



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

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Final

Memphis Depot

BRAC Cleanup Team

Meeting Minutes

January 20, 2005

BRAC Cleanup Team	Organization	Phone/email
Michael Dobbs	Defense Logistics Agency (DLA)/Defense Distribution Center (DDC) J-3/J-4E	717.770.6950
Turpin Ballard	Environmental Protection Agency, Region IV (EPA)	404.562.8553
James Morrison	Tennessee Department of Environment and Conservation, Division of Superfund (TDEC)	615.532.0910
Project Team	Organization	Phone
Tom Holmes	MACTEC Engineering	770.421.3373
Denise Cooper	MACTEC Engineering	901.774.3681
Bruce Railey	Corps of Engineers – Huntsville	256.895.1463
David Nelson	CH2M Hill	770.604.9182 x645
John K. Miller	Mitretek Systems	703.610.2560

Previous Meeting Minute Approval

The BCT approved and signed the minutes from the October 20, 2004 meeting. Mr. Morrison announced plans to transition in a new project manager for TDEC, Mr. Evan Spann, who is currently the assistant manager of the TDEC, Division of Superfund, Memphis Field Office.

Notice of Land Use Restrictions

Mr. Nelson provided the BCT the latest figure and verbiage from the Notice regarding the dig advisory at the former PCP dip vat prepared by CH2M Hill in consultation with Mr. David Buxbaum, U.S. Army Southern Region Environmental Office. Mr. Buxbaum requested that Mr. Nelson obtain approval or comments from the BCT this afternoon. Mr. Morrison noted the area expanded from what he had previously discussed with Mr. Buxbaum and that he would contact Mr. Buxbaum directly to discuss.

Mr. Nelson indicated that Mr. Buxbaum and Mr. Buddy Waggoner, U.S. Army Corps of Engineers, anticipated filing the Notice with the City of Memphis on January 25, 2005.

Early Implementation Status

Mr. Holmes updated the team on the ZVI injections and the target dosage percentages achieved. Mr. Holmes discussed challenges encountered during the injections as well as the processes to overcome the challenges and meet the injection goals.

When encountered with injection problems at the initial borings, the field team installed another injection boring adjacent to the original borehole and attempted the injections a second time. The field team revised the injection procedure to include injecting water prior to ZVI. This change resulted in injection of the target ZVI mass at most locations. However, there remained areas where ZVI could not be effectively injected. Based on these observations, the field team determined that repeated attempts to inject at different intervals in a boring was more productive than drilling an offset boring and attempting injections there. Mr. Holmes also noted that the target ZVI mass was exceeded at the final injection locations in order to make use of the remaining ZVI.

At locations where injection borings did not meet target dosages, the team discussed the feasibility of installing additional borings and collecting samples in hopes of determining why the formation would not effectively accept the iron injections. Mr. Holmes indicated that if there were injection issues, then the design engineers should indicate the need for additional sampling in the Source Area Remedial Design (RD). Mr. Nelson described the decision tree included in the Source Area RD that addresses injection problems.

Mr. Ballard asked if the wells had been slug tested to determine conductivity and identify any conductivity changes. Mr. Holmes said hydraulic conductivity tests were not performed for the EISR. Mr. Nelson indicated test results from the treatability study did not indicate much change in conductivity.

Mr. Holmes presented the injection data relative to injection intervals. Mr. Ballard suggested that the areas that more readily accepted the material would also be more conducive to water movement.

Mr. Ballard suggested that since there was so much variability in where sufficient material could be injected, then this may not achieve the remedial action objectives (RAOs) necessary for the final solution. He suggested that if the final design called for ZVI injections throughout the plume without installing the permeable reactive barrier (PRB), then the RD would need a good series of monitoring wells.

Mr. Holmes discussed the area of influence from the iron injected and how the injection point locations provided area of influence overlap. He also discussed the monitoring well locations relative to the injection area and voiced confidence that there are sufficient wells bounding the area.

Mr. Holmes will distribute the Dunn Field Design Related Investigation Report in February that will include the boring and sample results. It will also be attached to the final Early Implementation Construction Report.

Source Areas Remedial Design

Mr. Nelson distributed draft figures from the Rev. 0 Source Area RD. He updated the team on groundwater sampling and plume contouring conducted by CH2M Hill to refine the treatment areas in the RD. Sampling data indicated the highest TCE and PCE concentrations have moved offsite west of Dunn Field. The area around MW71 was originally slated for ZVI injections, but concentrations have been decreasing over time and no longer substantiate injecting ZVI in that area. He attributed the decreasing concentrations to the groundwater recovery system.

