149 0 File: 541.460.000n
C.G.

THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 149

OU-1, SITE 4 149 1. File: C.G. 541.460.E

149

DEFENSE LOGISTICS AGENCY
DEFENSE DISTRIBUTION DEPOT MEMPHIS
2163 AIRWAYS BOULEVARD
MEMPHIS, TENNESSEE 38114-5210

IN REPLY REFER TO

DDMT-DE

7 February 1996

SUBJECT: Response to Comments on the Record of Decision for Groundwater Interim Remedial Action

Mr. Joseph R. Franzmathes, Director
Waste Management Division
U.S. Environmental Protection Agency
345 Courtland St., NE
Atlanta, GA 30365

Dear Mr. Franzmathes:

Four copies of the Response to Comments on the Record of Decision for Groundwater Interim Remedial Action is submitted for your review. We have attempted to address your comments, those of the Tennessee Department of Environment and Conservation and the public.

Should you have any questions or require additional information, please contact me at 901-775-6372.

Sincerely,

Harold Roach

HAROLD ROACH
Environmental Engineer

cc:
TDEC (J. English)
ASCE-WP
HSHB-ME-SR (D. Druck)
DDMT-D
CEHND-PM-MD (J. Romeo)
ME3 (S. Estes)

CH2MHILL
Engineers
Planners
Economists
Scientists

January 10, 1996

110491.IR.ZZ

Mr. John Romeo, Project Manager
U.S. Army Engineer Division, Huntsville
ATTN: CEHND-PM-ED
4820 University Square
Huntsville, AL 35807-4301

Subject: Transmittal of DDMT Interim Record of Decision (ROD) Comment Response Table

Dear John:

We are pleased to transmit copies of the comment response matrix table for the Groundwater IRA ROD for your review. The table responds to comments received from EPA and TDEC, and includes results of discussions held at the October 1995 Regional Project Managers' meeting. As we agreed, CH2M HILL will not modify the text of the IRA ROD until all comments on this table are received.

In addition to the comment response table, I am including text from a new section (Section 2.10–Statutory Determinations) requested in one of the comments, a revised Figure 3–Conceptual Site Model, and revised ARARs tables. These items seem to be the most important for your review.

Please call with any questions.

Sincerely,

CH2M HILL

Leslie Shannon

Leslie Shannon
Enclosures
mgm96-DDMT Misc./001.doc
cc: Clarence Smith/DDRE
Scott Bradley/CEHND
Earnest White/CEHND
Julian Savage/CEHND
Harold Roach/DDMT
Julett Denton/CEHND
Mark Corey/CH2M HILL/MGM
Mark Nielsen/CH2M HILL/ATL
Greg Underberg/CH2M HILL/ORO

EPA Comments
Draft ROD for Interim Record of Decision
of the Groundwater at Dunn Field–DDMT
August 1995, CH2M HILL

No.	EPA Comments	Responses
General Comments		
	Cover Page–For the sake of continuity, the name of the facility in the title should be "Defense Distribution Depot Memphis".	The cover page and the fly sheet will be changed to read "Defense Distribution Depot Memphis, Tennessee".
	Page v, 3rd paragraph–The last sentence should specifically reference the pretreatment provision is part of the contingency remedy.	The last sentence will be modified to read: "If, however, chemical analyses indicate that pretreatment is necessary, a pretreatment provision is part of the contingency remedy."
	Page 1-1, Section 1.2, 2nd paragraph–There is a typo in the second-to-last sentence–"daft" instead of "draft".	The typo will be corrected to read "draft".
	Page 1-1, Section 1.2, 2nd paragraph–Please change the last sentence to read "The U.S. EPA and the State of Tennessee concur with the selected interim remedy."	The last sentence will be deleted and replaced with "The U.S. EPA and the State of Tennessee concur with the selected interim remedy."
	Page 1-1, Section 1.3–Please delete the second sentence. This section should contain only the required legal language describing the assessment of the site.	The second sentence will be deleted.
	Page 1-1, Section 1.4–The contingency remedy should be mentioned here.	A new fourth sentence will be added to Section 1.4, page 1-1, as follows: "As a contingency remedy, the IRA also includes a provision for pretreatment if necessary."
	Page 1-2, Section 1.5–The third sentence seems to be missing some words–suggest that it may mean to read as follows "It is not intended to be the permanent solution and uses alternative treatment technologies to the maximum extent practicable for this interim response."	The third sentence of Section 1.5, page 1.2, will be changed to read as follows: "It is not intended to be the permanent solution and uses alternative treatment technologies to the maximum extent practicable for this interim response."
	Section 1.5–The language regarding the need for the five-year review process implies that five year review process doesn't start until the final remedial action decision has been made. This is not correct. Suggest deleting the last sentence on page 1-3 and substituting the following "Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within five years after the commencement of this remedial action. Because this is an interim action ROD, review of the remedy will be ongoing as DDMT continues to develop the final remedial action for OU-1."	The last sentence on page 1-3 will be replaced with the following: "Because this remedy will result in hazardous substances remaining onsite above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within 5 years after the commencement of this remedial action. Because this is an interim action ROD, review of the remedy will be ongoing as DDMT continues to develop the final remedial action for OU-1."

