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THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 503

BRAC Cleanup Team

Meeting Minutes

May 17 - 18, 2000

Attendees on May 17, 2000

BRAC Cleanup Team	Organization	Phone
Shawn Phillips	Memphis Depot Caretaker (Depot)	(901) 544-0611
Turpin Ballard	Environmental Protection Agency Region IV (EPA)	(404) 562-8553
James Morrison	TN Department of Environment and Conservation – Division of Superfund (TDEC-DSF)	(901) 368-7953
Project Team		
Brian Deeken	TDEC-DSF	(901) 368-7955
John DeBack	Depot	(901) 544-0622
Denise K. Cooper	Depot	(901) 544-0610
Dorothy Richards	Corps of Engineers	(256) 895-1463
Scott Bradley	Corps of Engineers	(256) 895-1637
Kurt Braun	Corps of Engineers	(334) 690-3415
Greg Underberg	CH2M Hill	(423) 483-9032
Stephen Offner	CH2M Hill	(770) 604-9182
Other Ateendees		
Mike Dobbs	Defense Distribution Center	(717) 770-6950
Jim Covington	Depot Redevelopment Corporation	(901) 942-4939
Keren Adderley	Frontline Corporate Communications	(888) 848-9898

Review of Previous Meeting Minutes

The BCT discussed, approved and signed the April meeting minutes.

Review of Project Status

Golf Course Technical Memorandum – Evaluation of Recreational Land Use Scenarios at Functional Unit 2, Memphis Depot

Mr. Turpin Ballard indicated he had discussed the technical memo with Dr. Ted Simon, a risk assessor with the EPA. Dr. Simon and Mr Ballard had identified a difference between the *Streamlined Parcel 3 Risk Assessment Technical Memorandum* and the Golf Course technical memo, specifically the number of days increased from 64 to 250 in the child, playground scenario assumptions. The BCT agreed that the assumption would remain 64 days since it was generated during a project meeting attended by Dr. Simon and Dr. Ruth Chen of the Tennessee Department of Health and since the *Streamlined Parcel 3 Risk Assessment Technical Memorandum* with 64 days had already been made part of the Administrative Record.

Mr. Ballard then discussed the exposure point concentration (EPC) for dieldrin used in the technical memo. CH2M Hill had used the worst-case sample results instead of the upper confidence level (UCL) 95%. Mr. Ballard reminded the BCT that distribution of compounds of concern resulting from Venture Capital's bioremediation study at the Golf Course indicated that locations with high levels appeared randomly and so it was appropriate to use the UCL95%. Mr. Ballard and Dr. Simon also discussed applying the same idea to arsenic levels.

Mr. Ballard presented the BCT with a letter regarding the change in the number of days assumption as well as using the UCL95% for conducting the risk assessment for dieldrin and arsenic. The BCT agreed that Mr. Ballard's letter will be used as a comment on the Main Installation Soils Feasibility Study and that Appendix C (the technical memo) will be revised in response to Mr. Ballard's comment. Mr. Ballard's letter stated that unlimited recreational use of Functional Unit 2 is protective of human health, but that homes could not be built there.

Mr. Jim Morrison identified a discrepancy between the technical memo and the *Streamlined Parcel 3 Risk Assessment Technical Memorandum* for the hazard index for child, playground, and the industrial worker scenarios. The risk assessment indicated acceptable risks for industrial workers, but the technical memo indicated the risk was unacceptable Mr. Ballard indicated that this disconnect should correct itself after CH2M Hill incorporates his comments on the technical memo. Mr. Morrison indicated Dr Chen provided no comments on the technical memo.

