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## **THE MEMPHIS DEPOT TENNESSEE**

### **ADMINISTRATIVE RECORD COVER SHEET**



886

#### Final

Memphis Depot

**BRAC Cleanup Team** 

**Meeting Minutes** 

15 March 2007

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BRAC Cleanup Team	Organization	Phone/email
Michael Dobbs	Defense Logistics Agency (DLA)/Defense Distribution Center (DDC) DES-DDC-EE	717.770.6950
Turpin Ballard	Environmental Protection Agency, Region IV (EPA)	404.562.8553
Project Team	Organization	Phone
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David Nelson	CH2M Hill	770.604.9182 x394
Mike Perlmutter	CH2M Hill	770.604.9182 x645
John Miller	Noblis Systems	703.610.2560

#### ATTENDEE LIST

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

The BRAC Cleanup Team (BCT) approved and signed the minutes from the 19 February 2007 meeting, with Mr. Ballard signing by proxy for Mr. Spann.

Mr. Ballard will continue to work with the Wabash Avenue investigation contracting officer to have the drums containing investigation derived waste removed from Dunn Field. Mr. Holmes indicated the drums must be removed or moved by April 1 to begin Fluvial SVE site preparation activities.

#### AI: Mr. Ballard to have an update on drum removal by March 23, 2007.

#### Source Areas Remedial Design (SARD)

#### Rev. 0 SARD (100%)

Mr. Perlmutter presented the Soil Treatment Decision Logic Flow Chart created in response to EPA's comments on the Rev. 0 SARD (100%). He emailed the flow chart to both Mr. Ballard and Mr. Spann on March 15. Mr. Perlmutter requested BCT input or approval of the flow chart as soon as possible. The team then discussed the flow chart, addressed questions and offered suggestions for improvement.

Mr. Dobbs appreciated that the flow chart includes resolving the issue regarding achieving the remedial goals (RGs). Mr. Ballard asked about the timing of groundwater sampling between the

discontinuation of the loess thermal system and start of zero-valent iron (ZVI) injections. Mr. Perlmutter responded that the groundwater model indicated a possible dense non-aqueous phase liquid source in Treatment Area 2, so the timing provided sufficient opportunity for contamination levels to rebound. If levels rebound, then the timing provides for reevaluation of the source before beginning the ZVI injections in order to reduce the injection areas as much as possible to reduce costs.

Mr. Ballard suggested that ZVI injections move forward in areas that maintain a steady trend after four quarters of post-thermal sampling. He went on to say that the original Dunn Field Record of Decision includes a large ZVI injection area that has been reduced over time due to the anticipated effect of the thermal loess and fluvial SVE systems. Mr. Perlmutter responded that in areas with low concentrations the timing allows the fluvial SVE system to reduce the levels so that ZVI injections may not be necessary in those areas. He said that ZVI injections will move forward in areas with higher levels.

Mr. Holmes reported that a question regarding the depth of the loess thermal and fluvial SVE systems was identified during preparation of the RAWP. The figures prepared by CH2M HILL indicate treatment will be limited to the loess (silt) only and not the underlying low permeability sandy clay transition layer. He had previously thought the thermal system would include both layers. Mr. Perlmutter stated that the treatment would extend into the lower level of the transition zone by about 5 feet or so. The  $e^{2}M$  plan is based on terminating the thermal system in the lower level of the transition zone. Mr. Miller also thinks the thermal system should be terminated in the base of the transition zone between the loess and the fluvial sand deposits.

Mr. Ballard remarked that the contamination concentrations should determine the termination point. If sampling results in the lower layer are close to the fluvial formation results, then the fluvial system should be able to handle it. If results are more in line with concentrations in the loess, then it should be treated with the loess. Mr. Holmes indicated that the team has looked at sampling data at specific depths, not at specific lithologies. The depth would be an issue only where the transition zone was greater than 10 feet thick.

Mr. Ballard asked if 5 feet would make that much difference, and both Mr. Holmes and Mr. Perlmutter responded that to heat an extra 5 feet will cost about \$1 million dollars. Mr. Perlmutter said the design currently terminates the thermal system 30 feet below ground surface, and that CH2M Hill's vision is that both the thermal and fluvial SVE systems will treat contamination in the transition zone. Mr. Holmes asked about the basis of the RD's depth for the thermal system borings. Mr. Nelson said they used an average loess thickness of 25 feet based on information gathered from soil borings then added 5 feet to get into the transition zone.

