THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 69

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File:
C.G. 541-460d

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STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
MEMPHIS ENVIRONMENTAL FIELD OFFICE
SUITE E-645, PERIMETER PARK
2500 MT. MORIAH
MEMPHIS, TENNESSEE 38115

July 12, 1994

Commander
Defense Distribution Depot Memphis
Attn: DDMT-WP (Mr. Frank Novitzke)
2163 Airways Blvd.,
Memphis, Tennessee 38114-5210

Re: Draft Final Engineering Report, Removal Action for Groundwater for DDRC, submitted August 1993 and 7/8/94 (addendum), TDSF #79-736

Dear Mr. Novitzke:

The Tennessee Division of Superfund (TDSF) Memphis Field Office (MFO) has reviewed the Draft-Final Engineering Report, Removal Action for Ground Water received in this office on 8/17/93. Missing sections not received in this transmittal were received after request on 7/8/94.

As I have indicated to you on numerous occasions, my greatest concern is that only one of the alternatives retained, and none selected, adequately address the contaminants that may have previously migrated away from Dunn Field. The perception is that the intent is to allow these potential contaminants to attenuate and continue to migrate and potentially contaminate other portions of the fluvial aquifer or the Memphis Sand aquifer.

I know that we have a plan that was brought up in the last manager's meeting for early monitoring well installation downgradient of the known plume locations. To the extent that this addresses uncertainties in plume nature and extent determination and to the extent that it will assist in plume containment for this Interim Remedial Measure (IRM), even though it may require additional extraction wells, I will support it.

The attached comments address inadequacies as though this was a stand alone document. Should you have any questions or concerns regarding this review or the Site in general please call at
(901) 368-7953

Sincerely,

Jordan English, Manager
Memphis Field Office
Tennessee Division of Superfund

c: TDSF, NCO
TDSF, MFO
Allison Humphris
United States Environmental Protection Agency
Federal Facilities Branch
345 Courtland Street, N.E.
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Tennessee Department of Environment and Conservation
Division of Superfund
Comments for
Draft Final
Engineering Report
Removal Action for Ground Water
7/12/94

The Tennessee Division of Superfund (TDSF) Memphis Field Office (MFO) has reviewed the Draft-Final Engineering Report, Removal Action for Ground Water for the Defense Depot (Site) in Memphis, Shelby County, Tennessee which was received, in part, in this office on 8/17/93. Sections 7 & 8 were missing from the original transmittal but were received after request on 7/8/94.

General Comments:

TDSF's greatest concern is that only one of the alternatives retained, and none selected, adequately address the contaminants that may have previously migrated away from Dunn Field. The perception is that the intent is to allow these potential contaminants to attenuate and continue to migrate and potentially contaminate other portions of the fluvial aquifer or the Memphis Sand aquifer.

TDSF does not intend to concur with any IRM alternative that fails to address this issue. Public acceptance of this is unlikely if communicated properly.

Specific Comments:

Section 1.0, Page 1-2--No alternative was developed which involved off-Site extraction wells.

Section 1.0, Page 1-2--The word "some" is vague and unclear. TDSF suggests replacing with the word "limited".

Figure 3.2, Page 3-4--Although the map legend does not indicate a contour interval, the interval appears to be 10 '. In the lower left of the map, two closed loop contours are not marked. This actually appears to be an error in contouring.

Section 3.4.1, Page 3-9--The wording ", the thick confining layer of the Flour Island Unit (150+ feet)," should be inserted between "depth___and because".

Section 3.4.2, Page 3-9--The statement "No interconnections have been found between the Memphis Sand and the Fluvial Aquifer in the DDRC vicinity." is misleading and borders on deceit. Indications are that a window does exist. Insertion of "conclusive proof of" between "No___interconnections..." would make this a legitimate statement.

Section 3.4.2, Page 3-11--In the discussion of the Jackson/Upper Claiborne Formation no reference is made regarding the proximity of the Allen well field, its potential or actual effect on

head differences between the fluvial and Memphis Sand aquifers. Normally, without the drawdown effect of the Allen well field on the Memphis Sand, the Memphis Sand head might be positive relative to the fluvial aquifer.

Section 3.4.2, Page 3-11--This section is labeled Site Hydrogeology (emphasis added). It is misleading, with the information presented to date, to suggest that the Memphis Sand aquifer is under confined conditions. The inclusion of the word "generally" would be appropriate if qualified with the indications of where it is not certain (Law Study potentiometric map).

Section 3.4.2, Page 3-11--The Passage "Water levels in the two Memphis Sand wells...suggest a gradient..." is incorrect. The water levels at two wells cannot suggest anything but a relative gradient between each other.

Figure 3.6, Page 3-12--Site numbers are illegible.

Section 3.5, Page 3-13--In the discussion of volatile organic compounds the statement is made that the plumes appear aligned with the north and west property lines. According to the map on page 3-14 this is clearly not the case for 1,1,2,2-tetrachloroethane. When generalizing you must clarify your generalizations and clearly present any exceptions.

