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THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number _ 890

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Final

Memphis Depot

BRAC Cleanup Team

Meeting Minutes

19 April 2007

ATTENDEE LIST

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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
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Evan Spann	Tennessee Department of Environment and Conservation, Division of Remediation (TDEC-DoR)	901.368.7916
Project Team	Organization	Phone
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David Nelson	CH2M Hill	678.530.4250
Mike Perlmutter	CH2M Hill	678.530.4271
John Miller	Noblis Systems	703.610.2560

Previous Meeting Minutes and Action Items

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

Source Areas Remedial Design (SARD)

Final SARD

Mr. Perlmutter summarized the changes from Rev. 3 to the Final SARD.

• Added Figure 6-1: Soil Treatment Decision Logic Flow Chart

- Adjusted SVE well screen length: 30-35 feet
- Incorporated SVE well screen design and corresponding TM in Appendix B: Numerical Modeling of Dunn Field Source Areas Fluvial Soil Vapor Extraction System Well Screen
- Finalized Figures 2-10a, b, c, and d: Delineation of Soil Treatment Areas
- Decreased loess excavation areas from 2 to 1
- Finalized and stamped/sealed construction drawings in Appendix D
- Included the following text in the loess thermal-enhanced SVE system basis of design: "The bottom of the treatment zone will extend to approximately 5 feet above the bottom of the transition zone that underlies the loess."
- Removed the LUCIP
- Updated fluvial SVE system blower specification

Mr. Nelson requested the number of hard copies each organization required as CH2M Hill was in the process of printing them for shipment on April 25. Mr. Ballard and Mr. Spann requested one (1) copy each. Ms. Cooper requested five copies (5) - two (2) for the Information Repositories, one (1) for the Administrative Record and two (2) for the File Room.

Ms. Clark reminded the team that the Source Areas RD public briefing is May 10. The BCT confirmed that there are no outstanding issues on the Source Areas RD.

Fluvial Soil Vapor Extraction (SVE) Early Implementation

Mr. Holmes reported that e²M submitted the responses to comments on the Rev. 0 Fluvial SVE Remedial Action Work Plan (RAWP). Mr. Holmes pointed out specific comments and the responses.

Regarding EPA's comment on the purpose of variable spacing of the vapor monitoring points (VMPs), Mr. Holmes responded that the spacing of VMPs currently shown on Table 6 is similar to the locations presented in the SARD. A few minor changes were made to align the VMPs with the loess treatment boundaries.

Mr. Spann voiced concern with the one VMP in Treatment Area 2 (TA2) that is between the two SVE wells. He understood that Mr. Holmes wanted to determine the overlapping influence, but Mr. Spann questioned if that VMP location will give enough information about what each individual SVE well is doing.

Mr. Holmes responded that e²M evaluated the VMP locations with regard to the nearest SVE well and the loess treatment area boundaries. The geology of the fluvial formation is generally homogeneous and the vacuum monitoring data at the VMPs should depend on distance from the SVE wells rather than the treatment area location. The VMPs are spaced from 15 to 80 feet from the SVE wells and the data from each VMP will be plotted versus the distance from the individual SVE well. There are two or three at each of those distances, so e²M will have the data to see how each SVE well is reacting.

He continued that if the VMP data shows variation with the treatment area location then the team will see that the fluvial sands are more variable than currently believed, and the team can decide whether to install more VMPs. Mr. Ballard asked if the team will have that data before installing the thermal system with all its cables. Mr. Holmes said yes as the team will review the first

month's data fairly intensively. The thermal system work does not start until October or November, so there will be time to install more VMPs if necessary.

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Mr. Spann voiced concern that e^2M is asking that one VMP in TA2 to do a lot of work. Mr. Holmes said the VMP is located near the center of TA2 and it is important to understand the influence of the two SVE wells in that area.