Mr. Nelson indicated that 1,1-DCE concentrations continue to move onsite Dunn Field at the northeast corner and extend offsite along the northern Dunn Field boundary. The team discussed

the concentration contours and that 1,1-DCE has a different foot print than the other VOC plume foot prints. Mr. Nelson indicated 1,1-DCE has never been a contaminant attributable to Dunn Field.

Mr. Ballard asked if the lab could provide the non-diluted results or did they report all their dilutions. Mr. Holmes said the lab was meeting their contract requirements, but he can look into changing the requirements on future contracts and to see if they have a procedure to provide lower reporting limits at all dilutions. This is necessary because the sample quantitation limits for some COCs are higher than their concentrations, so they show up as non-detect, when really their presence is being masked by TCE and 1,1,2,2 PCA.

Mr. Nelson said that 1,1,2,2-PCA was a primary contaminant for the Source Area RD and that the plume coincided with the source areas. Again, the highest concentrations were off-site. He indicated that the total VOCs contour provides the basis for the Source Area RD, which proposes treatment areas on and off site.

Mr. Nelson presented the soil vapor extraction (SVE) treatment areas proposed in the Source Area RD, which varied from those proposed in the Dunn Field Record of Decision (ROD). Mr. Nelson explained that the treatment areas proposed in the RD mirrored the areas where soil sampling data exceeded RAOs and were supported by the soil gas sampling results.

Mr. Holmes asked why there were no SVE wells proposed for the fluvial aquifer in the eastern treatment area. Mr. Nelson said that sampling results have not indicated much groundwater contamination in those areas, so CH2M Hill determined the source was in the loess and not in the fluvial. Mr. Nelson indicated that the proposed southern treatment area in the RD was smaller than the area in the ROD because soil sample results did not support treating the entire area. He also indicated that the treatment area east of the railroad tracks proposed in the ROD was no longer included in RD because soil sample results indicated that VOC levels were below RAOs.

Mr. Nelson confirmed that the Source Area RD proposed treating areas within the total VOCs 100 ug/L contour. Mr. Ballard said that the sooner treatment achieves MCLs, the faster transfer can occur. Mr. Ballard remembered the pre-ROD discussions were to treat to MCLs at onsite areas and asked if treating to MCLs was prohibitively expensive, based on current experience. He continued that the ROD did not indicate treating to 100 µ/L but indicated treating groundwater onsite to MCLs with offsite contamination going through the PRB.

Mr. Holmes asked about the need to treat until levels reach MCLs since property transfers do not require meeting RAOs. Transfers require that remediation activities are operating properly and successfully.

Mr. Nelson presented the proposed onsite ZVI injection points, differentiating between borings for ZVI injection only and borings for both SVE and ZVI. Mr. Nelson identified MW130, offsite the northeast corner of Dunn Field, where contaminant levels warranted treatment under the current scenario. Mr. Ballard said that the ROD included the MW130 area as a contingency treatment area and that treatment did not necessarily have to be accomplished right away. He added that treatment of the MW130 area could be included in the Source Area Remedial Action (RA) mobilization.

Mr. Nelson indicated that the onsite treatment area around MW11 proposed in the RD differed from ROD because the most recent groundwater sample results were below 100 ug/L, so the area was no longer identified for SVE or ZVI treatment.

Mr. Nelson provided the top of clay map based on recent field results. He focused his discussion on a ridge area along the western edge of the MLGW substation, along Ragan Street. He pointed out that the potentiometric surface was fairly flat along the ridge, but that it fell off sharply west of MW171. The team discussed the information and its possible impacts on future activities in that area.

Mr. Nelson anticipated distributing the 30% Source Area RD by January 21 with comments due March 18.

Off-Depot and Permeable Reactive Barrier Remedial Designs

Mr. Nelson discussed his meeting with Mr. Ballard and Mr. Holmes regarding the need for the separate off-site RDs that he had been tasked to prepare at the August 2004 BCT meeting. Mr. Ballard questioned the logic of three document cycles for groundwater related RDs when there would be very little engineering changes between the proposed offsite RDs.

After the meeting, CH2M Hill ran three RA scenarios: 1) installing the PRB close to its original planned alignment (north and basically parallel to the railroad track along the MLGW substation); 2) installing the PRB adjacent to Rozelle Street because the aquifer was thinner and shallower at that location along the line from MW64 to MW76 with an area of ZVI behind (north) the PRB; 3) injecting ZVI only between the western Dunn Field boundary northwest to the railroad tracks basically following the 100 ug/L contour and injecting ZVI only just off the northwest corner of the Dunn Field boundary along the railroad tracks.