The team continued to discuss the issue and agreed that the loess thermal system borings will terminate 5 feet above the sand to gravelly sand unit and that the fluvial SVE borings will terminate at the top of the gravelly sand unit.

Ms. Clark noted that the SARD public briefing is scheduled for May 10 in Memphis, TN. She reminded Mr. Perlmutter that the SARD presentation is to be submitted to  $e^2M$  by March 23 in order to begin the review and approval process.

AI: CH2M Hill to ensure that the loess thermal and fluvial SVE boring termination depth information is captured in the next revision of the SARD.

AI: Mr. Ballard to provide comments or approval of the flow chart by March 23.

## AI: CH2M Hill to provide the Source Areas RD public briefing presentation to $e^2$ M by March 23.

#### **Fluvial SVE Early Implementation**

Mr. Holmes distributed and reviewed the schedule for construction and one year of operation for the Fluvial SVE system. He reported that  $e^2M$  has received funding for construction and year one operation, and that  $e^2M$  is currently working the subcontracts.

Mr. Holmes reviewed the upcoming activities including obtaining an air discharge permit. Mr. Ballard reminded him that according to the CERCLA regulations  $e^2M$  does not have to obtain the permit, but must meet the substantive requirements. Mr. Holmes responded that due to community concerns he intended to obtain the permit. Mr. Ballard indicated that it is unacceptable for any delay in the implementation schedule due to obtaining the permit.

Mr. Holmes noted that the pre-construction conference is scheduled for April 18, and that the Notice of Mobilization submittal will follow the RD public briefing. He reported that it will take two months to build the SVE system followed by transportation, placement on the site and then testing.

Mr. Holmes indicated that prior to mobilization he needs EPA and TDEC concurrence on the fluvial SVE portion of the Source Areas RD. Ms. Clark reminded the team that at the February BCT meeting EPA and TDEC agreed to provide approval of the fluvial SVE system in writing. Mr. Ballard responded that the approval was to come after receipt of the SVE screen modifications technical memorandum (TM). He requested that the SVE modifications TM transmittal letter include a statement to provide written approval of the fluvial SVE portion of the Source Areas RD. Mr. Holmes requested that CH2M Hill send him the final SARD drawings.

Mr. Holmes reported that on March 12 he received EPA comments on the Fluvial SVE Remedial Action Work Plan (RAWP) but is still awaiting TDEC comments, which are due by March 28. He did not foresee any problems incorporating EPA's comments.

AI: CH2M Hill to include a request for written approval of the fluvial SVE portion of the SARD in the SVE modifications TM transmittal letter.

# AI: EPA/TDEC to provide written approval of the fluvial SVE portion of the SARD upon receipt and review of SVE modifications TM.

AI: CH2M Hill to provide  $e^{2}M$  with the final SARD drawings.

#### Thermal Loess SVE

Mr. Perlmutter showed photos from a site visit to a thermal remedial system in Cartersville, GA. Mr. Holmes reported that he and the project engineer have conducted conference calls with the thermal system subcontractors to discuss issues regarding the use of stainless steel pipes and about guarantees that their thermal systems will achieve RGs. After the calls and continued discussion with the team,  $e^2M$  will use stainless steel pipes. Both companies offer guarantees, but the guarantee will increase project costs. So, Mr. Holmes indicated that the request for proposal (RFP) will not require a guarantee, but may provide incentives for meeting the RGs within a specified timeframe.

Mr. Dobbs voiced concern about security of the treatment system once installed. Mr. Holmes said that the subcontractor is responsible for security of the system, and he will make the

subcontractors aware of the security concern. Mr. Dobbs also wants all appropriate safety signs to be posted.

Mr. Holmes indicated that the Rev. 0 Loess/Groundwater RAWP will not identify the thermal system vendor. He said that will provide prospective vendors with the Rev. 0 Loess/ Groundwater RAWP and the RFP in April in order for them to provide presentations to the project team in April in conjunction with the BCT meeting (although Mr. Dobbs clarified that the vendor presentations are for information purposes only; vendor selection is the responsibility of the RA contractor [ $e^2$ M]). The Final Loess/Groundwater RAWP will identify the vendor. Mr. Holmes indicated that the Rev. 0 Loess/Groundwater RAWP will be submitted to the internal team and the BCT simultaneously on March 28.