Mr. Holmes reported that Mr. Ballard suggested preparing a data quality objective table listing all the VMPs. Mr. Spann said it is a good idea to develop a table with this rationale, so the team can review it as the remedial action moves forward. The team agreed that e^2M should expand on the information provided in Table 6 to include the specific rationale for each of the VMP locations.

Mr. Holmes went on to report that although the Comprehensive Emergency Response Compensation and Liability Act (CERCLA) indicates it is not necessary to obtain an air discharge permit, e²M will go through the permit process as it is not difficult and ensures e²M meets the substantive requirements. He does not anticipate any delays to the project. Mr. Herrera is currently working to obtain the air permit.

 $e^{2}M$ will collect vapor samples over the first couple of days to determine mass removal rates in the initial stages of operation. $e^{2}M$ will sample condensate in accordance with the Industrial Wastewater Discharge Agreement currently in place. The SARD assumes treatment of condensate will be necessary.

Mr. Holmes said that implementation of the Fluvial SVE system is proceeding per the RAWP schedule. e²M is removing the soil pile in TA3 this week. They will set aside some of the soil to backfill the loess excavation area, which will be discussed in the next RAWP. Installation of the baseline wells will begin on April 30, and then e²M will sample them. The SVE extraction/treatment system building is under construction with delivery scheduled for June 1. He reported that all the points have been surveyed.

AI: e²M to expand Table 6 to include rationale for VMP locations and distribute as a stand alone document for BCT review/approval.

AI: EPA/TDEC to provide approval of the Rev. 0 Fluvial SVE RAWP response to comments.

Dunn Field Off-Depot Groundwater Remedial Design (RD)

Mr. Nelson reported that CH2M Hill received the contract award from the Corps of Engineers, so work has started on the Off-Depot Groundwater RD. At this point, CH2M Hill is working to determine several elements such as the best donor for the enhanced reductive dechlorination (ERD) approach, injection spacing, etc. CH2M Hill is also evaluating the best methods for field use of WBC-2, which has been successful in laboratory tests.

Mr. Nelson said that from the team's previous discussions, he wants to obtain some data from the MLGW area for use in the groundwater model. Mr. Nelson needs input and output data for the model and to compare MLGW's data to the data CH2M Hill already has. Mr. Spann said to contact Mr. Fred Von Hoff, and he provided Mr. Von Hoff's telephone number.

Mr. Nelson anticipates submitting the Off-Depot Groundwater RD for internal review on June 20 and to the BCT in July in accordance with the current schedule.

Enhanced Reductive Dechlorination (ERD) Microcosm Study

Mr. Nelson updated the team on the study being conducted by SiREM (Ontario). The study is to find a suitable microbe to treat 1,1,2,2-Tetrachloroethane (PCA) in a timely manner or at least reduce concentrations rapidly. Each microcosm includes three bottles and the data presented are an average of the three bottles.

After reviewing groundwater sample results from MW-77 for-previous events, the team determined that the starting microcosm study concentrations may be lower than typical contaminant concentrations found in the groundwater beneath Dunn Field. Therefore, the decision was made to re-spike the samples using more representative levels.

SiREM took the same three bottles from each microcosm and added 1,1,2,2-PCA to 10 mg/l and Trichloroethene (TCE) to 6 mg/l. Due to a laboratory error, each microcosm was also spiked with 1,1,2-Trichloroethane (TCA) to 10 mg/l. This error was not considered significant as the WBC-2 was cultivated in the laboratory using TCA.

After 70+ days with Lactate only, the existing microbes were able to break down the TCE and the PCA. But, cis-1,2-Dichloroethene (cDCE) saw an initial increase, which is fairly common and expected. Mr. Nelson indicated that the cDCE increase was also seen during the ERD project at the Tennessee Air National Guard (TANG). He said it was part of the normal chemical break down process.

After 70+ days with EOS (a combination of vegetable oil and Lactate) only, there was a slight break down of PCA only.

