03.01-09/02/93-01011

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

SEP 02 1993

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

RE: Marine Corps Base Camp Lejeune NPL Site
Operable Unit No. 10 - Site 35
Jacksonville, North Carolina

Dear Ms. Berry:

EPA has partially completed its review of the documents titled "Draft Remedial Investigation/Feasibility Study Work Plan for Operable Unit No. 10, (Site 35)" dated June 1993 and "Draft Remedial Investigation/Feasibility Study Sampling and Analysis Plan for Operable Unit No. 10, dated July 1993. EPA's comments from the Athens Lab. (ESD) and Dynamac (oversight contractor) are enclosed. Comments from the Groundwater and Risk Assessment Sections will be forth coming.

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

Sincerely,

Gena D. Townsend
Senior Project Manager

Enclosure

cc: Patrick Waters, NCDEHNR
Neal Paul, MCB Camp Lejeune

1.0 GENERAL COMMENTS

1. Section 4.0 addresses the objectives of the RI/FS at Site 35, however, the objectives that are listed only pertain to the RI. A statement should be included to explain the objectives of the FS.

2. The suites of analyses proposed for soil and groundwater in the Draft RI/FS Work Plan are not consistent with the suites of analyses presented in the Draft RI/FS Sampling and Analysis Plan. For example, on page 5-5, section 5.3.3 of the Draft RI/FS Work Plan, the text states that all soil samples obtained from the soil borings will be analyzed for full Target Compound List (TCL) organic compounds (volatile organic compounds [VOCs], semivolatile organic compounds [SVOCs] and pesticides/polychlorinated biphenyls [PCBs]) and Target Analyte List (TAL) inorganic compounds (metals and cyanide). However, on page 3-8, section 3.2.3 of the Draft RI/FS Sampling and Analysis Plan, the text states that "subsurface soil samples obtained from soil borings to be completed as deep groundwater monitoring wells will be analyzed for TCL [volatile organic analytes] VOAs and [semivolatile organic analytes] SVOAs and TAL metals." Subsurface soil samples obtained from soil borings and shallow monitoring well borings . . . will be analyzed only for TCL VOAs." These inconsistencies in the suites of analyses presented in the two documents should be corrected.

   The Draft RI/FS Work Plan groundwater investigation section does not propose an adequate number of samples to be analyzed for full scan TAL and TCL; EPA generally requires that a minimum of 20 percent of the samples be analyzed for full scan TAL and TCL. These changes should be incorporated into both the Draft RI/FS Work Plan and the Draft RI/FS Sampling and Analysis Plan.

3. A complete rationale should be presented for the soil gas and groundwater field screening of the areas south and north of Fourth Street. The text states that the largest area of soil gas and groundwater screening will occur south of Fourth Street. No explanation is provided for screening only the area south of Fourth Street and excluding the area directly north of Fourth Street. Potential contaminant releases from the storm drain conduit along Fourth Street could have impacted soils and groundwater on the north side of Fourth Street as well as the south side; therefore, both areas should be investigated for potential contamination. The text does not state why as many as 18 soil gas and groundwater field screening locations are needed. Clarification should be provided.

4. Figure 3-2 of the RI/FS Sampling and Analysis Plan should depict both new and existing proposed sample locations. Presently, only new locations are shown.

2.0 SPECIFIC COMMENTS

The specific comments are listed on the following pages in the order of their occurrence in the Draft RI/FS Work Plan and the Draft RI/FS Sampling and Analysis Plan. The comments are organized by document name as well as section number, page number, paragraph number or figure/table number, as appropriate.

Draft RI/FS Work Plan

1. Section 2.2.3, Page 2-14, Paragraph 5:
   Incorrect use of word "cross", should be across.

2. Section 2.2.4, Page 2-17, Paragraph 3:
   The text states that groundwater samples were obtained on two occasions from monitoring wells and analyzed for lead, oil and grease, VOCs, xylenes and ethylene dibromide (EDB). The results indicated that the wells were contaminated with VOCs, but the text does not state the results of the lead, xylene, EDB and oil and grease analyses. The text should state the results of these additional analyses.

3. Section 2.2.4, Page 2-17, Paragraph 4, Draft RI/FS:
   The text states that a focused feasibility study (FFS) included the installation of four groundwater monitoring wells and that results of laboratory analysis revealed that groundwater in one well and soil cuttings from two borings were contaminated with petroleum hydrocarbons. It is not clear which well and borings were contaminated. The text should include this information along with the results of all previous investigations.