Mr. Nelson presented the cost estimates and assumptions for each scenario and compared the estimates to the ROD estimates. The team asked questions and discussed the assumptions upon which CH2M Hill based the cost estimates. Mr. Morrison asked which scenario achieved the remedial goals soonest. Mr. Nelson indicated that Scenario 3 achieved goals soonest because there would not be the wait time for groundwater to reach the PRB. He said that with ZVI, the levels would be reduced and would reach natural attenuation levels quicker.

Mr. Ballard identified that Scenario 2 did not treat the plume along the northern boundary, so the estimates were not comparable. Mr. Nelson noted that the PRB in scenario 1 was located in the most feasible area based on accessibility due to MLGW power line towers. Since scenarios 2 and 3 differ from the scenarios in the ROD and may constitute a ROD amendment, Mr. Ballard suggested reworking the estimates to provide comparison of "apples to apples."

The team discussed the determination based on recent groundwater sampling data that the PRB thickness called for in the ROD would not be sufficient to effectively treat the current contamination levels. Mr. Ballard indicated that the proposed Scenario 1 would not require a ROD amendment. Based on the low PCA concentrations in the northern plume, Mr. Morrison suggested injecting sodium lactate (as used on the MI) into northern plume with PRB and ZVI in the central portion of the plume. He also suggested injecting sodium lactate at the MW130 area east of Dunn Field.

Mr. Holmes indicated the need to conduct a feasibility-based review of the scenarios. Mr. Ballard indicated that for a ROD amendment the team would need to justify the change from installation of a PRB to no PRB. The team agreed to combine the offsite ZVI and PRB RDs into one RD.

The team discussed and developed three other RA scenarios: 1) installing the PRB from the area just east of MW145 to MW148 and either injecting sodium lactate or ZVI to treat the plume along northern boundary west of MW03; 2) installing the PRB from MW164 to just west of MW176, injecting ZVI west of the PRB to the railroad tracks and injecting either sodium lactate or ZVI west of MW03; 3) injecting ZVI in the central plume area and injecting sodium lactate west of MW03.

Mr. Holmes opined the need to estimate injection of ZVI vs. sodium lactate at MW03 and to then use that estimate in all three scenarios. He asked if treatment of the MW130 area should be included in the RD for future transfer purposes. Mr. Ballard responded that if there was contamination on the property regardless of the source, then the property would not be available for transfer until the contamination had been addressed and received OPS. He also voiced concern that the EPA legal counsel would not concur with a property transfer if the contamination was treated with sodium lactate and the levels reduced, but it was not necessarily a sustained reduction because of the continued influx of the migrating contamination.

Mr. Ballard said that in his estimation Scenarios 1 and 2 implemented the ROD, and that sodium lactate injection at MW03 may require a non-significant change or ESD. He said that Scenario 3 may rise to the level of a ROD amendment or ESD since it deletes a treatment specifically identified in the ROD. Mr. Dobbs tasked CH2M Hill to ensure the scenarios show good cause as well as preparing real time cost estimates.

AI: CH2M Hill to compare scenarios "apples to apples" with real time costs. Mr. Nelson will be prepared to discuss the refined cost estimate at the February meeting. Mr. Holmes will update the schedule to combine the off-site groundwater and PRB RDs into one document.

Mr. Morrison announced that Mr. Jordan English of the Memphis Field Office was conducting some preliminary assessment/site investigation at properties adjacent to the MI and requested access to some of the Depot monitoring wells. He also said that this spring his contractor would try to remove the pump lodged in one of the MI wells.

BRAC Cleanup Plan Version 8, Rev. 0

Mr. Holmes indicated the BCP was distributed on December 29 for 30-day review. Mr. Ballard indicated he was reviewing the document. Mr. Holmes presented several changes to the master schedule to reflect combination of the offsite groundwater RDs and to incorporate preliminary comments from Mr. Ballard.

Mr. Ballard indicated it was important for the Remedial Action Completion Report for the EISR to be completed before the end of the fiscal year. Upon update of the master schedule, Mr. Holmes will update and distribute the deliverables matrix. Mr. Ballard asked that Mr. Holmes review the Completion Report content requirements and to ensure that the MACTEC contract requirements provide for the report content requirements.

Disposal Sites Remedial Action Schedule

Mr. Holmes indicated MACTEC was awaiting receipt of funds from AFCEE and that he anticipated receiving the notice to proceed (NTP) soon. He said the pre-construction conference would occur two weeks after NTP and that mobilization would occur approximately one month from NTP.

