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THE MEMPHIS DEPOT
TENNESSEE

ADMINISTRATIVE RECORD
COVER SHEET

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

NOV 27 1991
4WD-RCRA&FFB

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

W. F. Murphy, Colonel, USMC
Commander
Defense Distribution Regional Central
2163 Airways Boulevard
Memphis, Tennessee 38114-5000

Re: Draft Interim Remedial Measures Work Plan
Defense Distribution Regional Central (DDRC), Memphis, TN.
EPA I.D. Number: TN4 210 020 570

Dear Colonel Murphy:

The Environmental Protection Agency (EPA) has completed its review of the Draft Interim Remedial Measures Work Plan. Our comments are presented on the following pages. The Tennessee Department of Environment and Conservation (TDEC) has also reviewed the work plan and concurs with these comments. For future reference, the state must be informed of all activities pertaining to RCRA Corrective Action or Cleanup at a RCRA-Treatment Storage Disposal (TSD) facility. The point of contact at TDEC for all correspondence, document submittals, etc. is:

Mr. Ronnie Bowers, Chief
RCRA Corrective Action Section
Division of Solid Waste Management
Tennessee Department of Environment and Conservation
701 Broadway
Customs House, 4th Floor
Nashville, Tennessee 37243-1535

Given the current status of DDRC as a RCRA-permitted facility, this work plan is technically an Interim Measures (IM) Work Plan, submitted in accordance with condition II.F.1.a. of the RCRA-HSWA permit. Should DDRC be placed on the National Priorities List (NPL), then, under CERCLA authority, the proposed Interim Measures will be considered an Early Interim Remedial Action (IRA). If this occurs, the information gathered through the currently-proposed work, along with any other existing site information, shall be used to prepare an Early IRA Record of Decision (ROD). The purpose of the ROD is to document and justify the decision to perform the IRA. The Early IRA ROD shall eventually be incorporated into the Final ROD, prepared for the entire site, at a later date.

Overall, the scope of work proposed in the IM Work Plan should provide adequate characterization of the Fluvial Aquifer for the purposes of designing an interim pump and treat system. Furthermore, assuming the procedures outlined in section 4.0 are followed in preparing an IM Design Plan, and the Agency's comments are incorporated, the plan should also meet the informational requirements for preparing an Early IRA ROD.

Given the importance of these proposed interim measures, we anticipate resubmittal of the revised document at your earliest convenience and no later that 21 days from the receipt of this letter. Upon satisfactory incorporation of agency comments, EPA anticipates review and approval of the revised submittal within 14 days of receipt.

Please contact Ms. Allison Drew of my staff at 404/347-3016 should you have any questions regarding this matter.

Sincerely yours,

for Beverly A. Spruill

James S. Kutzman, P.E.
Associate Division Director
Office of RCRA and Federal Facilities
Waste Management Division

Enclosure

cc: Russ D'Hondt, DDRC-Memphis
Ronnie Bowers, RCRA-CAS, TDEC

TECHNICAL REVIEW AND COMMENTS
INTERIM REMEDIAL MEASURES WORK PLAN
FOR GROUNDWATER CONTAMINATION IN THE DUNN FIELD AREA
DEFENSE DEPOT REGIONAL CENTRAL
MEMPHIS, TENNESSEE

1. Page 1-2, Paragraph 1:
The Groundwater Cleanup Levels define the contaminant concentration levels allowed to remain in the groundwater, not the levels permissible for the water being discharged from the treatment system.

Please note that the purpose of the RCRA Interim Measures (IM) (or CERCLA Early Interim Remedial Action (IRA)) is to reduce the current or potential risk to public health and/or the environment. Therefore, firm cleanup levels need not be established at the time of the IM. Rather, tentative cleanup goals should be established. These cleanup goals will be finalized at a later date through the RCRA Corrective Action and CERCLA ROD Processes.

2. Page 1-2, Paragraph 3:
What is meant by the term "institutional criteria"?

3. Page 2-2, Figure 2-1:
The Dunn Field Location should be more clearly identified on this figure. Please either include a legend defining the cross-hatched area, or label the area directly on the figure.

4. Page 2-4, Paragraph 6:
The fluvial aquifer must be classified according to the "Guidelines for Ground-water Classification Under the EPA Ground-water Protection Strategy." This classification will play a critical role in determining cleanup levels for the aquifer. A preliminary evaluation of the surficial aquifer indicates that it is Class IIB: Potential Source of Drinking Water. Cleanup goals for Class IIB aquifers are subject to MCLs, proposed MCLs, or health-based numbers where MCLs do not exist.