Mr. Phillips requested that CH2M Hill provide him feedback on the numbers and assumptions used by CH2M Hill to produce the technical memo. The BCT then provided the following directions on the technical memo, *Evaluation of Recreational Land Use Scenarios at Functional Unit 2*:

- State the Exposure Point Concentration and the Constituents of Concern;
- Cite the appropriate Risk Assessment Guidance section regarding toxic endpoints for the industrial worker health index;
- Use data from all of Functional Unit 2 including the Venture Capital data;
- Provide the EPC that includes the Venture Capital data, use the UCL95%. For dieldrin, run the calculations using 2.0 ppm as the UCL95%;
- Change the 250 days/year for the child, playground, scenario to 64 days/year as agreed to by EPA, TDEC and TDH

Land Use Controls and the Main Installation Feasibility Study

Mr Ballard requested a list of the applicable controls currently existing, such as city ordinance, to enhance what the Feasibility Study presents as a remedy. Mr. Phillips indicated the Army would also want to see any land use controls or use restrictions specified in the Finding of Suitability to Transfer, even if it is a currently existing city/county ordinance The BCT discussed using control/restriction language such as "EPA (TDEC or the Army) will review and approve development or construction plans before construction begins," or by specifying what actions must occur before certain uses can begin at the property.

Mr. Ballard did not envision an exhaustive search to identify all possible controls, but did want to see the "big ticket" controls such as local zoning codes, well head protection controls, plumbing codes, etc List the obvious controls, but do not go into the sub elements (minutia) of controls. He also did not expect to see each control spelled out, simply a reference to the ordinance number and the responsible agency, for example. For the Feasibility Study, Mr. Ballard suggested that CH2M Hill provide 1 to 2 controls per land

use restriction to show that an effort was made to identify existing controls; but that the control should not simply state, "Deed Restrictions."

Mr. Phillips suggested that the Feasibility Study first state what must be prevented in order to be protective; then, list the existing controls.

Land use controls that the BCT anticipated using at certain areas of the Main Installation included:

- No residential use;
- No daycare/playgrounds without specific provisions;
- No groundwater wells shall be installed for consumption or production use.

The BCT questioned the city/county land use zoning process and its ability to offer sufficient land use controls. Mr. Jimmy Covington agreed to provide Mr. Philips with information regarding the zoning process. Mr. Covington also suggested that CH2M Hill contact the city attorney for information on current local land use controls. Mr. John DeBack mentioned that CH2M Hill should also research and include, if appropriate, controls identified in the Federal Property Control Act.

Mr. Ballard suggested that the record of decision (ROD) should note the existing controls as well as the other layers of control, such as the 5-year reviews, necessary to restrict certain activities. The BCT agreed that they should tell CH2M Hill what institutional controls to include in the Feasibility Study. CH2M Hill would also list the controls currently in place such as city/county ordinances and construction permitting processes. Mr Ballard indicated he would ask the EPA legal staff for information regarding land use controls.

Mr. DeBack then asked Mr. Ballard about deleting parts of the Main Installation from the National Priorities list. Mr. Ballard requested Mr. DeBack provide the question in writing in order for EPA to provide a formal response.

The BCT then discussed the Army policy regarding land use control plans and EPA's policy regarding land use control plans and RODs. Mr. Phillips indicated that CERCLA requires a ROD to include.

- The cause or requirement necessitating a need for a land use control;
- The land use control;
- Establishment of an implementation/assurance monitor for the land use control.

The BCT then identified areas on the Main Installation where no active remedies would be required, which was most of the Main Installation. The Proposed Plan for the Main Installation should include the two lead sites (Buildings 702 and 949) with institutional controls at the other sites. Remedies or controls for Functional Unit 2 would be determined after CH2M Hill reworked the technical memo and provided the results for a playground to be situated anywhere on the Golf Course and the industrial worker hazard index.

The BCT adjourned for the day.

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Greg Underberg	CH2M Hill	(423) 483-9032
Stephen Offner	CH2M Hill	(770) 604-9182
Virgil Jansen	Jacobs/Sverdrup	(314) 770-4025
Mike Dobbs	Defense Distribution Center	(717) 770-6950

Recap of May 17, 2000 Meeting

Mr. Ballard indicated he still wanted to discuss proposed remedies for the lead sites

Review of Project Status

Main Installation Groundwater Feasibility Study

Mr. Underberg and Mr. Stephen Offner began with a discussion of the conceptual model presented in the Main Installation Groundwater Feasibility Study. The model indicates dense, non-aqueous phased liquid (DNAPL) stringers moving off site against the hydraulic gradient. Figure 1-6 in the Main Installation Remedial Investigation (MI RI) indicates the groundwater flow on the Main Installation is consistent with the gradients. This figure includes boring log data from wells installed during the 1990 Law Environmental study and for the MI RI.