EPA Comments
Draft ROD for Interim Record of Decision
of the Groundwater at Dunn Field–DDMT
August 1995, CH2M HILL

No.	EPA Comments	Responses
	Page 2-1, Section 2.1, 1st paragraph–The second to last sentence indicates that it is describing the installation itself. The sentence should be modified to make it clear that it is referring to the area around the installation.	The second to last sentence will be modified to read as follows: "The installation is surrounded by mixed residential, commercial, and industrial areas."
	Page 2-1, Section 2.1, 3rd paragraph–A sentence should be added at the end of this paragraph referring the reader to Section 2.4 for a more detailed description of operable units.	The last sentence will be modified to read as follows: "A more detailed description of the OUs, whose current boundaries are shown in Figure 2, is found in Section 2.4."
	Page 2-4, 4th complete paragraph–It should be clarified that the "RI" referred to in this paragraph is the Law report and it was not accepted by either regulatory agency as the final RI for the installation.	Page 2-4, 4th complete paragraph. A new sentence will be added to the end of this paragraph as follows: "A final RI for the installation has not yet been accepted by either EPA or TDEC."
	Page 2-5, 1st sentence–This sentence should be clarified to read that DDMT was added to the NPL because of its Hazard Ranking Score, not because EPA prepared the scoring package.	In accordance with discussions held at the October 1995 RPM meeting in Memphis, the first sentence will be modified by placing a period after (NPL) and deleting the remainder of the sentence.
	Page 2-5, Section 2.3–There is an extra line between the first and second paragraphs of this section.	The extra line will be deleted.
	Page 2-5, Section 2.3–The third paragraph should name the publications that ran the public notice.	In the third paragraph, "various local publications" will be deleted and replaced with "the *Silver Star News*, *Tri-State Defender*, and the *Commercial Appeal*."
	Page 2-6, Section 2.3–Transcripts are not available from the RAB meetings, meeting minutes are.	In the 6th line on page 2-6, the word "transcripts" will be changed to "meeting minutes".
	Page 2-6, Section 2.4–The second paragraph should reference Figure 2 for the reader. Also, the discussion about operable units seems confusing . There is a good discussion of this same subject in Section 2 of the September 1994 SMP–suggest borrowing some of that discussion.	A new sentence will be added to the end of the first paragraph in Section 2.4: "Figure 2 shows the location and areal extent of the OUs." The second paragraph of Section 2.4, page 2-6, will be deleted and replaced with the following: "Dunn Field, which is the only area on DDMT where burial of waste is known to have occurred, is designated OU-1. Substances found in OU-1 probably resulted from use of the area for landfill operations, mineral stockpiles, pistol range use, and pesticides storage.

EPA Comments
Draft ROD for Interim Record of Decision
of the Groundwater at Dunn Field–DDMT
August 1995, CH2M HILL

No.	EPA Comments	Responses
	(Page 2-6, Section 2.4 continued)	"The Main Installation is divided into three other OUs. OU-2, in the southwestern quadrant, is an area where maintenance and repair activities have occurred. Potential contamination of OU-2 may have resulted from spills or releases from the hazardous material storage and repouring area, or sandblasting and painting activities. OU-3 includes the Golf Course Pond, Lake Danielson, and former transformer and pesticide storage areas. Storage of PCBs and the use of pesticides and herbicides are potential sources of contamination for OU-3. OU-4, in the north-central area, is mainly characterized by the presence of the main hazardous materials storage building at DDMT. Principal contamination in OU-4 probably resulted from a wood treatment operation and hazardous material storage."
	Page 2-9, Section 2.5.3–The last sentence of the first paragraph should be revised as follows "To date, constituents of concern in the Fluvial Aquifer have not been detected in Memphis Sand Aquifer groundwater samples in the vicinity of the site."	The sentence will be revised as suggested.
	Page 2-11–The last paragraph before Section 2.7 seems confusing. Suggest dropping the "acceptable exposure levels" reference and changing the last sentence to read "No changes were made to the preferred alternative as presented in the Proposed Plan."	"Acceptable exposure levels" will be deleted. The last sentence will be changed to read: "No changes were made to the preferred alternative as presented in the Proposed Plan."
	Tables 3 and 4–There are no tables listing chemical specific ARARs. Is this an oversight or is this correct? If this is an oversight, then the listing of tables on page iii also needs to be corrected.	A table listing the preliminary identification of potential chemical-specific ARARs has been included both in the text and the table of contents.
	Page 2-28, Section 2.9–The discussion in the second paragraph should clearly identify Alternative Three as the contingency remedy. It should also describe the criteria by which the decision to implement the contingency remedy will be based (i.e. the conditions listed in the discharge permit).	In the first sentence, add the phrase "(the contingency remedy)" after Alternative 3. Add a new last sentence to this paragraph: "The criteria used to determine whether the contingency remedy is implemented are the discharge limitations established in the City of Memphis' discharge permit."

