



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 508

Page No.		Section No.	Comment	Response
Reviewer: James W. Morrison, TDEC				
General			The document follows the prescribed outline for a Feasibility Study (FS); however, it seems that the effort to streamline the document did not include enough supporting documentation for the alternative provided. Therefore, TDEC-DSF proposes the following changes to the document to improve the documentation necessary for TDEC-DSF to make an informed decision on the alternatives proposed. The range of alternatives in Section 3 of the document do not seem to provide the breadth of choices needed to tackle the differing situations at the Depot. The guidance given in the EPA RI/FS manual, Section 4.2.6 states that alternatives can be one remedial process as presented in these reports or groups of processes (i.e., limited access to industrial levels for FU1-5 and in-situ Remediation for FU-6 to full recreational levels). The alternatives should include at least one that brings the site back to full, unrestricted (residential) use, the no action alternative, and varying other alternatives as stated in the FS Guidance Section 4.1.3.1. This will do away with the confusing industrial and residential scenarios for each alternative presented in Section 4 and Appendix B. A summary table like Figure 4-6 in the RI/FS Guidance Manual to show what each alternative achieves also needs to be included in Section 3 of the report. Maps show the extent of areas to be remediated by each alternative (it is confusing to look at three maps to get all of the areas affected by one alternative); colors may be used to show locations of contaminants. This approach will make sure that all avenues of remediation have been considered with the proper supporting documentation for the Proposed Plan.	Cost estimates and evaluations have been presented to provide detail that would support a grouping approach, however, we did not attempt to present all the possible grouped combinations in this report because it would be too complex. With various scenarios, FUs and alternative actions, grouping of alternatives as suggested here could result in over 38 potential combinations, each of which would address one FU under one alternative action. As a compromise in lieu of addressing these many individual "groups of processes" we developed detailed discussion and cost estimates in Section 4 that provide cost and quantity information for individual FUs that can be used to build combined alternatives. Since FU4 is the only area exceeding industrial risk, the candidate alternatives are also applied to this scenario and FU separately for each of the alternatives, as well as the residential scenario. One alternative is provided (Alternative 7) that brings the site to residential use. One is no action (Alternative 1), and others are evaluated as stated in FS Guidance Section 4.1.3.1 (treatment and containment). The industrial scenario is developed separately for FU4 because it is much more likely to be selected than residential scenarios. A summary table like Figure 4-6 of the Guidance is presented in Table 3-1 of the FS. In Section 3, the alternatives are not discussed in sufficient detail to develop the maps of individual areas there. Instead, maps showing extent of remediation areas for each alternative, using colors to represent different contaminants, are presented in Section 4 for each FU.

Comment Response Table (EPA/TDEC) Draft Main Installation Soils Feasibility Study			
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Reviewer: Brian T. Deeken, TDEC			
1-14, Line 28	Section 1.2.5.2	It should be stated that the current locations of the playground, soccer field, and baseball fields are ok; however, the TM found the risks for the playground to be too high for it to be located anywhere. This way we do not contradict ourselves when comparing the Streamlined Risk Assessment to the TM for the Golf Course.	The final (revised) TM is presented in Appendix C, which found risks for all recreational uses in FU2 to be acceptable.
1-15, Line 2	Section 1.2.5.3	This sentence is awkward and unclear, please clarify/	This sentence remnant has been removed from the report.
1-15, Line 3	Section 1.2.5.3	Please keep consistency and use "hypothetical residential receptor" when referring to potential residential use of the Depot facility/ The public may misinterpret the term used here to mean current residents. Please check the rest of the document for consistency in this matter	Consistency is maintained by using "potential future residential receptor" along with similar phrases already in use, such as "future residential scenario," "future residents," "potential future residents," etc.
2-3, Line 34	Section 2.2.2.1	See general comment, State that the residential evaluation satisfies the federal requirement to consider an alternative that eliminate or minimize long term management	The text has been revised to note the residential scenario satisfies the requirement that an alternative is developed that eliminates or minimizes long-term management.
2 of 3	Table 2-4	Because we are not cleaning up PAH's, remove references to them in the table.	References to PAHs are removed from Table 2-4.
Entire Section	Section 3.1	See general comment, these alternatives do not seem to adhere to guidance given Alternatives 3 through 7 seem to be no more than glorified technology types identified in the previous section They also do not seem to be the most common sense way to solve the problems presented at the site in the fact that one technology type is applied to the whole main installation in each alternative.	The developed alternatives adhere to the guidance as follows: Alternative 1 is a no action alternative; Alternative 3 is a containment alternative; Alternative 4 is a treatment alternative; Alternative 7 is an off-site transport and disposal without treatment alternative, Alternative 2 (institutional controls) was developed to provide a protective but minimal cost alternative See previous response re: grouping of processes.
Entire Section	Section 4.2	See general comment, looking at three maps to see the extent of cleanup for one technology is confusing. There needs to be one map per alternative that depicts the total areas that will be affected by one alternative. If greater definition is needed, use color on the maps.	Figures in Section 4 have been revised to address this. Section 4 now contains six figures, one for each FU at the MI. Lead, arsenic, and/or dieldrin concentrations and candidate remediation areas for residential and/or industrial land uses are shown on each figure in color to provide greater definition. Please note, only FU4 requires remediation for the industrial land use scenario.