The BCT discussed an apparent perched water zone along the eastern edge of an erosional feature which may indicate interconnection of the fluvial aquifer to underlying aquifers. According to Mr. Offner, two wells installed during the MI RI indicated an erosional feature, but the boring logs indicated clay was consistently encountered at the bottom of the unconfined, or fluvial, aquifer However, the latest water level readings for MW27 indicated 12 feet of water when it has been dry in previous readings. No samples were collected from MW27, only water level readings.

Mr. Phillips asked if MW27 was completed into the clay, and Mr. Offner replied, "Yes." Mr Offner continued that the well has been dry above the clay, but that the clay could be a stringer above the saturated

zone. Between October 1998 and April 2000, 12 feet of water accumulated at that well location. The bottom of MW27 is higher than the surrounding wells. Mr. Offner offered his opinion that the drilling contractors hit the clay, thought it was the confining clay unit and stopped drilling. He also said that MW24, which is on the boundary of the erosional feature has not shown PCE or TCE. If compounds were going into the erosional feature and heading off site, MW24 samples would have shown compound levels.

Mr. Phillips asked if MW27 could be considered an aberration for feasibility study decision-making. Mr. Underberg indicated the readings for that well have not changed greatly since it was installed, except for this latest water level reading. He went on to say he had discussed the erosional feature with the Groundwater Institute at the University of Memphis. The Institute agreed that the feature affected flow in the fluvial aquifer and was a complicated aspect of the fluvial aquifer system

Mr. Offner said, that in his opinion, at MW27 there was a mound, much less pronounced, but it was consistent with a rise seen in MW62 and MW63. Mr. Phillips requested confirmation that MW27 was completed into the confining clay unit He then asked if the groundwater flow directions indicated on Figure 1-6 had remained consistent with time. Mr. Offner replied that it had remained consistent and that the data recently collected for monitored natural attenuation indicated a low gradient on to the Main Installation. MW72 appeared to be at the boundary of the off-site plume and its gradient confirmed that compounds were coming onto the Main Installation

Mr. Phillips indicated the groundwater flow direction shown on Figure 1-6 met with his approval, but he was concerned about the conceptual model and the stair stepping of clay lenses.

Mr. Underberg said CH2M Hill had assessed the area for potential off-site sources and identified an abandoned dry cleaning facility off the southeast corner of the Main Installation. A dry cleaning facility was also identified off the southwest corner on Alcy bounded by wells that did not show any volatile organic compounds (VOC). He had anticipated seeing VOC levels coming from Elvis Presley Boulevard in MW72 that would provide a source for the compounds coming on to the Main Installation. Some VOCs were detected off the southwest corner at MW72, but they are bounded by wells that did not detect VOCs.

Mr. Underberg continued that possible explanations include an off-site source snaking on site that the wells installed to date haven't found. Or, he said, compounds from an on-site source were moving off site, hitting a clay lens and moving back on

Mr. Ballard said he had discussed the situation with Mr. Morrison and they both determined it was possible for a small, non-indutrial off-site release to be moving on-site. Mr Underberg interjected that boring logs indicated several clay lenses within the fluvial aquifer system that could move the water around quite a bit. Mr. Ballard indicated the conceptual model should not be removed from the Feasibility Study because the BCT was making cleanup decisions based on it, but he didn't have confidence in the model because the data did not support it. Mr. Phillips and Mr. Ballard requested boring logs for MW21 and MW22. Mr. Offner indicated that boring logs for all MI wells would be amended into Appendix B of the MI RI.

Mr. Morrison interjected that TDEC still had comments on the model and, therefore, had not approved the MI RI. Mr Brian Deeken said TDEC has determined the need for an environmental assessment of the southwest corner of the Main Installation. Mr. Morrison said the conceptual model should show the potential for an off-site source and be amended into the MI RI. Mr Phillips requested that TDEC provide in writing either their comments or approval of the MI RI. Mr. Ballard stated that the MI RI was final as all comments should have already been provided.

Mr. Ballard asked if the soil sampling data from around Building 1089 indicated a source for groundwater contamination, and Mr. Underberg replied, "No." He said there were some low levels of VOCs detected, but nothing that would indicate a source. He continued that groundwater samples collected from piezometers installed at areas with VOC detections in the soil did not detect VOCs.