EPA Comments
Draft ROD for Interim Record of Decision
of the Groundwater at Dunn Field–DDMT
August 1995, CH2M HILL

No.	EPA Comments	Responses
	Page 2-29–There is a missing section here. Section 2-10 should contain the description of how the selected remedy meets the statutory requirements in SARA. The reference section should be renumbered Section 2.11. These changes also need to be reflected in the Table of Contents on page ii.	A new section entitled "Statutory Determinations" has been written, and is added here as Section 2.10. The remaining section is renumbered as Section 2.11. The table of contents is also corrected.
	There appears to be a tendency to "soft sell" the potential problems at the Depot (Specific Comments 6, 11, and 14 below). Tell it like it is! Also, it would be wise to involve a geologist/ hydrogeologist who has reviewed the available literature related to regional and local geology/ hydrogeology in the review of all documents (Specific Comments 1, 8, 9, 10, 11, and 14 below).	This comment will be addressed by addressing the specific comments mentioned within it.
Specific Comments		
1	Acronyms, page iv–NGVD stands for National Geodetic Vertical Datum.	On page iv, "geologic" will be deleted and replaced with "geodetic".
2	Section 1.4, page 1-1–TDSF suggests re-writing the next to last sentence on the page to read ". . .follow-on activities include monitoring the groundwater plume and its response to the IRA."	The next to last sentence will be rewritten as suggested.
3	Section 1.2, page 1-1–In the next to last sentence, "IROD" is an undefined term/ acronym. Perhaps "IRA ROD" would be more understandable and these terms are separately defined in the acronym list.	The term "IROD" will be deleted and replaced with IRA ROD. Additionally, the entire document will be checked for other uses of the IROD term.
4	Section 1.5, page 1-2, second sentence–This is a run-on sentence TDSF suggests ". . .permanent or final remedy. However, it is intended to be compatible . . ."	The suggestion will be made as noted.
5	Section 1.5, page 1-3, last sentence–TDSF suggests re-wording this sentence. "Because this interim remedy does not include removal of all hazardous substances that are above health based levels, a review will be conducted . . ."	This sentence has already been rewritten by an EPA comment. The EPA rewrite contains the same sense as the suggested rewrite here.
6	Section 2.2, pages 2-4 & 2-5–The last sentence on page 2-4 states that DDMT was placed on the NPL because of its scoring on the HRS. While this is true, technically, it fails to convey to the public the true nature of the reason why it received the score it did. This section should be re-drafted to describe what actual conditions at the Depot factored in to the NPL listing.	Per discussion and agreement from the attendees at the October 1995 Regional Project Managers' meeting, the sentence will be modified by placing a period after (NPL), and deleting the remainder of the sentence.

EPA Comments
Draft ROD for Interim Record of Decision
of the Groundwater at Dunn Field–DDMT
August 1995, CH2M HILL