Comment Response Table (EPA/TDEC) Draft Main Installation Soils Feasibility Study			
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Entire Section	Section 4.3	See general comment; this section is supposed to compare alternatives, not alternatives and Functional Units	The comparative analysis of Section 4.3 has been revised and expanded to new Section 4.5.
Reviewer: Turpin Ballard, U.S. EPA			
	Appendix C	Appendix C of the soils feasibility study (FS) for the main installation (MI) does not include information about which contaminants of concern (COC), aside from dieldrin, were considered. (For more detail on this comment, see extended correspondence).	The revised TM now included in Appendix C addresses a range of COCs, including the COCs arsenic and lead, as well as dieldrin. The complete list is given in Table 1 of Appendix C.
	General Comment	These comments are being supplied subsequent to a May 16, 2000 meeting regarding document quality in general for submittals from the Depot. A number of issues in this vein were discussed at the meeting, and I will not attempt to reiterate them here. However, I will make appropriate comments on the substance and form of this document, for the record.	
2-2, line 21-25	2.1.2	Unless it is determined that the waste to be left in place is in high enough concentration to be considered hazardous waste under RCRA, the State solid waste closure requirements would be more likely ARARs for any containment alternatives. Please list those as potential ARARs.	State solid waste rules of closure may be applicable to disposal of waste, so reference to Chapter 1200-1-7 is added to list of ARARs.
2-3, Line 36-37	2.2.2.1	EPA believes that DOD will be responsible for ensuring that any remedy selected remains protective of human health, even if land use changes occur in the future. If low-level contamination is managed through land use controls, and land use changes occur that result in an unacceptable level of risk, EPA will look to DOD to satisfy CERCLA requirements, not to a future land owner.	The reference to remedy responsibilities has been removed from the text.
2-4, line 6	2.2.2.1	Please add arsenic here, as it contributes significantly to the non-cancer risk. The addition of arsenic to the RAOs should prompt an examination of the adequacy of alternatives for surface soil remediation.	Arsenic has been added to the RAO. The alternatives have been revised to fully address arsenic-contaminated surface soil.