Mr. Dobbs asked if it was necessary to notify TDEC of hazardous waste disposal, remembering challenges from the chemical warfare materiel removal action. Mr. Morrison said that the Transportation and Disposal Plan should contain those requirements. Mr. Holmes indicated that the hazardous waste would be shipped to the landfill in Emile, AL, and that the non-hazardous waste would go to the south Shelby County landfill. Mr. Holmes indicated he had received the appropriate landfill approval letters. Mr. Morrison asked if the approval letters come from the local TDEC office. Mr. Holmes indicated the approval letters were from EPA. Mr. Morrison said that if the non-hazardous waste was to be classified and disposed of as special waste, then TDEC would have to approve the classification and disposal of the waste. Mr. Morrison said the new project manager, Mr. Evan Spann, would assist Mr. Holmes with the special waste disposal issue.

AI: MACTEC to coordinate with TDEC regarding approval to dispose of special waste in Tennessee.

Phase III SVE and Fracturing Pilot Study

Mr. Nelson provided preliminary information about the pilot study. Mr. Nelson then provided some history of the pilot study. Phase I occurred in 2001 and included SVE only with no fracturing or use of proppant. Phase II included fracturing at two boreholes with proppant injected into one borehole. During Phase II, pressure and vacuum both were applied to the boreholes in an attempt to measure formation (loess deposits) resistance to flow. During Phase III, the team tried injecting wet proppant mixed with a food grade dye into one additional borehole, but the proppant apparently became jammed at the fracture openings at the borehole interface. The team also completed fracturing with dry proppant injection with a sandblaster type mechanism in two other boreholes. In one of these boreholes, the dye was mixed with potable water and injected into the fractures.

The team performed vacuum tests on each of the borings and results indicated better vacuum response from each of the test points; however, they were all flooded with water from the formation (and from the injections). He said the team recorded better response from the proppant filled fractures over the Phase II results. He also said that confirmation borings did not reveal the dye injected with the proppant, so the team has been unable to determine where proppant goes during injections. Overall, Phase III results indicated that vacuum response increased relative to Phase II and that the boring with dry injection procedures provided better response.

Mr. Nelson indicated that CH2M Hill may conduct another field test of the process on the loess to determine the response from blowing air into the formation. He said the team wants to see if the fractures with proppant have been maintained or if the fractures have closed during the system downtime. Mr. Nelson also said that the injection radius was not a perfect circle and that CH2M Hill was working a model to show the anisotropic zones. Mr. Miller asked if it would impact the placement of SVE borings. Mr. Nelson said it would and that after Phase I the team realized that a simple SVE system would not apply to the loess as it would take a long time to meet RAOs.

Mr. Nelson said he was working the pilot study technical memorandum and anticipated distributing it in early February. He asked the team to keep in mind the SVE system in the preliminary Source Area RD was still in flux during their document review. He said the preliminary Source Area RD included the Phase III work plan, but did not include the results.

Mr. Ballard suggested that the SVE system length of operation may need to be reviewed based on the latest data because the preliminary RD included a four year assumption.

Main Installation Remedial Action Work Plan (RAWP)

Mr. Holmes reported that the RAWP was scheduled for distribution to Mitretek for internal review by the end of January with distribution to the BCT by the end of February.

Dunn Field Land Use Control Implementation Plan (LUCIP)

Mr. Nelson reported that he had spoken with Mr. Buxbaum about the LUCIP, and that Mr. Buxbaum had sent it, but that due to an email delivery problem on Mr. Buxbaum's system Mr. Nelson had not received it. Mr. Buxbaum would resend it, and Mr. Nelson would review it and then distribute it to the BCT soon thereafter.

Main Installation Design Related Investigation Report/November 2004 Groundwater samples/Remedial Action Work Plan

Mr. Holmes presented updated top of clay maps based on recent sampling data that refined the interpretations of clay layers in the northwest area of the Main Installation. The team discussed the geology of this area and the rationale behind MACTEC's interpretations. Mr. Holmes indicated that recent sampling data did not change the potentiometric surface map.

Mr. Holmes presented plume maps based on June 2004 sample results. Concentrations have not changed much from previous sample results. Mr. Holmes wanted to discuss this issue with the team to determine the number and placement of compliance wells. He asked about the necessity for more wells, or if the existing wells would suffice. For instance, at MW64 contamination levels may be an individual plume or associated with the Treatment Area 2 plume. He asked about the need to better define these areas, or if the project should move on to compliance well system. Mr. Holmes voiced concern that if these anomalies were not addressed now, then they may affect site closure in the future.