5. Page 2-6, Figure 2-3:
The groundwater contour map should indicate from which aquifer the data on this figure is taken.

6. Page 2-7, Paragraph 3:
Please include sufficient evidence (e.g. potentiometric map) to support the statement that groundwater flow in the Memphis Sand is toward the Allen Well Field.

7. Page 2-8, Paragraph 1:
In this discussion of metals distribution in groundwater at the site, the consultant indicates that the plumes may contain dissolved as well as suspended metals. They further indicate that the plumes of dissolved metals may be smaller. It is true that colloidal transport can facilitate the movement of inorganic contaminants. However, all contaminants whether dissolved or in suspension should be assessed and may be subject to remediation. Groundwater cleanup levels are set at certain concentrations.

They are not established relative to background levels. Please note that the Maximum Contaminant Levels (MCLs) for groundwater are based on total metals concentrations.

8. Page 2-8, Paragraph 3:
The workplan states that the Memphis Light, Gas and Water Division believes the source of contamination in wells 125, 127, and 128 is a local industrial site and is not related to the Defense Depot. The source of the contamination found in wells 126, 127 and 128 has not been determined at this time. There is an ongoing investigation at an industrial site located near those wells which will determine whether that facility has impacted the water quality of the Allen Well Field. To EPA's knowledge, the Memphis Gas, Light and Water Division has not taken a position as to the source of contamination in these wells.

9. Page 3-1, Section 3.1:
Please include the calculations used to approximate the optimum pumping rate of 20 gpm, either here or as an appendix.

10. Page 3-2, Paragraph 2:
Please include the calculations used to estimate drawdown and the radius of influence, either here or as an appendix.

11. Page 3-2, Section 3.2, Paragraph 3:
Based on the assumed radius of influence of approximately 60 feet, only one well (MW-3) will provide drawdown data. The other observation wells mentioned are located in excess of 60 feet from the pumping well. Additional observation wells should be installed within a 60-foot radial distance to the pumping well to measure drawdown effects for calculating aquifer characteristics.

12. Page 3-4, Paragraph 1:
The plan states that mud-rotary is the most efficient way to install a well of this diameter. Mud rotary is the least preferred rotary method because contamination can be introduced into the borehole from the constituents in the drilling mud, and it is very difficult to remove the drilling mud from the borehole after drilling and during well development. Use of this method is generally acceptable for extraction well installation. However, because the plan indicates that water quality samples will be collected from the well following installation, an alternate drilling method is preferred.

If mud rotary is selected, only potable water and pure (no additives) bentonite drilling muds shall be used. All materials used shall have adequate documentation as to manufacturer's recommendations and product constituents. The proper field QA/QC procedures shall be initiated before and during drilling to minimize the potential for contamination. These QA/QC procedures shall include, but not be limited to, sampling and analyzing of all drilling materials such as drilling muds, bentonite pellets, grouts, sand, etc., and the potable water to be used during drilling.

13. Page 3-4, Paragraph 2:
The workplan states that the rotary table, bits, drill rod, and all other down hole tools and equipment will be steam-cleaned prior to the installation of the well. While this well is not intended to be a monitoring well, the plan indicates that water quality samples will be collected from this well. To ensure that contamination is not carried from other wells/sites a more stringent drill rig cleaning procedure is required. The procedure from the US-EPA, Region IV, Environmental Services Division, Environmental Compliance Branch Standard Operating Procedure and Quality Assurance Manual, February 1, 1991, (ECBSOPQAM), included as Attachment A, should be followed.

14. Page 3-4, Paragraph 3:
The plan states that drill mud and cuttings will be collected and stored in DOT approved containers. It does not discuss what criteria will be used to determine if this material is hazardous and how it will be disposed of if so determined. This information should be included in the plan.

15. Page 3-4, Paragraph 4:
The plan states that the pumping test well will be constructed of 5-inch schedule 80 PVC casing and screen. Since water quality data will be collected from this well and volatile organic compounds are present in the groundwater at this site EPA recommends using stainless steel casing and screen. A 4-inch diameter submersible pump will fit in 4-inch stainless steel casing thus allowing for a smaller well bore and possibly an alternate drilling method.

The long-term integrity of the well should also be considered when selecting the well construction material, since extraction of contaminated groundwater from this area may continue for an extended period of time.