The data for the microcosm with Lactate and WBC-2 had not changed much from the previous month. But after bioaugmentation, concentrations dropped to non-detect with the exception of Ethene, which is expected and not harmful. The trans-1,2-DCE increases are due to acidity in the water coming from the bottles. After about 20 days, there is a fairly good decrease in 1,1,2-TCA and a slower decrease in TCE and PCA.

For EOS with WBC-2, concentrations within two of the three bottles have decreased to nondetect. One bottle shows with no significant change in concentrations and appears to be an anomaly. SiREM did not re-spike the EOS with WBC-2 microcosm because they wanted to see if this one bottle will improve. Mr. Nelson reported that CH2M Hill and SiREM have discussed discarding the one anomalous bottle and resuming the testing by re-spiking the other two bottles, but they have not done so yet.

Twenty days after re-spiking the Chitin microcosm, concentrations are non-detect, except for Ethene and trans-1,2-DCE, which is expected. The concentrations peaked and then began to decrease with a very fast response. The trans-1,2-DCE also peaked and is now reducing. Again, the acidity of the water impacts the trans-1,2-DCE decrease.

CH2M Hill and SiREM are now reviewing the different carbon donors. Chitin appears to be a success; however, it is an insoluble solid, and there is no method for distributing it in the groundwater.

Mr. Spann asked how long the study will run. Mr. Nelson said that SiREM collected samples from each microcosm on Monday, April 16. The microcosm study started in January 2007 and will continue until June 2007.

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Mr. Nelson said that the data from the microcosm study will be incorporated into the Off-Depot Groundwater RD. He said that CH2M Hill and SiREM have discussed injecting Lactate to establish the reductive conditions prior to injecting EOS with WBC-2, as a long-term feeder, to decrease the overall injection period. Mr. Nelson reported that WBC-2 has not yet been used in a field application, so they are unsure how the laboratory results will translate in a field setting. CH2M Hill will be looking at that over the next month to determine the optimum injection process, and the results will be incorporated into the RD. Supposedly, it will be used in the field at a Carbon Tetrachloride site, and he hopes to get some data from that site.

Mr. Holmes asked why CH2M Hill preferred EOS. Mr. Perlmutter responded that EOS can be obtained as a commercially emulsified vegetable oil that provides good distribution in the field. Mr. Spann opined that injection of Lactate prior to injection of EOS is a good plan.

Off-Depot (Intermediate Aquifer) Groundwater Study

Mr. Nelson reported that CH2M Hill received funding for the work plan. He intends to submit the work plan to the internal team by May 11 and to the BCT on May 25. The internal team agreed to a one-week review time for this work plan, and CH2M Hill agreed to a one-week submittal schedule to respond to internal comments and submit the document to the BCT. CH2M Hill is awaiting the award and notice to proceed for the field work, which should be forthcoming.

Mr. Nelson requested an on-board review of the work plan the week of June 11. The BCT agreed to an on-board review on June 14, in conjunction with the monthly BCT meeting.

AI: Upon award, CH2M Hill will provide the BCT with the field work schedule.

Revised Proposed Plan

As discussed at the March BCT meeting, Mr. Holmes provided Mr. Dobbs with a revised schedule for the Revised Proposed Plan and ROD Amendment that would modify the Rev. 0 submittal dates by 30 days. The BCT agreed with the 30-day delay for the draft documents as long as the dates for the final documents and the start date for remedial action implementation do not change.

Mr. Ballard reminded Mr. Holmes to use EPA's ROD amendment guidance. The Revised Proposed Plan only needs to discuss the things that are changing as well as what led the team to make the changes.

Mr. Holmes reported that the new submittal date for the Rev. 0 Revised Proposed Plan is June 5 and is July 27 for the Rev. 0 ROD Amendment. He also indicated that since this change affects primary documents, DDC will submit a Request for Extension.