No.	EPA Comments	Responses
7	Section 2.4, page 2-7, first sentence–The end of this sentence should be re-worded. TDSF suggests ". . . from past disposal practices at the Depot."	The change will be made as suggested.
8	Section 2.5.1, page 2-7, Section Heading–The primary focus of this section appears to be physiography. TDSF suggests changing the heading to reflect this and moving the last paragraph, which describes litholigic units generically, into the next section. This will require re-writing the first paragraph, at least in part.	The heading for Section 2.5.1 is changed to "Physiography". The last paragraph of Section 2.5.1 is combined with the first paragraph of Section 2.5.2 so that the first paragraph now reads: "The Dunn Field area of DDMT is covered by a loess deposit, which is a semi-cohesive windblown deposit of silt, silty sand, and silty clay. The loess is about 20 ft thick in the vicinity of Dunn Field and may occasionally reach 30 ft in thickness . . . . The extent of this potential perched zone is unknown. There is no evidence that the loess produces water to wells in the DDMT vicinity. The loess is underlain by the Fluvial Deposits, the Jackson Formation/ Upper Claiborne Group, and the Memphis Sand." The first sentence of the second paragraph is then changed to read: "The Fluvial Deposits consist of a . . . ."
9	Section 2.5.2, page 2-8, first paragraph–It is stated that a seasonal perched zone may occur. The next sentence should have the word "potential" inserted to convey to the reader that its presence is not confirmed.	This change is made as shown in the paragraph above.
10	Section 2.5.2, page 2-8, third paragraph, first sentence–This sentence needs to be reworded. The lithology is not only as described. The lithology does include clay as described, but it also includes sandy intervals as well. Also, the Upper Claiborne is comprised of several units	The first and second sentences of the third paragraph are changed as follows: "Below the Fluvial Deposits is the Jackson Formation and Upper Claiborne Group consisting of stiff gray or orange plastic, lean to fat lignitic clay, silt, and fine sand with minor lenses of lignite. This stratigraphic unit reaches . . . ."
11	Section 2.5.2, page 2-8, third paragraph, last sentence–This sentence is misleading. Most of the evidence that we currently have suggests that a window is present. TDSF suggests stating the possibility that a window exists.	The last sentence of the third paragraph has been changed as follows, per agreement of the attendees at the October 1995 Regional Project Managers' meeting: "Although no areas of hydraulic connection have been confirmed in the vicinity of DDMT to date, investigations are underway to verify the existence of a potential interconnection."

EPA Comments
Draft ROD for Interim Record of Decision
of the Groundwater at Dunn Field–DDMT
August 1995, CH2M HILL

No.	EPA Comments	Responses
12	Section 2.6, page 2-11, first full paragraph, last sentence–TDSF suggests re-writing this sentence to say ". . . caused by leakage from the contaminated Fluvial . . ."	The change has been made as suggested.
13	Section 2.6, page 2-11, third full paragraph–the word principle should be principal in this context.	The change has been made as suggested.
14	Figure 3, page 2-12–There are several serious problems with this figure. The most obvious problem is with the vertical exaggeration (VE). In fact, TDSF suggests completely re-drawing the figure with a reasonable VE and providing the approximate scale on the drawing. The loess appears to have no lower boundary. What creek is depicted on the cross-section? Where is north? The water table should be clearly indicated for the lay reader. These deposits are commonly referred to as fluvial deposits, not alluvial deposits. Alluvial deposits usually (by convention) refers to recent stream and river sedimentation. Fluvial aquifers have a tendency to "mound" beneath topographic highs unless some other mechanism (leakage) reverses this effect.	The figure has been revised with input from TDEC during the revision process. A new version is included for review.
15	Section 2.7.8, page 2-16, third bullet–The contents of this bullet need to be broken up into at least two sentences. As it is, it is rambling and somewhat confusing.	The third bullet is rewritten into two sentences as follows: "After the aquifer characteristics are established and the leading edge of the plume is identified, additional groundwater recovery wells will be installed as appropriate to contain the plume. These wells are located along the leading edge of the plume and screened in the Fluvial Aquifer down to the confining clay layer of the Memphis Sand Aquifer."
16	Section 2.9, page 2-28, bulleted paragraph at bottom of page–Syntax between the initial phrase and the last three bullets appears to be incorrect.	Syntax has been corrected.
17	Section 2.9, page 2-29, first paragraph, last sentence–"Table 4 . . ." should be "Table 5 . . ."	With the addition of a new table, both the reference to the table and the table on page 2-29 are changed to read Table 6. The table of contents is also corrected.

2.10 Statutory Determinations

DDMT, EPA, and TDEC concur that the extraction system (with the potential for pretreatment, if necessary) will satisfy the CERCLA § 121 (b) statutory requirements of: providing protection of human health and the environment, attaining applicable or relevant and appropriate requirements directly associated with this action, being cost-effective, using permanent solutions and alternative treatment technologies to the maximum extent practicable, and including a preference for treatment as a principal element.

Protection of Human Health and the Environment

Although the groundwater within the contaminated plume is not currently used as a source of drinking water for the local residents, under future or other potential exposure scenarios it presents a potential threat to human health and the environment. The interim action remedy initiates protection of human health under the exposure scenarios through mitigation of the spread of the plume and removing a portion of the contaminated groundwater until a final action is determined. The remedy also provides protection to the environment by providing the option of treatment of the extracted groundwater before discharge, and effective management of all residual wastes generated during implementation of the action.

The final cleanup levels for the groundwater are not addressed in this interim action record of decision (ROD) because such goals are beyond the limited scope of this action. The final cleanup levels will be addressed by the final remedial action ROD for the site.