16. Page 3-6, Paragraph 2:
What grain size was selected for the filter pack?

17. Page 3-6, Paragraph 3:
The bentonite pellets should be allowed to hydrate for either eight hours or as per the manufacturer's recommendations. The use of a bentonite slurry immediately above the filter pack is not recommended.

18. Page 3-6, Paragraph 5:
Vigorous well development immediately upon well completion is critical, particularly if mud-rotary drilling methods are utilized, since this will facilitate removal of the mud cake.

19. Page 3-8, Paragraph 1:
The analytical method referenced (Driscoll, 1987) is only applicable to unconfined aquifers as long as the drawdown is small in relation to the aquifer thickness. As such, this method may not be applicable.

20. Page 3-8, Paragraph 5:
The plan states that VOCs will be measured in the field using headspace methods and a HNu meter at four-hour intervals during the pumping period. Photo ionization detectors like the HNu should only be used for field health and safety purposes such as determining the level of personnel protection

required and when unsafe conditions exist. Analysis of headspace does not provide reliable data since many factors can influence volatilization of organic compounds. If reliable data on VOCs is desired, water quality analyses should be performed using standardized laboratory methods.

21. Page 3-9, Paragraph 4:
What parameters will the GAC treatment system effluent be analyzed for?

22. Page 3-9, Paragraph 5:
This section of the plan indicates that the pumping test data will be analyzed using Theis', Jacob's straight line, and Boulton's water table analytical methods. Theis' and Jacob's methods are based on the assumptions that the aquifer is confined and the saturated zone is fully screened. Boulton's method was developed for unconfined aquifers however it also assumes that the saturated zone is fully screened. It cannot be determined from the construction diagram or narrative whether the saturated zone will be fully screened. Theis' and Jacob's methods are inappropriate for analyzing data from the proposed pumping test. Boulton's method may be applicable if all assumptions are met including a fully screened saturated zone.

23. Page 4-1, Paragraph 3:
The Groundwater Cleanup Levels are established independently of the interval, duration and rate of discharge. This section is confusing two sets of values: the discharge limits established for the treatment system (i.e. disposal requirements for the treated groundwater) are not related to the Groundwater Cleanup Levels which must be attained for the aquifer.

24. Page 4-3, Paragraph 3:
In order to satisfy the requirements of CERCLA and the NCP, the technologies being screened must be evaluated for adequacy in satisfying the Statutory Determinations and the nine evaluation criteria (see the enclosed guidance on developing a Superfund Record of Decision).

25. Page 4-3 thru 4-4, Paragraph 4:
The selection of the Interim Measure must be integrated into any long-term solution. It appears that the Interim Measure is being developed independently of the long-term solution.

26. Page 5-3, Engineering Report Outline:
Please note that only a preliminary Risk Evaluation is required for an Interim Remedial Action. The Baseline Risk Assessment may be deferred to completion of the full RI.

Please retitle Section 6.1 as "Human Health Evaluation"

Expand Section 6.2 to include the same sub-sections as Section 6.1.

The outline following Section 8.0 should be revised and expanded as follows:

9.0 Identify Applicable or Relevant & Appropriate Federal, State and Local Requirements which pertain to cleanup levels and operational parameters
10.0 Establish Remedial Action Objectives

11.0 Develop General Response Action which will:
1. satisfy Remedial Action Objectives
2. identify the volume or area to which response action will be applied

12.0 Identify and Screen Technologies
12.1 Identify Technologies
12.2 Evaluate and Screen Technologies

13.0 Develop/Assemble Technologies into Alternatives

14.0 Perform Comparative Analysis of Alternatives
14.1 Present 9 Criteria
14.2 Evaluate Adequacy of Each Alternative in Meeting the 9 Criteria

ATTACHMENT A

E.9 CLEANING AND DECONTAMINATION

All drilling rigs, drilling and sampling equipment, backhoes, and all other associated equipment involved in the drilling and sampling activities shall be cleaned and decontaminated before entering the designated drill site. All equipment should be inspected before entering the site to ensure that there are no fluids leaking and that all gaskets and seals are intact. All drilling and associated equipment entering a site shall be clean of any contaminants that may have been transported from another hazardous waste site, thereby minimizing the potential for cross-contamination. Before site drilling activities are initiated, all drilling equipment shall be thoroughly cleaned and decontaminated at the designated cleaning/decontamination area. The following requirements and procedures are to be strictly adhered to on all drilling activities.

