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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

January 24, 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

4WD-FFB

Ms. Linda Berry
Department of the Navy - Atlantic Division
Naval Facilities Engineering Command
Code 1823
Norfolk, Virginia 23511-6287

SUBJ: MCB Camp Lejeune - OU5
Draft Feasibility Study

Dear Ms. Berry:

The Environmental Protection Agency (EPA) has partially completed its review of the "Draft Feasibility Study, Operable Unit 5, Site 2, dated December 21, 1993. Comments are enclosed from EPA (general review) and Dynamac (oversight contractor). Comments from the Risk Assessment Section will be forwarded as soon as possible.

Please keep in mind that some of the conclusions used in developing the feasibility study are being questioned at the remedial investigation stage. This may require a recalculation of the remedial alternatives.

If there are any questions or comments, please call me at (404) 347-3016.

Sincerely,

Gena D. Townsend
Senior Project Manager

Enclosure

cc: Mr. Neal Paul, MCB Camp Lejeune
Mr. Patrick Watters, NCDEHNR

1.0 GENERAL COMMENTS

The Draft FS provides an adequate evaluation of potential remedial alternatives that may be appropriate for treating contaminated groundwater at Camp Lejeune. Furthermore, the Draft FS adequately follows the guidelines for conducting a feasibility study as set forth in the above-referenced EPA guidance document and provides reasonable costs for each remedial alternative. However, due to some issues in the Draft FS which are unclear, Dynamac Corporation developed the following general comments from its review of the Draft FS.

1. Based on results from the remedial investigation (RI), the Draft FS states that groundwater contamination is limited to the vicinity of the Former Storage Area. However, the extent of groundwater contamination has not been determined at Site 2. Although groundwater flow direction data is inconclusive, interpretations presented in the Draft RI Report dated December 1993, indicate that flow is generally east. The RI results indicate that the mixing pad area contains the most highly contaminated soils at Site 2. Therefore, until additional monitoring wells are installed downgradient (east) of the mixing pads, the extent of groundwater contamination at Site 2 will not have been determined.

2. The use of "two times the maximum background concentration" to screen contaminants of potential concern (COPC) contradicts current EPA guidance and is unjustified. Under EPA's reasonable maximum exposure approach, contaminant levels should be compared to two times the average background concentrations, not two times the maximum background concentrations. Comparing COPC concentrations to the "artificially" elevated background levels used for screening could result in incorrectly eliminating some COPCs and subsequently underestimating the potential health risks associated with these COPCs.

2.0 SPECIFIC COMMENTS

The specific comments are listed on the following pages in the order of their occurrence in the Draft FS. The comments are organized by page number, paragraph number, figure and/or table number as appropriate.

1. Page ES-1, General:
   A list of acronyms should be included between the Table of Contents and the Executive Summary for reference.

2. Page ES-5, Paragraph 4:
   The text states that "contaminant concentrations detected in the groundwater were compared to the preliminary remediation goals presented on Table ES-1. The contaminants which exceeded at least one of the remediation goals have been retained as [contaminants of potential concern] COPCs." The only contaminants shown to have been retained are ethylbenzene, trichloroethene and total xylenes. However, this list is inconsistent with the text on page 2-7, paragraph 5, which states that "the main groundwater contaminants of concern are naphthalene, acenaphthalene, trichloroethene, ethylbenzene, xylene (total), 4,4'-DDD, 4-4'-DDT, phenol, 2,4-dimethylphenol, arsenic, and lead." Furthermore, concentrations of chromium also exceeded at least one of the remediation goals and should therefore be retained as a COPC. These discrepancies should be clarified.

3. Page ES-6, Table ES-1:
   The "J" qualifier should be defined in the footnotes. Also, Table ES-1 has the same title as Table 2-7 on page 2-23, yet the two tables. These inconsistencies should be addressed.

4. Page 1-2, Paragraph 6:
   The text states that following the Time Critical Removal Action (TCRA), "the only remaining COPCs will be organic contaminants in groundwater." Explain why chromium and lead are not considered COPCs. Also, until monitoring wells are installed downgradient of the mixing pad area, the nature and extent of contamination will not have been determined. See General Comment No. 1.

5. Page 1-3, Paragraph 1:
   The text states that subsequent to the TCRA, "it is anticipated that no human health or ecological risks will exist." Confirmatory sampling must be performed to demonstrate that no risk will exist.

6. Page 1-7, Paragraph 4:
The text states that trace amounts of pesticides were detected in only one well (2GW1). However, no monitoring wells are located immediately downgradient of the mixing pads to confirm the nature and extent of contamination.

7. Page 1-9, Paragraph 5:
The text states that the area of highest volatile organic compound contamination is at monitoring well 2GW3. Additional monitoring wells are needed downgradient of this well, however, to determine the extent of contamination in the vicinity of the Former Storage Area.

8. Page 1-14, Figure 1-3:
Explain how the areas to be removed in the TCRA were determined. A map or figure showing soil sampling locations with concentrations in these cross-hatched areas would be helpful in evaluating the TCRA area.

9. Page 1-16 through 1-29, Tables 1-2 through 1-16:
In these tables, several inorganic compounds show concentrations above "twice the base-specific maximum concentration," such as aluminum, barium, chromium, lead, magnesium, manganese and zinc. Explain why these constituents were not listed as COPCs.

10. Page 1-21, Table 1-7:
The table indicates that BTEX compounds were found. Benzene was not listed as a contaminant, the list only contains (TEX). The text states that it is uncertain of the origin of the contamination and labeling it BTEX can give a false representation.

11. Pages 1-30 and 1-31, Tables 1-16 and 1-17:
The cleanup level units should be milligrams per kilogram, not milligrams per liter.

12. Page 2-8, Paragraph 2:
The text states: "The general approach used for development of groundwater containment and treatment scenarios in the FS was to estimate the downgradient edge of contaminated areas based on available information while making only limited assumptions concerning any upgradient extent of contaminant plumes." Yet, there is an insufficient number of downgradient wells to accurately estimate the downgradient edge of the contaminated groundwater. See General Comment No. 1.

13. Page 4-6, Paragraph 1:
The text states that "residuals generated from the pretreatment system such as sludges will need to be tested and disposed of properly. Based on the metals concentrations of the residuals, disposal may be at an off-site landfill." Explain how these options were figured into the cost estimate since it is not clear whether disposal will be at an offsite landfill or whether testing will be required.

14. Page 4-12, Paragraph 1:
The text states that soil vapor extraction (SVE) "is an in situ soil and groundwater remediation process." Furthermore, the text states that "there are various names used for this process, including air sparging, soil venting, in situ volatilization and vapor extraction." These statements imply that these remedial technologies are equivalent. However, there are significant differences between SVE, air sparging and soil venting. First, SVE is used as an in situ soil remediation process since it removes contaminated vapors from the vadose zone. In order to remediate the groundwater, other technologies must be used in conjunction with SVE, such as air sparging. Air sparging is technology in which air is pumped into the groundwater causing the organic compounds to volatilize into the vadose zone. Once in the vadose zone, the vapors can be removed using technologies such as SVE or soil venting. Furthermore, while the name "soil venting" might be used synonymously for SVE, technically, the two are slightly different. Normally, SVE is classified as an active vapor extraction system whereby a vacuum pump is used to draw the vapors out of the ground. Soil venting typically is classified as a passive extraction system, which can simply be a pipe installed into the ground to passively allow vapors in the vadose zone to slowly escape into the atmosphere or some type of containment device. Technically, then, there are two in situ treatment technologies being proposed: air sparging and SVE.