Compliance with ARARs

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 was passed by Congress and signed into law on December 11, 1980 (Public Law 96-510). The act was intended to provide for "liability, compensation, cleanup, and emergency response for hazardous substances released into the environment and the cleanup of inactive waste disposal sites." The Superfund Amendments and Reauthorization Act (SARA), adopted on October 17, 1986 (Public Law 99-499), did not substantially alter the original structure of CERCLA, but provided extensive amendments to it. In particular, § 121 of CERCLA specifies that remedial actions for cleanup of hazardous substances must comply with requirements or standards under federal or more stringent state environmental laws that are applicable or relevant and appropriate to the hazardous substances or particular circumstances at a site.

A listing of applicable or relevant and appropriate requirements (ARARs) (chemical-specific, location-specific, and action-specific) are provided in Tables 3, 4, and 5 of this document. Discharge to the publicly owned treatment works (POTW) will be subject to both the substantive and administrative requirements of the national pretreatment program

and all applicable state and local pretreatment regulations (Tables 3, 4, and 5). Should treatment be required prior to discharge to the POTW, Alternative 3 will be implemented as a contingency to provide groundwater treatment.

Alternative 3 uses an air stripper for the removal of volatile organic compounds (VOCs) from the extracted groundwater. Air stripping is a viable treatment process for removal of VOCs from water and will be used if treatment for VOCs is required.

Chemical-specific ARARs

The principal contaminants of concern in the groundwater plume west of Dunn Field are presented in Table 1. Chemical-specific ARARs are shown in Table 3.

The City of Memphis Sewer Use Ordinance (March 1993) establishes maximum effluent standards for discharge of wastewater into the municipal sewerage system (Table 6). Daily average maximum and instantaneous maximum concentrations are provided for arsenic, chromium, lead, and nickel. With the exception of tetrachloroethene, the remaining VOCs in Table 1 and barium cannot be discharged without written permission from the approving authority. Tetrachloroethene is not included in the City of Memphis' ordinance. The final permit for city discharge will be negotiated as part of this action.

Location-specific ARARs

Location-specific requirements "set restrictions upon the concentration of hazardous substances or the conduct of activities solely because they are in special locations" (53 Fed. Reg. 51394). Table 4 lists location-specific ARARs that might be pertinent to this remedial action.

Action-specific ARARs

Performance, design, or other action-specific requirements set controls or restrictions on particular kinds of activities related to the management of hazardous waste (52 Fed. Reg. 32496). Selection of a particular remedial action at a site will invoke the appropriate action-specific ARARs that may specify particular performance standards or technologies, as well as specific environmental levels for discharged or residual chemicals. Federal and state regulations appear in Table 5 and are summarized below.

Well Construction. State of Tennessee requirements for water production well construction are promulgated under Tennessee Code Annotated (TCA) Section 70-2307 Chapter 400-2-2: however, these requirements do not apply under the exemptions stated in TCA Section 68-46, Chapter 1200-4-9.01(b) whereby wells otherwise regulated by the State, in this case through CERCLA, are not considered water production wells. However, the Memphis and Shelby County Health Department Pollution Control Section has promulgated requirements and regulations in the *Rules and Regulations of Wells in*

Shelby County. Specific requirements include use of a driller licensed in Tennessee and specific well siting and construction requirements.

Pumping. Under the Water Withdrawal Registration Act of 1963, Chapter 8—Water Resources Division, Section 69-8-105 requires that any person withdrawing 50,000 or more gallons per day (gpd) of water from any source register with the division of water resources. A permit is not required. On the basis of an anticipated pumping rate that may reach 1 million gpd for the recovery well system, it is anticipated that registration will be required.

The action-specific ARARs for direct discharge of treatment system effluent are shown in Table 5. DDMT is applying for a City discharge permit. Discharge limits will be specified in the permit.

Cost-Effectiveness

The interim action remedy uses a commercially tested technology that affords a high level of effectiveness proportional to its costs so that the remedy represents reasonable value. This action will use a relatively inexpensive technology to mitigate the spread of the contaminated groundwater. This limited scale containment operation should reduce the cost of the overall remediation of the groundwater by retarding the migration of the contaminant plume.

Use of Permanent Solutions and Alternative Treatment Technologies

The interim action is designed to minimize the possibility of contamination of the area's drinking water supply. This is not the final action planned for the groundwater contamination. Follow-on activities include monitoring the groundwater plume and its response to the IRA. Once the plume has been fully characterized, subsequent action may be taken to provide long-term definitive protection, including remediation of source areas. To the extent possible, the interim action will not be inconsistent with, nor preclude implementation of, the expected final remedy.

Preference for Treatment as a Principal Element

This interim action satisfies the statutory preference for treatment of the discharged effluent (through, at a minimum, treatment at the POTW) as a principal element of the containment system. If necessary, onsite treatment will be performed if needed to meet permit criteria.