Any portion of the drill rig, backhoe, etc., that is over the borehole (kelly bar or mast, backhoe buckets, drilling platform, hoist or chain pulldowns, spindles, cathead, etc.) shall be steam cleaned and wire brushed before being brought on the site to remove all rust, soil and other material which may have come from other hazardous waste sites. The drill rig and/or other equipment associated with the drilling and sampling activities shall be inspected to insure that all oil, grease, hydraulic fluid, etc., have been removed, and all seals and gaskets are intact and there are no fluid leaks. No oils or grease shall be used to lubricate drill stem threads or any other drilling equipment being used over the borehole or in the borehole without EPA approval. If drill stems have a tendency to tighten during drilling, TeflonR string can be used on the drill stem threads. The drill rig(s) shall be steam cleaned prior to drilling each borehole. In addition, all downhole drilling, sampling, and associated equipment that will come into contact with the downhole equipment and sample medium shall be cleaned and decontaminated by the following procedures.

1. Clean with tap water and laboratory grade, phosphate-free detergent, using a brush, if necessary, to remove particulate matter and surface films. Steam cleaning and/or high pressure hot water washing may be necessary to remove matter that is difficult to remove with the brush. Hollow-stem augers, drill rods, shelby tubes, etc., that are hollow or have holes that transmit water or drilling fluids, shall be cleaned on the inside and outside. The steam cleaner and/or high pressure hot water washer shall be capable of generating a pressure of at least 2500 PSI and producing hot water and/or steam (200F plus).

2. Rinse thoroughly with tap water(potable)

   NOTE: Tap water (potable) may be applied with a pump sprayer. All other decontamination liquids (D.I. water, organic-free water, and solvents), however, must be applied with non-interfering containers. These containers shall be made of glass, TeflonR, or stainless steel. This aspect of the decontamination procedures used by the driller will be inspected by the site geologist and/or other responsible person prior to beginning of operations.

3. Rinse thoroughly with deionized water.

4. Rinse twice with solvent (pesticide grade isopropanol).

5. Rinse thoroughly with organic-free water and allow to air dry. Do not rinse with deionized or distilled water.

   NOTE: Organic-free water can be processed on-site by purchasing or leasing a mobile deionization-organic filtration system.

   NOTE: In some cases when no organic-free water is available, it is permissible (with approval) to leave off the organic-free water rinse and allow the equipment air dry before use.

6. Wrap with aluminum foil, if appropriate, to prevent contamination if equipment is going to be stored or transported. Clean plastic can be used to wrap augers, drill stems, casings, etc., if they have been air dried.

7. All downhole augering, drilling and sampling equipment shall be sandblasted before Step #1 if painted, and/or if there is a buildup of rust, hard or caked matter, etc., that can not be removed by steam and/or high pressure cleaning. All sandblasting shall be performed prior to arrival on site.

8. All well casing, tremie tubing, etc., that arrive on-site with printing and/or writing on them shall be removed before Step #1. Emery cloth or sand paper can be used to remove the printing and/or writing. Most well material suppliers can supply materials without the printing and/or writing if specified when materials are ordered.

9. Well casing, tremie tubing, etc., that are made of plastic (PVC) shall not be solvent rinsed during the cleaning and decontamination process. Used plastic materials that cannot be cleaned are not acceptable and shall be discarded.

Cleaning and decontamination of all equipment shall occur at a designated area on the site, downgradient, and downwind from the clean equipment drying and storage area. The cleaning and decontamination area shall contain a wash water and/or waste pit excavated either with a backhoe or other heavy equipment. The pit and surrounding area shall be lined with heavy duty plastic sheeting and designed to promote runoff of the wash/rinse water into the pit. If a pit cannot be excavated, a catch basin can be constructed out of wood and lined with plastic to contain the waste/rinse water until it can be containerized. All cleaning of drill rods, auger fights, well screen and casing, etc., will be conducted above the plastic sheeting using saw horses or other appropriate means. At the completion of the drilling activities, the pit shall be backfilled with the appropriate material designated by the site project leader, but only after the pit has been sampled, and the waste/rinse water has been pumped into 55-gallon drums for disposal. No solvent rinsates will be placed in the pit unless prior approval is granted. All solvent rinsates shall be collected in separate containers for proper disposal. Tap water (potable) brought on the site for drilling and cleaning purposes shall be contained in a pre-cleaned tank of sufficient size so that drilling activities can proceed without having to stop and haul water. A stainless steel water tank with a minimum capacity of 1,000 gallons is preferred.

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