Section 3.5, Page 3-16--In the discussion of the Memphis Sand aquifer two unsupported statements are made. They both are related to gradient determination. As stated previously, water level measurements from only two wells will not determine true groundwater gradients. It only can be said which well is more upgradient/downgradient than the other. Any other statements regarding gradients relative to the Site or contaminants sources is inconclusive and therefore potentially misleading.

Section 4.1, Page 4-1--It is possible that Memphis has been surpassed by Nashville in terms of population.

Section 4.2, Page 4-2--Although it is agreed that a transport mechanism at Dunn Field at least includes meteoric infiltration, gravity flow alone can be a transport mechanism. If drum rupture or leakage occurs during dry periods then at least initial transport can be entirely by gravity flow alone.

Section 4.2, Page 4-2--Evidence that there is a potential window between aquifers should be provided here to the extent that it relates to Memphis Sand recharge.

Section 4.2, Page 4-4--The level of acetone found in MW-37 is generally well above levels indicative of laboratory contamination. The presence of acetone in similar levels in lab blanks would have supported your theory. It must be noted that historical acetone storage occurred at the Depot near the location of this well.

Section 4.3, Page 4-5--"PTW" should be spelled out followed by the abbreviation for later referral.

Section 4.5, Page 4-9--It sounds as though you are looking for an excuse not to include metals as contaminants of concern. The fact that for two consecutive years metals were detected above MCL's indicates the probability that they indeed are contaminants of concern. The

fact that they were not detected above MCL's in 1992 indicates that the most contaminated portion of the plume may have migrated off-Site. No information is provided in this passage to indicate if samples were collected during similar seasons. Variations could be seasonal (wet vs. dry) or represent container leakage events.

Section 4.5, Page 4-10--Consistent with the previous comment this aquifer also contains metals until proven otherwise.

Section 5.0, Page 5-1—Response objective 3 should be reworded to say "*Contain* contaminant migration from beneath Dunn Field to off Site areas,".

Section 5.2, Page 5-7--The statement regarding metals observed during the 1992 pump test are misleading. Pump test observations are not comparable to static observations. One other round of sampling may not be sufficient to confirm no metals problem (see comment for Page 4-9 above).

Section 5.2, Page 5-7—Who made the determination that acetone was not a contaminant of concern? TDSF does not necessarily concur.

Section 6.1.2, Page 6-3--Failure to identify the plume boundaries and install appropriate extraction wells to capture "front edge" of the plume will, in effect, put into place a remedy that allows at least partial attenuation. This should be clearly stated here so that the public will have the opportunity to comment.

Section 7.2, Page 7-3, Bullets at top of page—Was any consideration given to modeling with an intermediate grid (ie. between 1200-3400 feet)?

Section 7.4.2, Page 7-12--The primary problem is that the plume is ill-defined.

With the proper arrangement of on-Site and off-Site extraction wells any migration of contaminants off-Site would be captured.

Section 7.6.1, Page 7-14—"RI report" in the first sentence should be changed to Law Study.

Section 7.6.1, Page 7-14--A statement in this ¶ indicates that other privately-owned water supply wells screened in the Memphis Sand are "at some distance away.". Please be specific with regard to this distance.

Table 8.1, Page 8-2—Why is municipal sewer the only disposal option for alternative 3?

Section 8.2, Page 8-5--Expected concentrations would also be less due to dilution with "drawn-in" uncontaminated groundwater.

Section 9.0, Page 9-2, Middle of upper ¶--In the sentence that begins with "However, any such agreement...", what agreement is being referred to?

Section 9.0, Page 9-3—Two typos occur on this page. On the top line the word considered is misspelled. About six lines down "willbe" should be separated.

Section 9.0, Page 9-8--In the middle of the last ¶ the sentence beginning with "No well constructed..." is a run-on sentence.

Section 10.1, Page 10-1—It states that the other alternatives provide effective control of contaminated groundwater beneath the northern portion of Dunn Field and beneath off-Site land *immediately* (emphasis added) land north and west. How immediately? If plume contaminants above MCL's are not going to be contained it should be accurately explained.

Section 10.1, Page 10-3--What about past releases from Dunn Field? What is the eventual fate of these contaminants? DLA should candidly explain these points to the public.

Section 10.2, Page 10-3--In the first ¶ the reference is again made to "ground water beneath Dunn Field". The entire aquifer system(s) in the area must be protected from Site impacts not just "beneath Dunn Field".

Section 10.6, Page 10-6--It may be surprising how quickly negotiations can obtain easements. TDSF can assist if necessary. A Commissioner's Order can be requested requiring access.

Section 10.7, Page 10-7--Please clarify why extraction wells would need to be spaced more closely when reinjecting.

Section 10.9, Page 10-10—Is the 90 pounds per year in water or air?

Section 10.9, Page 10-10--If reservations can be addressed through pre-treatment prior to POTW discharge why can't pre-treatment prior to surface water discharge address reservations also?

Table 10.3, Page 10-12--The biggest problem with the alternatives retained is the fact that none of them protect the Memphis Sand aquifer down-gradient from Dunn Field from past releases. This will have to be clearly and unambiguously explained to the public.

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