Table 3
Preliminary Identification of Potential Chemical-specific ARARs for DDMT

Actions*	Requirement	Prerequisites	Citation	ARAR	Comments
Discharge to POTW*	Treatment of pollutants that could pass through the POTW without treatment, interfere with POTW operation, or contaminate POTW sludge is required.		40 CFR 403.5 See Table 6	Applicable	If any liquid is discharged to a POTW, these requirements are applicable. In accordance with guidance, a discharge permit may be required even for an onsite discharge, because permitting is the only substantive control mechanism available to a POTW.
	Specific prohibitions preclude the discharge of pollutants to POTWs that: • Create a fire or explosion hazard in the POTW • Are corrosive (pH < 5.0) • Obstruct flow resulting in interference • Are discharged at a flow rate and/or concentration that will result in interference • Increase the temperature of wastewater entering the treatment plant that would result in interference, but in no case raise the POTW influent temperature above 104°F (40°C) Discharge must comply with the local POTW pretreatment program, including POTW-specific pollutants, spill prevention program requirements, and reporting and monitoring requirements.		40 CFR 403.5 and local POTW regulations		Categorical standards have not been promulgated for CERCLA sites, so discharge standards must be determined on a case-by-case basis, depending on the characteristics of the waste stream and the receiving POTW. Some municipalities may have published standards for non-categorical, non-domestic discharges. Changes in the composition of the waste streant due to pretreatment process changes or the addition of new waste streams may require renegotiation of the permit conditions. Local (City of Memphis) requirements for discharge to a POTW are summarized in Table 6 for the constituents of concern shown in Table 1. DDMT is applying for a City discharge permit.
	RCRA permit-by-rule requirements must be complied with for discharges of RCRA hazardous wastes to POTWs by truck, rail, or dedicated pipe.		40 CFR 270.60 Permits-by-rule		

Notes:

*These regulations apply regardless of whether the remedial action discharges into the sewer or trucks the waste to an inlet to the sewage conveyance system located "upstream" of the POTW.

Table 4
Preliminary Identification of Potential Location-specific ARARs at DDMT

	Location	Requirement	Prerequisite(s)	Citation	ARAR	Comments
1.	Within 61 meters (200 feet) of a fault displaced in Holocene time	New treatment, storage, or disposal of hazardous waste prohibited.	RCRA hazardous waste; treatment, storage, or disposal	40 CFR 264.18(a)	Not ARAR	Shelby County is not listed in 40 CFR 264, Appendix VI, as being seismically active.
2.	Area affecting stream or river	Action to protect fish or wildlife.	Diversion, channeling, or other activity that modifies a stream or river and affects fish or wildlife	Fish and Wildlife Coordination Act (16 USC 661 et seq.); 40 CFR 6.302	Not ARAR	The Fish and Wildlife Coordination Act requires consultation with the Department of Fish and Wildlife before taking any action that would alter a body of water of the United States.
3.	Memphis/Shelby County	Ozone, carbon monoxide, and lead air pollutants for Memphis/Shelby County have been designated a non-attainment area.		State of TN Air Code		Memphis-Shelby County Health Department has adopted Tennessee Air Code.
4.	Within 100-year floodplain.	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste; PCB treatment, storage, or disposal	40 CFR 264.18(b); 40 CFR 761.75	Not ARAR	Surface elevations at DDMT (276 to 316 feet NGVD) exceed the average Mississippi River alluvial valley flood levels of 185 to 230 feet NGVD. The Flood Insurance Rate maps, published by Federal Emergency Management Agency and revised August 19, 1985, indicate that DDMT is not within the 100- or 500-year floodplain, but is in Zone C – "Areas of Minimal Flooding."
5.	Wetlands	Action to minimize the destruction, loss, or degradation of wetlands	Wetlands as defined by Executive Order 11990 Section 7	Executive Order 11990, Protection of Wetlands (40 CFR 6, Appendix A)	Not ARAR	
		Action to prohibit discharge of dredged or fill material into wetland without permit		Clean Water Act Section 404; 40 CFR Parts 230, 231	Not ARAR	