Mr. Underberg said that he saw a similar situation at Oak Ridge, TN, where low level dissolved phase compounds were moving up gradient from the source in perched zones within an aquifer system.

Mr. Phillips said that if a potential off-site source were identified, then the BCT would pursue the source as a potential responsible party. But, the Depot must clean up what is under the Depot property. Since this was the case, Mr. Deeken questioned the need for the conceptual model. Mr. Ballard reminded him that the BCT must be able to answer the question of how the highest hits got off site. The southwest corner has the potential to be the source, but VOC levels in the soil doesn't correlate with VOC levels in the groundwater.

Mr. Phillips directed the Corps and CH2M Hill prepare the following cross-sections for use in the Main Installation Groundwater Feasibility Study:

- MWs 72, 48. 21 and 23;
- MWs 47, 22, 20 and 21;
- MWs 19, 62, 27 and 63;
- MWs 34, 38, 27 and 39.

Mr. Ballard requested a footnote on the cross sections regarding the distance between each geological (split spoon) sample. Mr. Phillips also directed the Corps and CH2M Hill to place the pertinent portions of the B and C transect on Figure 2-8B from the Main Installation RI into the Main Installation Groundwater Feasibility Study.

Mr. Offner asked if long term monitoring was a feasible remedy, and Mr Ballard responded that the monitored natural attenuation data did not show PCE degradation. Mr. Underberg suggested a series of sentinel wells along the Main Installation fence line that would trigger a more active remedy if VOC levels reached a certain point Mr. Phillips said he envisioned an underground sentinel well network to monitor VOC levels.

The BCT agreed that additional monitoring wells at the southwest corner should be included in an alternative in the Main Installation Groundwater Feasibility Study. An alternative should also include sentinel wells and monitoring wells. The BCT discussed the fact that reaching the point of compliance will be a risk management decision. If the sentinel or monitoring wells indicate that compounds from an off-site source are moving onto the Main Installation, then the source removal issue falls to TDEC. If the wells indicate an on-site source, then the alternative should allow for a more active remedy. Alternatives must also include the institutional control regarding use of fluvial aquifer groundwater for drinking water.

Mr. Offner confirmed with the BCT that the proposed plan should include sentinel wells and monitoring wells along the fence line, regular groundwater monitoring with a caveat that the monitoring interval would decrease if compound levels at on-site wells began to decline. He then asked if a feasibility study would be prepared if transport or migration of the plume moved north toward the erosional feature makes remedial action necessary.

Mr. Ballard responded that if a remedial action became necessary, the record of decision must be amended due to a change in site conditions. By then, there may be new technologies to use If not, a quick, focused feasibility study could be prepared If the remedial action would be a monitoring-only remedy, then the record of decision must include an appropriate If/Then statement.

Ms. Denise Cooper asked Mr Ballard if EPA would approve an environmental condition of property category 4 for the areas on the Main Installation above groundwater contamination once the wells were installed. Mr. Ballard responded, "Yes."

The BCT then turned the discussion to the VOC plume at the southeast corner and the middle of the Main Installation. The BCT discussed whether the existing monitoring wells and piezometers were placed in the

optimal locations to provided sufficient confidence that both plumes' edges and hotspots were monitored The BCT agreed that the four new cross sections they requested would help select locations for additional monitoring wells or piezometers. The team also identified possible locations for any additional wells.

Mr. Phillips asked if the cross sections should be in the feasibility study or the proposed plan. Mr. Ballard responded that the feasibility study should be as specific as possible in order to effectively develop cost estimates such as installation costs and monitoring costs.

Mr. Underberg suggested that perhaps an enhanced 3-D stratigraphic block diagram from the MI RI would be more helpful than the cross sections. Mr. Morrison responded that both an enhanced diagram and the cross sections would enhance the BCT's decision making.

Mr. Offner asked if the locations and physical details for additional monitoring wells should be "fleshed out" in the feasibility study or in the remedial design.