4. Section 2.2.4, Page 2-18, Paragraph 2:
   The text states that the results of the Comprehensive Site Assessment (CSA) identified areas of impacted soil and groundwater. The text, however, does not state what analyses were performed on the samples. A description of the analytical methods and results should be provided.

5. Section 2.2.4, Page 2-19, Paragraph 2:
   The text states that methyl tertiary butyl ether (MTBE) was detected in one well but its presence was thought to be unrelated to the tank farm. The presence of MTBE should be explained. MTBE is a constituent of gasoline, and its presence can be directly related to the tank farm operations.

6. Section 3.4.1, Page 3-3, Paragraph 1:

The text states that based on the analytical results from the previous sampling activities conducted at Site 74, it appears that the contaminated media include soil and groundwater. Previously, Site 74 has not been included in the Draft RI/FS Work Plan. There are no figures or tables that include data or information regarding Site 74; therefore, the rationale for including Site 74 here should be stated.

In addition, the sentence discussing contaminated media should be expanded to include sediments. According to section 2.2.4 of the Draft RI/FS Work Plan, 2 sediment samples obtained from Brinson Creek contained detectable levels of lead, oil and grease.

7. Section 3.6.1, Page 3-5, Paragraph 2:
Section 3.6.1 discusses the groundwater data gaps present at Site 35. The section should be expanded to include a complete discussion of the sediment data gaps.

8. Section 3.6.2, Page 3-6, Paragraph 4:
The text states that "the chemical characteristics of surface soil, surface water and sediment samples obtained from throughout Site 35 are the principal data needed to support the baseline human health risk assessment (RA)." The chemical characteristics of groundwater samples should also be included to support the baseline human health RA.

9. Section 5.3.2, p. 5-2.:
Because of the layering of sand and discontinuous clay layers, it is recommended that OU 10 be three dimensionally mapped using a piezocone (direct push) prior to use of a hydrocone for VOC sampling. Ideally, these analyses should be done on-site, to provide the field team with data for the placement of the sampling station (depth and location). This would provide a much better quality of information than the geoprobe or hydropunch, and this information would be invaluable in the placement of the permanent monitoring wells. The proposed grids should be considered only a starting point - if field data indicate the plumes extend beyond these artificial constructs, the field team must have the flexibility to extend sampling efforts beyond them. Note that this comment suggests the same strategy proposed in comments for OU 7.

10. Section 5.3.2, Page 5-2, Paragraph 3:
The text states that the focus of the soil and groundwater sample screening will be the areas in the vicinity of monitoring wells MW-10, EMW-7 and MW-19 and that the sample screening locations are presented on Figure 5-1. While the sample screening locations are presented on Figure 5-1, the locations of monitoring wells MW-10, EMW-7, and MW-19 are

not shown. Monitoring wells MW-10, EMW-7 and MW-19 should be labeled and shown on Figure 5-1 so that the sample screening locations can be compared with the monitoring well locations.

11. Section 5.3.2, Page 5-2, Paragraph 4:
The text states that the largest area of soil gas and groundwater screening will occur south of Fourth Street. No explanation is provided for screening only the area south of Fourth Street and excluding the area directly north of Fourth Street. Potential contaminant releases from the storm drain conduit along Fourth Street could have impacted soils and groundwater on the north side of Fourth Street as well as the south side; therefore, both areas should be investigated for potential contamination.

12. Section 5.3.2, Page 5-4, Paragraph 4:
The text states that trichloroethylene (TCE) will be used as the indicator compound for soil gas and groundwater sample analysis. The use of TCE as an indicator compound will provide monitoring data only for areas containing TCE contamination; however, not all of the areas of proven or potential groundwater contamination under investigation in Site 35 have TCE contamination. Therefore, additional site-related indicator compounds should be used.

13. Section 5.3.3, Page 5-5, Paragraph 2:
The text states that 14 surface soil samples, including 2 background samples, will be obtained from the locations depicted on Figure 5-2. The locations of the 2 background samples were omitted from Figure 5-2, but should be included.

14. Section 5.3.4, Page 5-7, Paragraph 2:
The text states that one of the five proposed wells will be installed in an area suspected to not be impacted by contaminants; this well will be used to provide background groundwater data. The location of this background well should be indicated on Figure 5-2 so that its location can be reviewed.