#### SVE Modification Technical Memorandum (TM)

Mr. Perlmutter reported that he submitted the TM for internal review and received comments from Mr. Holmes and Mr. Miller. The TM will include background information about how CH2M Hill modeled the screen specifications. CH2M Hill will submit the TM as a separate document for  $e^2M$ 's use, but then it will be incorporated into the SARD.

The team questioned the changes in slot size from 2-4% to 1% and finally to 7%. Mr. Perlmutter indicated that the original 2-4% (0.010-inch conventionally-slotted screen) was based on professional judgment for similar applications. As part of the well screen design effort, a model was used to predict the open area of uniformly-slotted pipe necessary to achieve less than 5 percent differential pressure across the screened section. The 1% open area was based on the results of the numerical vapor-flow modeling effort that was performed during the RD to estimate the long-term effectiveness of the proposed fluvial sands SVE system. The fluvial sands hydraulic conductivity (K) used to calculate the 1% area was artificially high to calibrate the numerical model to the 2002 SVE test results. Upon further review, using an average K value calculated from fluvial sands vertical hydraulic permeability data collected by Jacobs Engineering in 2002, CH2M Hill calculated the formation air permeability and concluded that the optimal slot opening should be 7%.

Mr. Miller requested additional information regarding the K value calculations and wondered if the design can cover both sets of soil data. Mr. Holmes requested additional information on the well screens and piping specifications to order the screens. Mr. Perlmutter will resolve both requests via email. CH2M Hill will submit the SVE Modifications TM to the BCT no later than March 30.

### AI: Mr. Perlmutter to provide K value information and well screen and piping specifications via email to Mr. Miller and Mr. Holmes.

#### **Overall Source Areas Remedial Action (SARA) Schedule**

Mr. Holmes reported that overall the SARA is on schedule. He is working the Loess/ Groundwater RAWP for submittal to the BCT on March 28. The RAWP is scheduled to have final approval on September 24.

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

Mr. Nelson received comments from EPA and forwarded them to Mr. John DeBack and Mr. Rick Wirsing at the Department of Army (DA). Mr. Wirsing must now discuss the comments with DA Headquarters. Ms. Clark reported that the LUCIP will continue to be a separate item on the deliverables matrix with no dates inserted. Mr. Ballard asked, and Mr. Nelson confirmed,

that CH2M Hill will remove the LUCIP from the Source Areas RD so as not to delay it. Mr. Nelson indicated that CH2M Hill will have to change a few references to the LUCIP in the Final Source Areas RD, but nothing that will delay the document. The RD will indicate that the LUCIP will be submitted under a separate cover.

Mr. Ballard indicated that after EPA regional counsel, Ms. Martha Brock, reviews the LUCIP it then goes to EPA Headquarters for review. According to Mr. Ballard, Ms. Brock felt EPA Headquarters' comments were addressed adequately, but now they have to see the next iteration.

#### Main Installation Remedial Action (MIRA)

#### MI Long Term Monitoring (LTM) Report

Mr. Holmes reported that e<sup>2</sup>M submitted the proposed well location map to the BCT, and EPA and TDEC approved the locations. Installation of monitoring wells is underway with MW214, MW215 and MW218 complete and MW207 being installed this week. The next round of semiannual LTM sampling is in April. Mr. Holmes said at that time the team will need to decide about additional treatment areas and that he will prepare the time trends as discussed at the February BCT meeting.

Mr. Holmes indicated that the top of clay has been encountered at the expected depths based on boring logs for existing wells and that the wells have been installed as planned. He said that well installation will continue until all the proposed wells are installed and that e<sup>2</sup>M will sample them during the next round of semi-annual sampling in April. He will then update the contours and cross sections.

#### Enhanced Bioremediation Treatment (EBT) Quarterly Report

Mr. Holmes reported that  $e^2M$  started adding 1 lb of sugar to 500 gallons of solution and increased the injection volume at the MW21 area as discussed at the February BCT meeting.  $e^2M$  is collecting the next round of quarterly sampling and will then prepare the quarterly report.

#### **Potential Source Areas**

Mr. Miller voiced concern about the potential for unidentified groundwater contamination sources in Target Treatment Areas 1 and 2 (TTA1 and TTA2) and that there is no ongoing treatment for the potential sources. He said sampling data indicate that if contamination is moving down into the fluvial aquifer from the soil then, if not located and remedied, rebound of groundwater contamination levels will occur after treatment.