Mr. Phillips provided the following directions for the FS to the Corps and CH2M Hill:

- On conceptual model Figure 1-7, show potential off-site source and add footnotes regarding the interpretations
- Include in the text associated with the conceptual model the reason for showing the potential off-site source and that TDEC has initiated, on behalf of EPA, a site assessment of off-site sources for the plumes at the southeast and southwest corners of the Main Installation;
- Add the four cross sections to include footnotes regarding interpretations and interval between geophysical samples,
- Add three figures showing the PCE plume, the TCE plume and groundwater elevations with colored contours;
- All maps will include all monitoring points whether the data for each point is included or not;
- Reproduce in the Feasiblity Study the B and C transects from Figure 2-8B from the MI RI;
- Include in the monitored natural attenuation alternative figures that show proposed locations for additional monitoring wells and piezometers,
- Use National Contingency Plan language regarding monitoring in descriptions of alternatives in Section 4; for example, "Monitored natural attenuation consists of these components . . . .";
- The protectiveness discussion must mention that the fluvial aquifer is not a current drinking water source and that it is unlikely the fluvial aquifer will be used as a drinking water source in the future due to city ordinances;
- The VOC plumes in the southeast and southwest corners will be investigated in this approach;
- Use the four cross sections to support the conceptual model to support placement of wells down gradient;
- Alternatives for groundwater must include existing institutional controls or land use controls; for example, "Monitored natural attenuation with institutional controls that include A, B and C."

Mr. Offner confirmed that an alternative for groundwater of institutional controls only would not be sufficient because some groundwater sample results were above the maximum contaminant levels. Mr. Ballard agreed that institutional controls only were not enough.

Draft Dunn Field Groundwater Field Sampling Plan

The BCT conducted an on-board review of a draft field sampling plan to gather more information about the suspect DNAPL sample result west of Dunn Field. Mr. Underberg reported that the draft plan was sent to the BCT electronically on May 10, 2000, and that a hard copy was mailed on May 12, 2000.

The BCT confirmed that Sverdrup's regular quarterly sampling would collect data from MW70, where the suspect DNAPL result occurred. The plan called for 10 to 15 soil borings. The plan called for the locations to be surveyed and noted that more locations may be added based on the survey results.

Mr. Phillips asked why the plan called for off-site borings to be sampled before on-site borings began. Mr. Underberg replied that they want to confirm the conditions at MW70, so that the field team will have a better idea of the on-site boring sampling intervals needed to look for clay lenses.

Mr. Morrison asked if the field team would be able to physically measure the boring depth to a 10^{th} of a foot to obtain information on the orientation of the clay layer Mr Offner replied, "Yes, as well as whether a clay layer is there or not."

Mr. Morrison asked why the plan did not include wells to provide cross section of the on-site area in question. Mr. Offner replied that CH2M Hill had looked at the need for wells in that area, but that the power lines presented an obstacle because the southern line must be continuously powered and cannot be powered down. Ms. Richards asked about directional drilling, and Mr. Offner suggested that the BCT review the soil boring results that could be obtained before paying the high cost of directional drilling as it may not be necessary. Mr. Offner also suggested that the BCT, the project team and the field team conduct weekly phone conferences to discuss boring results and to make in-field decisions

Mr. Underberg suggested either an Internet meeting where everyone could connect to a site and pull up figures or having CH2M Hill email the figures as .pdf files The BCT opted for CH2M Hill to email the figures.

Mr. Ballard asked if the soil borings would be kept open until a decision was made to install a monitoring well Mr. Offner responded that the boring would be kept open, but covered and plugged with a sewer "balloon," if it was above the saturated zone. Once a decision was made, the boring would either be properly closed with grout or the boring would be over drilled to install a well.

Mr. Offner continued that the well screen would be continuously slotted and made from PVC. Mr Ballard suggested having stainless steel screen available in the event sample results indicate a compound that would affect or react with PVC. Mr. Offner indicated a plastic hybrid screen was available on the market and that stainless steel screened pipe could be available and, if not used, returned to the vendor for a credit to help keep costs down.

Mr. Morrison then suggested that if the field team identified the source with the soil borings, then they should consider preparing a cross section for the area down gradient of the potential source using MW35, MW12 and wells on either side of the power lines. Mr. Deeken added that TDEC was interested in the source and what was outside the pumping range of the groundwater recovery system.

