

#### **Off-Depot Groundwater Remedial Design (RD)**

#### Intermediate Aquifer Investigation (IAI)

Mr. Nelson presented a comparison of groundwater sampling data from the Dunn Field Remedial Design Investigation collected in 2005 to the data collected in November 2007 during the IAI. The comparison showed that the 2005 plumes are similar in shape to the 2007 plumes.

He then presented trend charts for specific monitoring wells in the center of the plumes and outer boundary of the plumes. The data indicate there is not a rapid migration of the contamination plume from Dunn Field, although there is a slight push out to the north and west.

Mr. Nelson then presented the groundwater re-sampling results from MW-232 following the procedures outlined at the November 2007 BCT meeting. Sample results indicate similar concentrations of constituents as in the original sample with Trichloroethene (TCE) concentrations exceeding the maximum contaminant levels (MCLs).

Mr. Lawson then presented the results of several aquifer tests conducted in September and November 2007. Groundwater was extracted from wells completed in the intermediate aquifer.

Two wells screened in the intermediate aquifer were constructed to act as pumping wells for the aquifer testing program (MW-231 and MW-232). MW-231 was pumped for 72 hours as planned, but the test at MW-232 was terminated early because the well provided insufficient water levels for the pump test. Various monitoring wells screened in both the fluvial and intermediate aquifers were monitored during these tests. According to Mr. Lawson, the test results indicate very little or no leakage from the fluvial to the intermediate after pumping for 72 hours.

Mr. Lawson reported that the test indicated some diurnal drawdown during low-use time (night). However, because MLGW will not provide pumping rate data for the Allen Well Field, CH2M Hill was unable to incorporate the well field's pumping influence into the data.

The results of the aquifer testing were then used in the groundwater flow model. According to Mr. Lawson, the simulation results providing the best fit to the observed data suggest an intermediate aquifer K of 85 feet per day. This is approximately 10 times the 7  $\frac{1}{2}$  feet per day value used in the previous groundwater flow model. He reported that the storage coefficient is estimated to be  $1 \times 10^{-4}$ . The model predicts less than 1/100th of a foot of drawdown in the fluvial aquifer above the pumping well, which is consistent with no discernable drawdown measured in the field.

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Mr. Lawson concluded that the IAI results suggest limited direct leakage between the fluvial and intermediate aquifers based upon the relatively low hydraulic conductivity of the fluvial/ intermediate aquitard and the lack of drawdown in fluvial aquifer wells upon pumping from the intermediate aquifer.

#### Rev. 0 Final (100%) Off-Depot Groundwater RD

Mr. Lawson presented the expanded and re-calibrated groundwater flow model that will be incorporated into the Rev. 0 Final (100%) Off-Depot Groundwater RD.

The modeling shows that after five years, the plume decreases at the site and moves to the west without active remediation. Simulation results also suggest that once the Dunn Field Source Areas are remediated, fluvial TCE concentrations will decline to less than 50 ug/L over the next 20 years. Simulations further suggest that the remaining contamination will migrate downward into the intermediate aquifer and be naturally attenuated. The model forecasts suggest that contaminant concentrations in the Memphis aquifer will remain significantly below MCLs with a peak predicted concentration of less than 1 ug/L.

The team then discussed the model and its impact on the Off-Depot Groundwater RD. Mr. Dobbs reminded the team that at the November 2006 BCT meeting, the team discussed the evaluation of MNA as a potential remedy.

Mr. Ballard indicated that he did not agree with MNA as a sole remedy for the off-depot groundwater. If DLA wants to pursue MNA as a sole remedy, then the Dunn Field ROD Amendment must also include contingencies with specific triggers, such as time and concentration, to implement a contingency action. He also noted that DLA should evaluate the extent to which the conditions and activities at Dunn Field meet the criteria set out in "Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites" (OSWER Directive 9200-17P, April 21, 1999) for considering MNA as a primary remedy for groundwater. DLA should also evaluate and be able to demonstrate that MNA will achieve the remedial action objective in a reasonable time frame as compared to other more active remedies.

Once DLA determines the most appropriate remedy for the off-depot groundwater, then the findings must be presented in a Revised Proposed Plan for EPA and TDEC review.

The team will produce a technical memorandum that discusses DLA's position on the validity of MNA (with LTM) as a final remedy for off-Depot groundwater.

# AI: CH2M Hill to run new groundwater model using EBT as comparison for use in the MNA criteria TM.

AI: CH2M Hill to provide EPA/TDEC the groundwater model files (Vistas 5 format).

AI: CH2M Hill to develop a technical memorandum addressing EPA's MNA criteria with respect to off-Depot groundwater and submit to internal team.

AI: TDEC to request pumping rate information from MLGW for the Allen Well Field.

#### Enhanced Reductive Dechlorination (ERD) Microcosm Study

Mr. Nelson presented data from the November and January sampling events. CH2M Hill had SiRem conduct the January sampling event to evaluate the activity of Hydrogen Reducing Compound – Advanced (HRC-A) as it is a long-term donor.