Mr. Spann asked why work on the Revised Proposed Plan had not started yet. Mr. Holmes indicated the necessary personnel have been working on the Fluvial SVE and Loess/Groundwater work plans.

Mr. Holmes will submit the Rev. 0 Revised Proposed Plan to the internal team by May 21 with comments due in 10 calendar days.

Dunn Field Land Use Control Implementation Plan (LUCIP)

Mr. Nelson reported that the Department of Army (DA) received the revised LUCIP from EPA with a request to include a protocol that will mandate how Dunn Field is monitored prior to property transfer. After reviewing it, DA feels the protocol is acceptable.

Mr. Nelson discussed the situation with Mr. Rick Wirsing and noted that the protocol is essentially being followed now for the Main Installation (MI). e²M performs the annual inspection of the MI deed restrictions and submits the annual inspection report to DA. They can include Dunn Field in that annual inspection.

Mr. Ballard interjected that he told Ms. Martha Brock about the MI annual inspection. She asked what document provides the basis for what e^2M will inspect at Dunn Field since there isn't a lease with environmental protection provisions (EPPs). Mr. Dobbs indicated that active bases have a master plan that dictates what can and cannot be done, but there is not a master plan for Memphis.

Mr. Spann indicated that with the Notice of Land Use Restrictions the State can intercede and stipulate fines, if someone does not comply with the restrictions. But, he continued that the land use restrictions must be a document tied legally to the property.

Mr. Nelson reported that Mr. John DeBack concurs with EPA's protocol, which is essentially

• developing a very short document that will serve as an instruction manual for Dunn Field. Mr. Ballard indicated that is the simplest option, instead of creating a master plan. Mr. Nelson

continued that Mr. Wirsing initially objected to the protocol because he was not sure what Ms.

- Brock was trying to obtain, but that Mr. Wirsing better understands the protocol after speaking with Ms. Brock.
- Mr. Nelson said that the protocol includes a GIS coordinate-based map and a survey identifying the locations where the restrictions apply. Mr. Ballard said that since the LUCIP will now be a stand-alone document and it will encompass all the land use controls, so the GIS coordinate map
- must indicate the area of the off-site plume as well. Mr. Nelson concurred, but pointed out that the off-site plume was not government property and thus could not be restricted. Mr. Ballard responded that the LUCIP must identify the off-site plume area. Mr. Spann interjected that DA cannot enforce land use controls that are not on their property. Mr. Ballard said that DA is relying on Shelby County to enforce the CERCLA clauses about installing consumption wells within a certain distance from a CERCLA site.

Mr. Nelson said that Mr. Wirsing is awaiting the BCT's decision about the protocol prior to moving forward with the LUCIP. Mr. Nelson will advise Mr. Wirsing that the protocol is acceptable based on the BCT's discussions. Mr. Dobbs requested that Mr. Nelson coordinate with Mr. Wirsing quickly in order to complete the LUCIP.

Mr. Holmes suggested that CH2M Hill use the same map that they will use for the Notice of Land Use Restrictions. Mr. Ballard indicated that the LUCIP must also identify the person within DA with authority to sign the protocol, which basically sets the land use restrictions for the property. Once that gets signed, then it becomes an attachment to the LUCIP. Mr. Nelson said that once the LUCIP is rewritten it will go back to EPA Headquarters, but he is unsure of the final LUCIP schedule as he did not know if it goes anywhere else in DA after Mr. Worsing approves it.

Mr. Ballard reminded the team that the RD implementing the Dunn Field ROD is not final until the LUCIP is in place.

Main Installation Remedial Action (MIRA)

Mr. Holmes reported that there are no additional data at this point. e^2M completed the second round of post injection sampling and is currently reviewing the data.

He reported that 24 monitoring wells have been installed with two more to be completed including the well upgradient of MW-21. e²M had to modify that well's location slightly due to the overhead power lines. e²M has begun the long term monitoring sampling for April. They will sample the new wells upon completion and compile a report for submittal at the end of May.