Comment Response Table (EPA/TDEC) Draft Main Installation Soils Feasibility Study			
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Page 3 of 5	Table 2-3	Dynamic underground stripping could be eliminated here based on dieltrin being located primarily in the top 6 to 12 inches of soil.	The table has been revised so that dynamic underground stripping and related subsurface technologies are eliminated from further consideration
Page 1 of 3	Table 2-4	To the asphalt or concrete cap, please add under comments the need for deed restrictions to prevent removal of the cap during redevelopment. There is no current guarantee that future plans for a given area won't be compatible with a chunk of concrete that is in the way	"Would require deed restrictions to prevent removal" has been added to the Table 2-4 comment.
3-3, line 26-33	3.2.1	To the degree that the treatment alternatives (4, 5, and 6) result in residual risk numbers that allow for the same use as would alternative 7, they also permanently remove the risk. In addition, they satisfy the CERCLA preference for treatment, whereas alternative 7 is the least preferred alternative under CERCLA.	The following sentence has been added: <i>"All three alternatives satisfy the CERCLA preference for treatment."</i> Alternative 7 is retained because it can be most effective with a sometimes acceptable cost premium, the text has been revised to clarify that risk is not removed, but transferred from the site.
3-4, line 33	3.3.2.1	By what natural mechanism under the no-action alternative would you expect arsenic and lead in surface soil to be diluted? Please explain.	This mechanism (precipitation acting as a solvent) is relatively minor, so reference to it is removed from the text.
3-5, line 7	3.3.2.2	Suggest changing the word "significantly" to "rapidly". The Venture Capital Study has shown that acclimated bacteria exist. Absent external stimulation, the biodegradation of dieltrin would take longer, but significant reductions in concentration could be expected, though over a long period of time.	The word "significantly" has been changed to "rapidly."
3-6, line 14	3.3.4.2	It is apparent here that a cut/paste was performed with necessary changes not made Change Alt. 2 to Alt 3	The number "2" has been changed to "3."

Comment Response Table (EPA/7DEC) Draft Main Installation Soils Feasibility Study			
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3-6, line 2-21 Line 29	3.3.4.2	Containment does not rely on treatment, and this alternative does not include a mechanism to track natural reductions, if any. Containment is supposed to result in a "permanent" physical barrier preventing exposure to unacceptable concentrations of soil contamination. Add that routine O&M would be required.	The Effectiveness discussion has been revised to read: <i>"The soil containment alternative protects human health by preventing direct contact with contaminated surface soil. Soil containment relies primarily on a physical barrier preventing exposure to contaminated surface soil. Natural attenuation processes may remediate dieldrin contamination at the site, but the time required for constituents to attenuate below target levels is difficult to predict."</i> The following sentence has been added to the Implementability discussion: <i>"Routine O&M is required to maintain integrity of the cover, as well as periodic site inspections and cover evaluations to verify access limitations and continued remedy effectiveness."</i> The following sentence has been added to the Cost discussion: <i>"Some ongoing maintenance costs would be associated with site inspection and maintenance of cover material."</i>
3-6, line 39 3-7, line 12-13	3.3.5.1	The most effective bioenhancement treatment was broadcasting of dry agent. If biotreatment were selected, this would be the likely form used, not a water-based solution. See also now page 3-7, line 31-32. Please list all the areas to be considered for such treatment	Bioenhancement agents can be applied either as a dry agent or as a water solution, depending on site implementability and effectiveness. Therefore, the general description of in-situ soil treatment will include both application methods. The first paragraph of the Description of Alternative 4 has been modified to read as: <i>"... For example, soil may be treated with water-based solutions or dry powders containing nutrients, oxygen, microorganisms, or other amendments to optimize in-situ anaerobic or aerobic biodegradation. Water-based solutions may be injected or sprayed over dieldrin contaminated soils. Concentrated dry powders could be broadcast like dry fertilizer and then irrigated with water. This method is referred to as "enhanced biodegradation."</i>