Mr. Miller also indicated that groundwater contamination levels at MW21 may indicate that offsite contamination is moving into the TTA1 plume. The plume at MW21 does not appear to have a control well up gradient. He advised the team to install a monitoring well up gradient of the MW21 area, and Mr. Dobbs approved the additional monitoring well. Mr. Holmes will identify the appropriate location and submit the information to the team via email for BCT approval.

Mr. Miller suggested that the team review the historical sampling data for TTA1 and TTA2 and consider other methods for collecting data in the area, such as drilling inside buildings, etc. Mr. Holmes said that it makes sense to start looking now. Mr. Dobbs reiterated the need for an exit strategy at the Main Installation and agreed that this issue requires resolution.

Mr. Miller agreed to compile the existing soil sampling information into a short TM, and Mr. Dobbs approved.  $e^{2}M$  will install and sample the up gradient well during the current mobilization

and bring the information to the team for further discussion. Mr. Ballard interjected that the MI RD does address areas that rebound, and that the team needs more contamination rebound information before moving ahead with an extensive sampling program. He also suggested that efforts focus on areas up gradient of wells that rebound.

### AI: Ms. Cooper to provide Mr. Miller with document titles for BRAC, Remedial Investigation and Screening Site sample results.

AI: Mr. Miller to compile existing soil data into a short TM.

### AI: e<sup>2</sup>M to install a monitoring well off-site, up gradient (southwest) of MW21.

#### Dunn Field Off-Depot Groundwater Remedial Design (RD)

#### Off-Depot (Intermediate Aquifer) Groundwater Study

Mr. Frazier reported that the Corps of Engineers has provided DDC with the funds request and is awaiting receipt of funds. Upon receipt of funds, the Contracting Officer will issue the task order and notice to proceed to CH2M Hill. Mr. Perlmutter indicated the work plan will be forthcoming soon after receipt of notice to proceed.

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

Mr. Nelson updated the team on the study being conducted by SiREM (Ontario). He reported that bioaugmentation of the samples began the end of February, and he presented sampling data collected after 60 days. The results of the lactate augmented with WBC-2 microcosm indicated that 1,1,2,2-Tetrachloroethane (PCA) dropped significantly, as did cis-1,2-Dichloroethene (cDCE). The chitin with WBC-2 microcosm also responded favorably, but chitin is not favorable for use at the Depot due to delivery issues.

Mr. Nelson reported that SiREM spiked the lactate and chitin samples with levels of PCA and Trichloroethene (TCE) based on fall 2006 off-depot sampling data. They will recalculate the donor demand based on the higher concentrations and amend with additional lactate and chitin as needed. SiREM will continue weekly sampling.

Mr. Nelson said the questions to be considered for the Off-Depot Groundwater RD include when and how to deliver the microbes. Based on the tests, microbes should be delivered when there is an anaerobic environment and enough of a carbon source to feed the microbes. SiREM is studying delivery methods at other sites to answer the question of how to deliver the microbes. Mr. Nelson reported that only about 15 gallons of the WBC-2 microbe are currently available. SiREM recommends ½ gallon per injection well for bioaugmentation.

The team asked how fast the microbes will migrate from the injection point. Mr. Nelson said that KB-1, which is similar to WBC-2, reportedly migrates 0.2 feet per day. WBC-2 is a newer microbe that has not been tested in the field, so Mr. Nelson was not sure exactly how fast it will migrate.

Mr. Nelson said questions still remain regarding the spacing of injection points and whether injections will be based on microbe distribution, carbon distribution or both. He said that so far the test indicates that lactate bioaugmented with WBC-2 may be a viable alternative to treat the off-site groundwater contamination levels.

Mr. Dobbs asked if CH2M Hill will have enough data to use in the Off-Depot Groundwater RD and meet the submittal schedule, and if the team has confidence that bioaugmenting will improve

results. The team is confident that bioaugmentation will improve results. Mr. Holmes asked whether the study indicates if EOS or lactate is the better substrate. Mr. Perlmutter responded that more data are needed to make that determination, but that there is already a proven injection system in use at the MI so it seems clear to use lactate. He continued that even if the team determined that EOS is a better substrate, it is similar to lactate as far as physical conditions.

Mr. Holmes interjected that the results of the Off-Depot Intermediate Aquifer study might lead to an expansion of lactate injection locations. Future discussions will revolve around the timeframe needed to treat the plume to more quickly meet the remedial action objectives.