Potential Main Installation Source Areas

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Mr. Miller reported that he reviewed historical sampling data for TTA1 and TTA2, and thanked Ms. Cooper for her assistance in identifying and obtaining the documents. The previous data did not indicate significant chlorinated solvents in the groundwater results. He did note low concentrations of chlorinated solvents in soil samples and borings, but the sample locations did not correlate with the groundwater contamination plumes. Mr. Ballard said that the samples for the BRAC program were collected in places that were most likely to be sources – loading docks, etc. He asked if Mr. Miller thought there would be other likely sources.

Mr. Miller responded that leaking sanitary sewer and storm drain lines could provide a source. He believes the team should consider collecting samples from the sumps and the sewer and storm drain lines. He noted that some of the sumps have been filled with cement.

Mr. Miller noted text in the documents that may provide information on other potential sources. For example, one document mentioned a plating shop, with no building location. If confirmed, this would be a location to pursue collection of biased samples. The potential plating shop, as well as other potential small sources areas such as grease racks and the gas station require additional research before moving forward.

Regarding potential off-site sources moving on-site, he said that originally the team thought the plume at TTA1 was one plume, but now the team sees that it is bifurcated. His review revealed that the team started looking at off-site sources, but those seemed to go away based on sampling data that showed reduced levels. He suggests re-evaluating the potential for off-site sources.

Mr. Ballard inquired about a potential scope of work for the BCT to review that identifies areas and the proposed characterization approach. Mr. Dobbs responded that the team still needs to discuss the issue internally and look at the forward path. Mr. Dobbs also noted that source delineation was not included in DLA's Cost-to-Complete for Fiscal Year 2007.

In TTA2, there appears to be one area to review. In TTA1, there appears to be three areas to review. The best sampling method needs to be evaluated, and the historical information requires further review.

Mr. Ballard agrees that if there are continuing sources, then the enhanced bioremediation treatment (EBT) will continue. But, he thought the strategy for identifying continuing sources was that when the EBT injections ended and conditions reasserted themselves that rebound in concentrations will point toward areas for reexamination instead of trying to find them ahead of time.

Mr. Nelson asked about the concentrations in the perched wells. Mr. Holmes reported that after first quarter sampling in January, e²M did not initially detect concentrations in one of the perched wells (IW85-03), the other three were dry. After EBT injections, e²M detected CVOCs in IW85-

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03 at higher concentrations consistent with other wells in the area. In response to a question from Mr. Nelson regarding water levels, Mr. Holmes said that there was still little water in the perched wells. In generals water levels seem to be dropping because it was hard to obtain a sample from one well (MW-62) during the most recent LTM event.

Mr. Nelson asked if concentrations were increasing or decreasing in the perched well. Mr. Holmes responded that only two samples were collected from IW85-03, so there were insufficient data to describe a trend. The perched wells have been abandoned, except for IW85-03, and replacement wells installed. IW85-03 is not being used for injections or sampling.

Mr. Spann asked about contamination levels around MW-21 in TTA1. Mr. Holmes said there was one detection in upgradient well MW-47. Levels decreased in later samples, eventually reaching non-detect, when the well was closed. Mr. Miller remarked that none of the other seven off-Depot wells in the southwest corner had substantial contamination levels. Levels in MW-21 are at about 100 mg/l of total volatile organic compounds and have been as high as 200 mg/l.

Mr. Spann asked if PZ-08 was a backup sampling location for MW-47. Mr. Miller noted that the historical record mentioned a dry cleaner upgradient of PZ08, and sampling results indicated a low level detection in PZ-08. Mr. Holmes interjected that sampling results from the other wells in that area had low levels.

Mr. Miller voiced concern that the new well upgradient of MW-21 should not be too close to the facility to alleviate concerns that contamination flowing off the Depot is hitting the clay layer and moving back towards the Depot. Mr. Holmes said that the team needed to install the well and see what it contains.