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			The second sentence of the Implementability discussion has been modified to read as: <i>"For enhanced biodegradation, use of water-based solutions or the irrigation of dry powders may increase the mobility of some constituents."</i> Areas, by FU, that are under consideration for treatment of organics and metals are listed in Table 4-2.
	General comment	The FS, PP, and ROD should include a figure showing areas of the MI where certain future land uses must be restricted, and areas where unrestricted use is acceptable. Please include the nature of the restrictions needed (i.e., no residential use, no residential or industrial use, etc.)	FS figures shown in Section 4 have been revised to show both residential and industrial exceedance areas within each of the FUs.
	Section 4, General comment	My comments on the inadequacy of Section 4 have been submitted previously and were the subject of extensive discussions in our meeting on May 16. I expect a significantly improved detailed analysis of alternatives to result. The BCT agreed that a revised Section 4 will be submitted on June 12, 2000, for expedited review.	Section 4 has been revised and submitted to EPA/TDEC on June 12, 2000. Responses to comments made by TDEC on that submittal are presented in another table.
	Appendix B	The cost estimates do not reflect a level of detail that allows EPA to evaluate their adequacy under the RIFS guidance. Please include all assumptions under which estimates are made, and supporting documentation for unit costs.	Cost estimate tables have been revised to include more detail. Assumptions and unit cost references used to develop costs are included next to each line item
	Appendix C	My comments on Appendix C were submitted in a letter dated May 4, 2000, and were discussed in the May BCT meeting. These comments were further discussed and clarified in a conference call on May 24, 2000, with Steve Offner, Greg Underberg, and Vijaya Milavarapu of CH2M Hill	The revised TM now included in Appendix C addresses EPA and TDEC comments throughout April and May, 2000. The final TM is dated June 2, 2000

Comment Response Table (EPA/TDEC) Interim Final Installation Soils Feasibility Study (Section 4)			
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Reviewer: EPA (Turpin Ballard)			
	Section 4, Soils	The revised section is significantly improved, and finally reflects EPA guidance more closely. Because figures were not included, EPA's comments here are conditional on good correlation between text and figures, which will be determined during the final review	Comment noted.
P 4-3, fourth bullet	Section 4, Soils	As I understand it, the DOI will transfer the FU 2 property to the City of Memphis to use as a park, not to the National Park Service.	Per response from John P. De Back on June 26, 2000, the property will be assigned from the Army to DOI/NPS. It will then be transferred by public benefit conveyance to the City of Memphis for use as a park under the cited law, Federal Property Management Regulations. It is important to note that the receiver is the City of Memphis, as the Parks and Recreation Commission cannot own property.
p. 4-17	Section 4.4.1, Section 4.5.2	Under no action, achieving ARARs is a moot issue. ARARs apply to remedial actions. In some instances, ARARs can drive a remedial action even if site risk is acceptable. However, in this case, there are no pre-existing soil contamination ARARs. Therefore, if there is no action, there are no ARARs to achieve. Please revise this to reflect that there are no ARARs for this alternative. Also, revise language in Section 4.5.2	Text has been revised to note there are no ARARs for No Action in both Sections 4.4.1 and 4.5.2.
Page 4-22, last paragraph	Section 4, Soils	Although the cost estimating may have assumed a 30-year life for the remedy, CERCLA does not limit 5-year review requirement to 30 years. It is required as long as hazardous substances, pollutants, or contaminants remain at the site.	The last paragraph of Section 4.5.3.1 has been revised to note that review is required as long as hazardous substances, pollutants, or contaminants remain at the site, present worth costs use 30 years as a costing period. Other references to 5-year review periods have also been revised.
Page 4-26, paragraph 2	Section 4, Soils	Is the assumption that all soil will have to be disposed of as hazardous based on past removal actions at DDMT, or on an estimate of the average concentrations in soil, or some TCLP data? Please validate the assumption somehow, or reduce the total hazwaste estimate.	The cost estimates assume that excavated lead-contaminated soil (FU3 and 4) contains concentrations of lead that would fail TCLP, and thus would have to be disposed of in a hazardous waste landfill. All soil lead values are >300 mg/kg, therefore, 300 mg/kg / 20 (rule of thumb) = 15 mg/kg which is greater than the 5 mg/L TCLP limit. All of the arsenic/dieldrin-contaminated soil is assumed as being disposed of as non-hazardous waste on the basis of previous soil removal actions at the Housing Area and Café.