Table 5
Preliminary Identification of Potential Action-specific ARARs for DDMT

Actions[a]	Requirement	Prerequisites	Citation	ARAR	Comments
Air Stripping	Design system to provide odor-free operation.		CAA Section 101[b]	Applicable	Odor regulations are intended to limit nuisance conditions from air pollution emissions.
	Obtain Memphis/Shelby County Health Department construction/operating permit.	Emission requirements for groundwater treatment systems are handled individually.	TCA 1200-3-9(1)(a)	Applicable	Each construction-operating permit is based on "Best Available Control Technology."
	Estimate total VOC emissions.		1990 CAAA Section 302(g) TCA 1200-3-9(11)(b)14.(ii)	Applicable	Any source emitting more than 100 tpy VOCs is classified as major and requires agency review and a potential permit.
	File an Air Pollution Emission Notice (APEN) with the State to include estimation of emission rates for each pollutant expected.	Groundwater contains regulated air pollutants.	40 CFR 52[b]	Applicable	State will have particular interest in emissions for compounds on its hazardous, toxic, or odorous list. Preliminary meeting with State prior to filing APEN is recommended in the regulation. Meeting would identify additional issues of concern to the State.
	Include with filed APEN the following: • Modeled impact analysis of source emissions • Provide a Best Available Control Technology (BACT) review for the source operation	This additional work and information is normally applicable to sources meeting the "major" source criteria and/or to sources proposed for nonattainment areas.	40 CFR 52[b]	Relevant and Appropriate	State may identify further requirements for permit issuance after first review. These provisions follow the federal Prevention of Significant Deterioration (PSD) framework with some modifications. Additional requirements could include ambient monitoring and emission control equipment design revisions to match Lowest Achievable Emission Requirements (LAER). While a permit is not required for an onsite CERCLA action, the substantive requirements identified during the permitting process are applicable.
	Predict total emissions of volatile organic compounds (VOCs) to demonstrate that emissions do not exceed 450 lb/hr, 3,000 lb/day, 10 gal./day, or allowable emission levels from similar sources using Reasonably Available Control Technology (RACT).	Source operation must be in an ozone nonattainment area.	40 CFR 52[b]	Applicable	The control technology review for this regulation (RACT) could coincide with the BACT review suggested under the PSD program.
	Verify that emissions of VOCs do not exceed levels expected from sources in compliance with hazardous air pollution regulations.		40 CFR 61[b]	Relevant and Appropriate	Any source emitting the regulated compound(s) is subject to these regulations. However, some of the specific regulations further restrict the scope of applicability.

Table 5
Preliminary Identification of Potential Action-specific ARARs for DDMT

Actions*	Requirement	Prerequisites	Citation	ARAR	Comments
Air Stripping	Estimate HAP emissions.	Groundwater contains HAPs.	Title III, 1990 CAAA Section 112 TCA 1200-3-9(11)(b)14.(i)	Applicable	If hazardous air pollutants (HAPs) are greater than a major rate, air permit and/or application of Maximum Available Control Technology (MACT) may be required. HAPs exceed 25 tpy aggregate HAPs or 10 tpy for a single HAP.
Groundwater Cleanup	Maximum contaminant level goals (MCLGs), established under SDWA, that are set at concentrations above zero shall be attained if relevant and appropriate to the circumstances of the release. Where MCLGs for a contaminant have been set at a concentration of zero, the MCLs for that contaminant shall be attained. Groundwater standards established under RCRA shall be attained if relevant and appropriate to circumstances of the release.	Groundwater is a current or potential source of drinking water. No MCLG or maximum contaminant level (MCL) has been established for contaminant of concern. Cleanup value for lead in groundwater used for drinking is not an MCL, but is established as an action level.	40 CFR 300.430 of NCP 40 CFR 264.94 USEPA memo dated June 21, 1990, from Henry Longest to Patrick Tobin	Relevant and Appropriate	Tennessee adopted guidelines equivalent to federal guidelines. The interim remedial action will not address groundwater cleanup ARARs. The final remedial action will. Memo recommended a final action level for lead of 15 ppb.
Groundwater Withdrawal	Water withdrawal registration is required for wells or systems that pump more than 50,000 gallons per day.		Water Withdrawal Registration Act of 1963 – Chapter 8 – Water Resources Div., Section 69-8-105	Relevant and Appropriate	Total flow from all recovery wells may be up to 1 mgd.

Notes:

*Action alternatives from ROD keyword index.

[b]All of the Clean Air Act ARARs that have been established by the federal government are covered by matching state regulations. The state has the authority to manage these programs through the approval of its implementation plans (40 CFR 52, Subpart G). As of January 1996, the Tennessee SIP is complete, with EPA action pending.

Table 6

Maximum Effluent Standards for Discharge of Waste into the Municipal Sewerage System

Constituent	Daily Average[1] Maximum Concentration mg/L	Instantaneous Maximum Concentration mg/L
Metals		
Arsenic	1.0	2.0
Barium		
Chromium (hexavalent)	1.0	2.0
Chromium (total)	5.0	10.0
Lead[2]		
Nickel	5.0	10.0
Volatile Organic Compounds		
1,1-Dichloroethene[3]		
1,2-Dichloroethene (total)[3]		
Tetrachloroethene[4]		
Trichloroethene[3]		
Carbon tetrachloride[3]		