He reported that high fructose corn syrup bioaugmented with WBC-2 successfully reduced the constituents, but it is a short-term donor meaning more injections over the course of the remedy to achieve the objectives. The HRC-A augmented with WBC-2 did not reduce the 1,1,2,2-Tetrachloroethane.

The cost estimate indicates use of high fructose corn syrup in an enhanced bioremediation treatment to be about 6 - 7 million.

#### **Dunn Field Land Use Control Implementation Plan (LUCIP)**

Mr. Nelson reported that CH2M Hill submitted the latest version (Rev. 2) of the Dunn Field LUCIP to the Department of Army and the EPA on 18 January 2008. He has requested that they provide the approved, signed LUCIP by 15 February 2008 for use in the Rev. 0 Final (100%) Off-Depot Groundwater RD.

#### **Main Installation**

#### Long Term Monitoring (LTM)

Mr. Holmes reported that e<sup>2</sup>M submitted the July 2007 sampling event report to DDC. The sampling event included the new wells installed up to that point. This was the fourth sampling event for LTM wells installed in August 2006 as part of the MI RA. He reported that based on the sample results, concentrations are similar to the previous sampling period. The report includes recommendations for well types (i.e. sentinel or LTM) and future sampling frequency.

#### **Main Installation Plumes**

Mr. Holmes reported that  $e^2M$  is working the Main Installation Source Area Evaluation Work Plan. He presented figures identifying the areas to be evaluated. The plan is to look for sources within the areas and then provide recommendations for future actions, if warranted.

Based on the groundwater flow model and on concentration of constituents, e2M does not intend to treat the area at Building 770. The sample results have been relatively consistent in this area. Mr. Holmes indicated that the MI plumes have now been well defined and that the plan is to look for sources up-gradient of the plumes then determine if further action is necessary.

#### Miscellaneous

#### Five-Year Review

Mr. Holmes opened for discussion comments received from TDEC on the Five-Year Review.

Mr. Woods reported that in the future TDEC will not accept the Johnson-Ettinger model to determine the human health risk from VOCs in groundwater to indoor air in residences. He will provide the team with additional guidance on sampling indoor air once it is received from TDEC-Nashville.

Referring to the PCP Dip Vat comment, Ms. Clark indicated that TDEC concurred with CH2M Hill's PCP Dip Vat Investigation report and with the report's recommendations that indicated a well be installed and sampled as part of the MI LTM Plan.

She continued that the LTM Plan in the MI RD included installing and sampling a well, which was subsequently installed downdip/downgradient of the Dip Vat area and sampled for PCP with a result of non-detect. The LTM Plan did not include PCP for quarterly monitoring.

Mr. Woods agreed to review the historical sampling results for that monitoring well provides resolution for the issue.

Mr. Ballard reported that he submitted to EPA headquarters for signature the letter approving the Rev. 1 Five-Year Review, but has not received the signed copy yet. EPA considers the Five-Year Review completed, and Mr. Ballard will provide the signature page to DDC upon receipt. Mr. Ballard confirmed that TDEC is not a signatory on the Five-Year Review report. Mr. Holmes confirmed that a Rev. 2 will not be prepared and submitted, as indicated on the master schedule.

- AI: EPA to provide completed signature page for Five-Year Review.
- AI: TDEC to provide approval letter on five-year review.
- AI: TDEC to provide indoor air monitoring guidance.
- AI: TDEC to complete review of PCP Dip Vat data and provide closure of the issue.

#### BRAC Cleanup Plan (BCP) Version 11

Mr. Holmes reported that e<sup>2</sup>M submitted the Rev. 0 BCP to the BCT on 4 January 2008. EPA provided an initial comment regarding the master schedule. The team discussed the documents for which the submittal dates have been overcome by events and how best to proceed.

Mr. Ballard suggested, and the team agreed, that EPA approve the document with the current master schedule and then reevaluate the schedule once some of the data gaps that affect completion of documents have been addressed. The team agreed to conduct a mid-year review of the master schedule in April 2008.

#### AI: e<sup>2</sup>M to conduct a mid-year review of the master schedule in April 2008.

#### Next Meeting

The next meeting is tentatively scheduled for 21 February 2008 in Atlanta, GA. The project team meeting will begin the morning of 20 February 2008.

The following BCT meeting is tentatively scheduled for 3 April 2008 in Memphis, TN. The project team meeting is scheduled for the afternoon of 2 April 2008. The Restoration Advisory Board meeting is scheduled for the evening of 3 April 2008.

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MICHAEL DOBBS Defense Distribution Center BRAC Environmental Coordinator BRAC Cleanup Team Member

TURPIN BALLARD Environmental Protection Agency Federal Facilities Branch Remedial Project Manager BRAC Cleanup Team Member

JAMIE WOODSDATETennessee Department of Environment and ConservationMemphis Field OfficeDivision of RemediationEnvironmental Project ManagerBRAC Cleanup Team Member



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