Comment Response Table (EPA/TDEC) Interim Final Installation Soils Feasibility Study (Section 4)		
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Reviewer: TDEC (James Morrison)		
General	Section 4, Soils	Both Section 4 draft submittals for Soils and Ground Water FSs have greatly improved. Additionally, TDEC concurs with all EPA general and specific comments and will not reiterate them here. TDEC notes a potential interpretation problem with these documents. Specifically, the guidance for the FS approach used here differs somewhat from the guidance that is published in EPA's RI/FS guidance document. TDEC appreciates, and understands EPA's rationale / internal policy decision for this variance to the published RI/FS. The only reason for this comment/concern is due to all of the public relation problems and the continuing community misperceptions that have occurred at the Depot. It is because of this, TDEC strongly suggests that these two FS documents contain a section each that is dedicated to clarifying / explaining: What problems were discovered in the RI that are to be evaluated / addressed in the FS. This should only be a summary of problems that were discovered, not a reiteration of the RI. What are the intent, purpose, goal/objective, and scope of the Feasibility Study? This is a little DQO exercise that not only helps the authors and the reviewers, it also helps the public understand what we are to communicate in this document. How alternatives generated in the FSs relate to the Proposed Plans. This will help the public to understand the process better.
		Comment noted. Section 1 of both FSs have been rewritten to respond to this comment. The subsection 1.1, has been expanded to present the successive steps (RI, RA, FS, PP, public comment, ROD) in the CERCLA process. It reads as follows: Purpose of This Feasibility Study This Feasibility Study (FS) represents an important step in the evaluation of a CERCLA site and selection of a remedial action. To put this report in context, the following describes the CERCLA process used to evaluate the Depot and to select a remedy to resolve environmental contamination. For the past several years, a series of investigations have been conducted at the Depot to obtain samples of soil, sediment, groundwater, and other impacted environmental media to assess the level of contamination that exists at the Depot, defining the horizontal and vertical extent of contamination in each medium. The Remedial Investigation (RI) report (CH2M HILL, 2000a) summarizes and interprets the results of the investigations at the Depot. As part of the RI, a Baseline Risk Assessment (BRA) was prepared to assess the potential risks to human health and the environment represented by contaminants at the site. The baseline risk assessment incorporated EPA approved assumptions regarding exposure of affected individuals under different land use scenarios. The findings of the BRA are included in the RI report (CH2M HILL, 2000a).

Comment Response Table (EPA/TDEC) Interim Final Installation Soils Feasibility Study (Section 4)			
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		The above points collectively should provide the public with a clearer picture of what has been accomplished, what we are considering, and what we are to later propose as the preferred remedial alternative. I know this may seem excessive and unnecessary, but this should provide the necessary transition for clarity, brevity, and coherency purposes. In other words, the story is told in a way that is understandable, so that our decision / logic path can be defended when the time comes.	This Feasibility Study (FS) develops and presents a range of remedial alternatives to address the contaminants present at the Depot, and evaluates the probable performance of each alternative in comparison to a set of criteria established by the EPA. The FS is intended to present an unbiased and non-judgmental evaluation of the selected alternative(s). In some cases, additional environmental data are collected or reassessed during the preparation of the FS in order to understand the applicability of a particular remedial technology, or to determine a better way to remediate a particular area of contamination. Following publication of the FS, the cognizant regulatory and lead agencies for the Depot (Defense Logistics Agency [DLA], EPA and TDEC will evaluate the remedies presented in the FS. A Proposed Plan will then be prepared documenting the remedy(s) proposed by those agencies and the rationale for the selection of the proposed remedy(s). The Proposed Plan may "pick and chose" among the evaluated alternatives for various locations at the Depot. The Proposed Plan will be presented to the Memphis community and the public, who will be offered the opportunity to comment on the proposed remedy(s). After public comments are received on the Proposed Plan, the regulatory and lead agencies will take all comments into consideration, re-evaluate their selection of proposed remedy(s) for the Depot, and publish a Record of Decision (ROD) documenting the final remedy(s) selected for the Depot. All public comments are presented and responded to in the Responsiveness Summary of the ROD. The remedy(s) documented in the ROD will then be implemented at the Depot.

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