Source: City of Memphis, Sewer Use Ordinance, March 1993

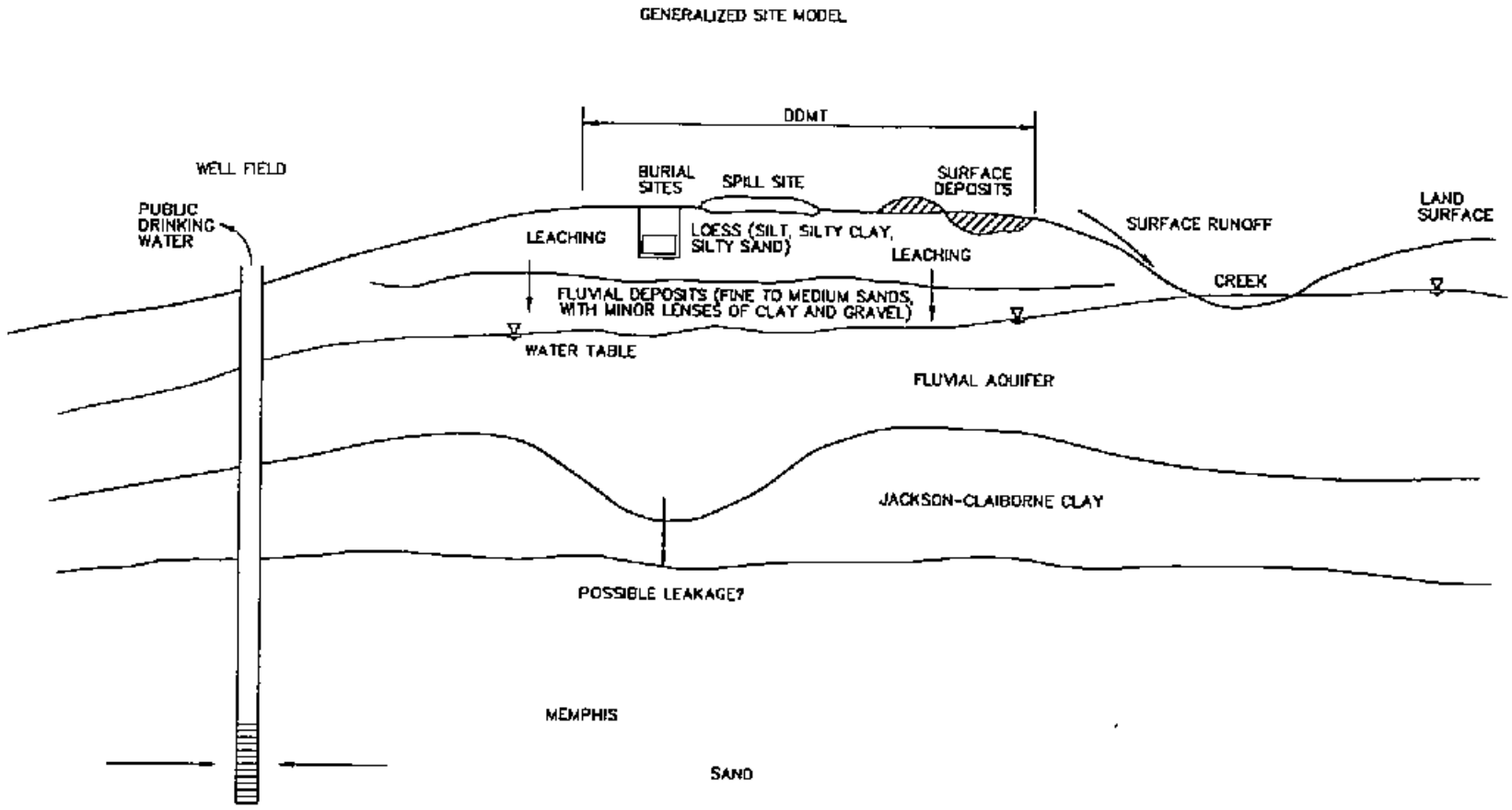
Notes:

[1]Based on 24-hour flow-proportionate composite sample

[2]Cadmium, mercury, and lead discharges are severely restricted due to limitations placed on the disposal of sewage sludge containing cadmium, mercury, and/or lead. Actual allowable discharge concentrations for these constituents will be determined on a case-by-case basis.

[3]No person shall discharge wastewater containing any of the materials listed herein into the municipal sewer system or shall have any connection to the municipal sewer system without obtaining written permission from the Approving Authority.

[4]This parameter is not included in City of Memphis Sewer Use Ordinance.



NOT TO SCALE, VERTICAL SCALE EXAGGERATED

Source: CEHND, 1994

FIGURE 3
GENERALIZED CONCEPTUAL SITE MODEL (CROSS SECTION VIEW)
Defense Depot Memphis, Tennessee

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ADMINISTRATIVE RECORD

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