Mr. Spann remarked that this is a good effort, but that the team needs to have a clear path forward on pursuing off-depot contamination. Mr. Miller said the team also needs to evaluate the channeling of the deeper aquifers because the older wells did not go all the way to the clay, so the team does not know if there is a channel.

Mr. Holmes said that there is not a single source for contamination levels near MW-101. There is a PCE and a TCE plume that overlap a little, but they are split, and there are multiple sources in that area, some of which are on site. Mr. Dobbs said that the team needs to find the sources because the goal of the cleanup is to obtain the "Operating Properly and Successfully" determination from EPA and transfer the property. He said that the team needs to resolve this issue and that he wants agreement from the team about the path forward. Mr. Miller will continue to review historical data, with assistance from Ms. Cooper, and propose sampling areas and methods.

Mr. Holmes requested that the BCT visually inspect the proposed location for the well upgradient of MW-21 and provide concurrence on the location. After a brief break to inspect the location, the BCT concurred with the location.

Dunn Field FOST 4 Property Sale

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Ms. Clark reported that bidding for the FOST 4 property ended and that the buyer is moving forward with the property survey. The deed is scheduled to be recorded by the end of August 2007. Mr. Dobbs said that e^2M will proceed with construction of a new fence along the property boundary, construction of a new curb cut to access Dunn Field, and construction of a new road to connect with the existing road west of the railroad tracks. DLA is awaiting clarification from the

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Department of the Army as to what level of communication/coordination DLA is authorized with the purchaser.

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Wabash Avenue Investigation

Mr. Ballard reported that EPA's contractor collected samples from the investigation derived waste (IDW) drums left on Dunn Field and, based upon the results, requested placement of the soil on Dunn Field. The soils were sampled only for TCLP.

Both Mr. Spann and Mr. Ballard said that based on sampling results they have no objection to the EPA contractor disposing of the IDW soil on Dunn Field. Mr. Ballard confirmed that the EPA contractor will empty and remove the IDW soil drums as well as remove the IDW water. Following concurrence by contractors, Mr. Dobbs approved disposal of the clean IDW soil at Dunn Field. Mr. Holmes indicated that the soil will be placed with the soil excavated from the soil pile in Treatment Area 3.

Mr. Spann reported that all the wells for the Wabash Avenue investigation are in place. The EPA contractor will now install four (4) wells to investigate Production Specialties and Cintas. The EPA Project Manager, Ms. Donna Webster, will schedule a conference call to coordinate the mobilization efforts with another TDEC investigation. Mr. Spann said that they will measure water levels in all the Wabash Avenue investigation wells and selected Dunn Field wells to obtain a good potentiometric surface map. He confirmed that Ms. Webster will manage the IDW from this new investigation and that he will inform her that Dunn Field is not available as an 'IDW storage area.

Deliverables matrix

Ms. Clark asked if there were any issues with the schedules provided on the deliverables matrix. No one voiced any issues. She requested that EPA and TDEC please provide concurrence letters on the Final Source Areas RD.

AI: EPA/TDEC to provide Final SARD concurrence letters.

Next Meeting

The next BCT meeting is scheduled for May 10 in Memphis, TN. The Project Team meeting is scheduled for the afternoon of May 9. The Source Areas RD public briefing presentation dry-run is also scheduled for May 9.

The BCT tentatively established the meeting schedule for the next several months as follows:

- June 13-14 in Atlanta, GA
- July 18-19 in Memphis, TN
- September 19-20 in Memphis, TN

The next RAB meeting is scheduled for September 20. The Revised Proposed Plan public meeting is scheduled for November 15 in Memphis, TN.

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

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

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<u>05/10</u> Date EVAN SPANN Tennessee Department of Environment and Conservation Memphis Field Office Division of Remediation Environmental Project Manager BRAC Cleanup Team Member