15. Section 5.3.4, Page 5-8, Paragraph 2:
The text states that six sampling stations will be established along Brinson Creek and that these locations will be shown on Figure 5-2. Figure 5-2 depicts only five stations. The location of the sixth sampling station should be included on the figure.

16. Section 7, Page 7-2, Figure 7-1:
Figure 7-1 is the site management schedule for Site 35. Clarification and further description is needed for the following tasks: RI/FS Preliminary Remedial Action Plan

(PRAP), the Record of Decision (ROD) and Remedial Design. Justification should be provided for the estimated 933 days to complete the three tasks. (Note: It is unclear if field work is included within this time frame. The RI/FS should be outlined separately.)

Field Sampling and Analysis Plan

17. Section 1.1.1.5, Page 1-6, Table 1-1:
Table 1-1 does not agree with what is stated in Section 1.1.1.5, Regional Hydrology. For example, Table 1-1 lists the Yorktown confining unit, Yorktown aquifer, Pungo River confining unit and the Pungo River aquifer. Section 1.1.1.5 does not mention these units or aquifers. Clarification should be provided.

18. Section 1.1.2.3, Page 1-15, Paragraphs 5 and 6:
Paragraphs 5 and 6 contradict each other. Paragraph 5 states that the "third unit" may be a confining unit separating the surficial and Castle Hayne aquifers. Paragraph 6 states that this unit is reportedly not a confining unit in the Camp Lejeune area because the third unit is thin and discontinuous; however, paragraph 6 also states that "it is believed that this unit separates the surficial aquifer from the underlying Castle Hayne aquifer." Clarification should be provided.

19. Section 1.2.4.1, Page 1-20, Paragraph 4:
This section, Site Characterization, only mentions groundwater data gaps. There are also data gaps for soil, sediment and surface water. These additional data gaps should be discussed.

20. Section 2.1, Page 2-2, Table 2-1
Under the heading "Site-Specific RI/FS Objectives," Table 2-1 lists that the groundwater quality in the deep aquifer will be evaluated. The "deep" aquifer should be identified and included in the table and text.

21. Section 3.1, p. 3-1.
Analysis of screening samples (soil gas if this is retained, and groundwater) should take place under controlled conditions (i.e., mobile laboratory or fixed location), and be performed by an experienced chemist. Data generated must be Level II at a minimum.

22. Section 3.1, p. 3-1.
Soil gas results may be ambiguous due to the presence of the discontinuous clay layers present at this site. The procedure is not recommended.

23. Section 3.1, Page 3-1, Paragraph 3:

See Specific Comment No. 12.

24. Section 3.1, Page 3-2, Figure 3-1:
See Specific Comment No. 10.

25. Section 3.1, Page 3-3, Paragraph 1:
See Specific Comment No. 11.

26. Section 3.1, Page 3-3, Paragraph 1:
The text states that Figure 5-1 depicts sample locations 13 through 34; however, Figure 5-1 does not depict these sample locations. Figure 5-1 is titled, "Typical Deep Above Grade Type II Groundwater Monitoring Well Construction Diagram." The figure containing sample locations 13 through 34, as discussed in the text, should be presented.

27. Section 3.2.1, Page 3-5, Paragraph 4:
The text states that soil samples SS-13 and SS-14 are located west of "G" Street. Figure 3-2 shows soil samples SS-13 and SS-14 east of "G" Street. Clarification should be provided.

28. Section 3.3.1, Page 3-9, Paragraph 4:
The text states that the monitoring wells will be constructed of schedule 40, polyvinyl chloride (PVC). The ECB SOPQAM, section E.5.1, recommends using stainless steel well construction materials for monitoring organic compounds rather than PVC because of PVC's sorption and leaching properties.

29. Section 3.3.2, Page 3-11, Paragraph 11:
See Specific Comment No. 27.

30. Section 3.6, p. 3-13:
Ambient condition blanks would serve no purpose at this site. The Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, (ECBSOPQAM), February 1, 1991, requires preservative blanks, blanks of filter pack material, grout, bentonite, drilling fluid, etc.