Mr. Phillips wondered if Mr. Morrison and Mr. Deeken's request had created a new data quality objective (DQO) for the field sampling plan. Mr. Offner explained it would be an extension of DQO4 – Scientific Management Data Point, but that the cross section Mr. Morrison requested would help determine where additional recovery wells, if needed, should be located

Mr Ballard suggested that the field team conduct DQOs 1 through 3 and look at the data before moving to DQO 4. He also asked for the sampling table. Mr Offner was working it and would provide it shortly Mr. Ballard asked if the fieldwork schedule accounted for the chemical warfare materiel removal action Mr Offner, Ms. Richards, Mr Braun and Mr. Anderson replied they were all working that issue

Mr. Underberg suggested that mobilization for the Dunn Field Groundwater Field Sampling Plan be scheduled to begin after the July 4 holiday as CH2M Hill had a lot of work ahead to incorporate Main

Installation Soils and Groundwater Feasibility Study comments provided during the BCT meeting and to prepare for the field work

Mrs Richards added that the sampling event was a new requirement to CH2M Hill's task order and that administrative time would be necessary to negotiate the contract modification. The BCT approved a five week schedule extension on mobilization for the Dunn Field groundwater sampling event. Mr. Phillips directed Ms. Richards to rework the schedule for the draft final Dunn Field RI and to email it to him. Mr Phillips would then distribute it to the BCT.

Mr. Offner asked Mr. Ballard for information regarding a request from the April meeting by Mr. David Ladd, U. S. Geologic Survey, on the location of a monitoring well. Mr. Ballard said Mr. Ladd had voiced concern that the well he wanted would change the current understanding of the potentiometric surface west of Dunn Field. Mr. Ballard agreed that CH2M Hill should work directly with Mr. Ladd on this issue.

Mr. Phillips directed the Corps and Mr. Underberg to provide Mr. Ladd with an updated potentiometric surface map that included MW33, which might address Mr. Ladd's concerns. Mr. Ballard indicated EPA would push for another well only if it would increase the BCT's ability to make cleanup decisions. He also said he would discuss the updated potentiometric surface map with Mr. Ladd and wanted to be included in the CH2M Hill/Ladd discussion.

Mr. Offner indicated he would incorporate all the comments received on the draft field sampling plan during the BCT meeting and submit the final on June 1. In response to a question about DQOs, Mr Offner responded that removal action level data was included as a subset of the DQOs.

Mr. Phillips told the BCT he had sent the access agreement to Belz Properties and that they had one comment – a request for a description of the field approach. He continued that he would meet with Belz Properties on May 19 to look at the proposed monitoring well locations Two agreements must be prepared and signed because two different Belz subsidiaries own the property in that area.

Main Installation Proposed Plan

Ms. Richards reported that the final Main Installation Proposed Plan, to include soils and groundwater, would be out for public review and comment by the end of July.

Old Paint Shop and Maintenance Area Removal Action

Mr Virgil Jansen reported that all the dry vacuuming of the building interiors was completed and that they had started the power washing process. All the asbestos that had to be removed was removed, and Building 1084 had been demolished. They had completed about half of the trenching, but they had not found the 500-gallon underground storage tank. Where a tank had been previously removed, the soil appeared to be clean backfill. They had started excavating and backfilling.

Samples had been collected from along Perry Road and the results sent to CH2M Hill The levels at the Main Installation fence appear similar to those along the road, and Sverdrup was waiting for direction from the Corps and CH2M Hill.

Mr. Jansen indicated the fieldwork should be completed by the end of June, but that he may not receive all the data from confirmation sampling by the end of June.

Mr Phillips directed Mr. Jansen to provide a project update, with overheads, to the June RAB. Mr Jansen indicated he would be unavailable in June, and Mr Phillips responded that someone from the Corps could provide the update. Ms. Cooper requested any overheads be provided to the Depot two weeks before the meeting.

7/20/00

SHAWN PHILLIPS
Memphis Depot Caretaker
BRAC Environmental Coordinator

DATE

7/20/00

TURPIN BALLARD
Environmental Protection Agency
Federal Facilities Branch
Remedial Project Manager

DATE

7-20-00

JAMES W. MORRISON
Tennessee Department of Environment and Conservation
Division of Superfund
BRAC Cleanup Team member

DATE

FINAL PAGE

ADMINISTRATIVE RECORD

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