Mr. Ballard interjected that in the Main Installation RD, MW64 was an individual plume not tied to Treatment Area 2. Mr. Morrison indicated that in his opinion it would be a small plume. Mr. Ballard continued that if MACTEC wanted to interpret the data with MW64 connected to Treatment Area 2, then more wells would be necessary to monitor it. Mr. Holmes proposed installing several more wells to further define the plume. Mr. Dobbs indicated concern about treating Area 2 without knowing what was happening at MW64. Mr. Ballard said it would be appropriate to treat Area 2 and continue monitoring MW64 and MW25/25A. Mr. Dobbs explained that he did not want to treat the area and start working towards OPS, and then have to come back to deal with MW64.

Mr. Holmes indicated his interpretation of OPS was injecting and monitoring to show the injections were working. Mr. Ballard responded that the guidance indicates that the system must show that reduction will meet the RAOs. Mr. Holmes understood that OPS could not be achieved if the team intended to construct further remediation systems.

Mr. Holmes thought that since contamination levels at MW64 may be small individual plumes, perhaps it would be appropriate to inject sodium lactate or chemtox to reduce levels in the well. Mr. Ballard voiced the need for a compliance well to bound it as there are no wells between MW62 and Treatment Area 2 to substantiate a connection between the plumes.

Mr. Miller suggested, depending upon the flow rate, treating Area 2 and monitoring MW64. Or, if the flow rate would take 5 years for water at Treatment Area 2 to reach MW64, then he suggested injecting sodium lactate into MW64 and monitoring it.

AI: Mr. Ballard will review the guidance to delineate between construction completion and OPS.

AI: Mr. Holmes will put together some recommendations for wells on the MI with DQOs by summer time.

Finding of Suitability to Transfer (FOST) 4

Mr. Holmes reported that the 30-day public comment period for FOST 4 would begin Monday, January 31. He indicated that the ads were scheduled to appear in the local newspapers, the Restoration Advisory Board had been notified of the comment period, and Frontline had placed copies of FOST 4 in the Information Repositories.

Interim Remedial Action System Status

Mr. Holmes reported that RW1A and RW2 were down with electrical problems that would be corrected upon receipt of funds from AFCEE.

Community Involvement

Mr. Holmes reported that the BCT had received the post-ROD CIP for review.

Disposal Sites RD briefing

Mr. Holmes confirmed that the briefing was scheduled to begin at 6 p.m. Thursday, January 20.

ZVI Information Session

Mr. Holmes confirmed that the ZVI information session was scheduled for Thursday, February 24. Mr. Ballard confirmed that Dr. Ralph Ludwig would present ZVI information to include what ZVI does and how it works. Mr. Dobbs voiced concern that someone be available to address the health concerns voiced at the last RAB meeting. Mr. Holmes will work with Frontline to identify community questions from the October 2004 RAB and to develop the appropriate responses.

Mr. Morrison suggested having posters of the ZVI injection process available.

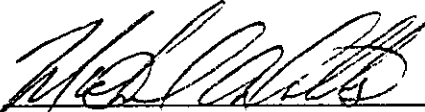
AI: Mr. Holmes to have Frontline review the October 2004 RAB minutes and to identify questions to ensure all concerns are addressed.

Information Repositories (IR)

Mr. Holmes reported that Frontline had talked with the Memphis/Shelby County Health Department about closing the IR located at their Jefferson Avenue office. He indicated that the Health Department was willing to close the IR and that Frontline would work with them to determine disposition of the documents contained therein.

Next Meeting

The BCT confirmed the next meeting to be held in Memphis, TN on February 24 with the internal team meeting scheduled for February 23, 2005.



MICHAEL DOBBS

2-24-05

DATE

Defense Distribution Center
BRAC Environmental Coordinator
BRAC Cleanup Team Member

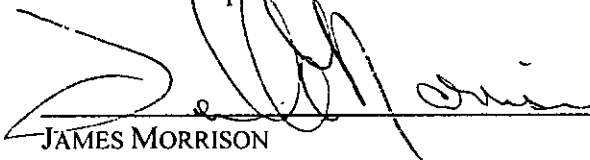


TURPIN BALLARD

2/24/05

DATE

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



JAMES MORRISON

2-24-05

DATE

Tennessee Department of Environment and Conservation
Memphis Field Office
Division of Superfund
BRAC Cleanup Team Member

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