31. Section 3.6, Page 3-14, Paragraphs 3 and 4:
The description of field blanks in paragraphs 3 and 4 is incorrect. The ECB SOPQAM, section 4.3, describes Field Blanks as organic-free water that is taken to the field in sealed containers and poured into the appropriate sample containers at predesignated locations. Paragraphs 3 and 4 should be modified to reflect section 4.3 of the ECB SOPQAM.

32. Section 4.0, p. 4-1:

Duplicate samples must be submitted "blind". The "D" identifier must be left off and the sample given a fictitious designation.

33. Section 5.2, p. 5-4:
As stated in the comments for the work plan, installation of permanent wells should be based upon the results of a groundwater screening program. At that time decisions can be made about well location, depth, screened interval, etc.

34. Section 5.2.1, Page 5-5, Paragraph 6:
Paragraph 6 does not state if the coarse sand to be backfilled into the annular space of the borehole will be installed by the tremie method or by pouring the material directly into the borehole. The preferred method of placement according to the ECB SOPQAM, section E.3.4, is the tremie method. Pouring is acceptable in shallow boreholes (less than 50 feet) where the annular space is large enough to prevent bridging and to allow measuring to ensure proper placement.

35. Section 5.2.1, p. 5-5:
Proper installation of "double nested" wells as proposed will require experience and great skill. ESD cannot approve this procedure unless done with USEPA oversight and prior agreement by the Marine Corps that the procedure will be abandoned if it proves unworkable.

36. Section 5.2.1, p. 5-5:
Stainless steel is the recommended material for well construction. If PVC is selected, it must not be solvent rinsed or steam cleaned. It is recommended that the grout be a pure bentonite material. The bentonite pellet seal should be allowed to hydrate for at least 8 hours. Grout density must be as specified in the ECBSOPQAM, and it must be measured. Well construction must be as specified in the ECBSOPQAM.

37. Section 5.2.1, Page 5-6, Paragraph 2:
Paragraph 2 does not state if the grout will be installed by the tremie method. The ECB SOPQAM, section E.3.5, states that "the grout shall be placed into the borehole, by the tremie method, from the top of the bentonite seal to within 2 feet of the ground surface or below the frostline, whichever is greater." Paragraph 2 should be modified accordingly.

38. Section 5.2.1, Page 5-7, Paragraph 5:
The text states that the mud rotary drilling method will be used to drill the borings for the installation of the monitoring wells. The ECB SOPQAM, section E.2.3, discourages the use of mud as a drilling medium and prefers

instead the use of water, with air as an acceptable alternative.

39. Section 5.2.1, Page 5-8, Paragraph 5:
See Specific Comment No. 31.

40. Section 5.2.1, Page 5-8, Paragraph 7:
See Specific Comment No. 34.

41. Section 5.2.1, Page 5-9, Paragraph 3:
The ECBSOPQAM, February, 1991, states that the finished pad shall be sloped so that the drainage will flow away from the protective casing and off the pad.

42. Section 5.3, Page 5-14, Paragraph 8:
The text does not state what type of bailer will be used for sampling the monitoring wells. Section 4.9.4.3 of the ECB SOPQAM states that a closed top Teflon® bailer should be used. The text should be modified accordingly.

43. Section 5.3, Page 5-15, Paragraph 3:
The text states that "samples collected for dissolved metals analysis will be filtered prior to being submitted for analysis." EPA does not accept only filtered sample data. Section 4.9.5.2 of the ECB SOPQAM states that if filtered groundwater samples are collected and analyzed, then unfiltered samples must also be collected and analyzed. The text should be modified accordingly.

44. Section 5.3, p. 5-14:
Potable wells must be sampled in accordance with the ECBSOPQAM.

45. Section 5.3.1, p. 5-15:
It is recommended that monitoring wells be purged with a low flow pump. The well must be sampled as soon as possible after purging. Do not wait. Three consecutive, consistent, measurements of pH, conductivity, and temperature are necessary to ensure stabilization.

46. Section 5.7.1, p. 5-24:
Cleaning procedure B.8 of the ECBSOPQAM should be substituted for the procedures proposed in Sections 5.7.1.1, and 5.7.1.2. ESD may be consulted directly if confusion persists regarding this procedure.

47. Section 5.7.1.6, Page 5-27, Paragraph 3:
The text should state what type of submersible pump will be used. The decontamination procedure described in the text is for the Goulds pump. If a Fultz pump is used, then the

decontamination procedure is different and the text should be modified.