Mr. Miller commented that the team will have results of the ERD study in time for the Off-Depot Groundwater RD to determine how and where to inject. Mr. Holmes thought the purpose of microcosm study was to see if PCA can be reduced. Mr. Perlmutter responded that the results are very favorable that bioaugmentation will reduce the PCA and that the results are helping CH2M Hill design the Off-Depot groundwater EBT system.

Mr. Miller asked if CH2M Hill has enough monitoring wells and data to design the EBT system. Mr. Perlmutter said that CH2M Hill now has lots of information about the plume and the aquifer. According to Mr. Perlmutter, the PCA degradation rate is 10 times greater with the microbes than without. With lactate only, TCE degrades but PCA does not and cis-DCE increases, so the ERD microcosm test has already provided good information.

#### **Dunn Field Groundwater**

Mr. Dobbs needs the team to focus on an exit strategy for the Dunn Field cleanup. He asked about progress of TDEC's Wabash Avenue investigation as it affected the off-site plume moving onto the northeast corner of Dunn Field. Mr. Holmes said issues remain to be resolved with TDEC's Wabash Avenue investigation. Mr. Ballard asked about the monitoring well on Dunn Field to confirm the northeast corner plume boundary that the BCT has discussed in previous meetings. Mr. Holmes said  $e^2M$  will install additional monitoring wells as part of the fluvial SVE installation, so they could install another well then. Mr. Miller said that given the cost of ZVI it makes sense to reduce the Source Areas ZVI treatment area as much as possible.

Mr. Holmes suggested that at the May or June BCT meeting the team be prepared to discuss the big picture criteria about the timeframe to clean up the Off Depot plume and the general philosophy about how CH2M Hill intends to meet the goals.

#### AI: Mr. Nelson to provide copies of microcosm slides to the project team.

#### BRAC Cleanup Plan (BCP) Version 10

Ms. Clark reported that EPA and TDEC have an action item from the February BCT meeting to provide concurrence letters for the BCP Version 10. Mr. Ballard said he would provide a concurrence letter by the end of March.

#### AI: EPA and TDEC to provide concurrence letters on the BCP Version 10.

#### Dunn Field FOST 4 Property Sale

Ms. Clark accessed the website with the Dunn Field bid information and reported that the sale is scheduled to end at 2 pm EDT on March 16.

#### April Restoration Advisory Board (RAB) Meeting

Ms. Clark said the RAB meeting is scheduled for 6:00 p.m. on April 19 at the usual location, the Ruth Tate Senior Citizen Center. The RAB presentations will include an update by  $e^2M$  of the overall program and an update by Mr. Harold Duck of the Dunn Field sale. The presentation dry run is scheduled for 3:30 p.m. on April 18.

#### Miscellaneous

Ms. Clark asked the team for input regarding the meeting minutes and whether the action item list and presentation material shall be included. The team determined that the action item list and presentations will not be included as part of the official minutes, but presentations and the action item lists will be distributed with the draft minutes. Mr. Nelson asked about posting the presentations on CH2M Hill's FTP site, but Mr. Dobbs indicated he had difficulties accessing the FTP site apparently due to DDC firewall protections. Mr. Ballard offered to see if EPA can post the presentations on their FTP site.

Regarding the Revised Proposed Plan and Dunn Field Record of Decision Amendment, Mr. Holmes will present Mr. Dobbs with a revised schedule pushing the Rev. 0 deliverable dates back by 30 days.

AI: Mr. Holmes to provide Mr. Dobbs with a revised schedule for the Revised Proposed Plan and Dunn Field ROD Amendment.

AI: Ms. Clark to review the schedule for RAB meetings, public meetings and the EnviroNews to ensure they are adequately spaced.

AI:  $e^{2}M$  and Frontline to develop fact sheets – one for the fluvial SVE site preparations and one for the Source Areas RD.

#### Next Meeting

The next BCT meeting is scheduled for April 19 in Memphis, TN. The Project Team meeting is scheduled for the morning of April 18. The Fluvial SVE pre-construction meeting is scheduled for April 18 at 1:30 p.m. followed by thermal remediation vendor presentations at 2:30 p.m. The RAB presentation dry-run is scheduled for April 18 at 3:30 p.m.

' Date

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

4/11/07-DATE

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

04/19/07

EVAN SPANNDATETennessee Department of Environment and ConservationMemphis Field OfficeDivision of RemediationEnvironmental Project ManagerBRAC Cleanup Team Member

