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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

NOV 17 1992

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Byron Brant
Department of the Navy - Atlantic Division
Naval Facilities Engineering Command
Code 1822
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site
Sites 21, 24 and 78
Jacksonville, North Carolina

Dear Mr. Brant:

EPA has reviewed the document titled "Draft Remedial Investigation and Feasibility Study Work Plan for Operable Unit No.1 (Sites 78, 21 and 24) and associated documents. Comments on the draft documents are enclosed.

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

Sincerely,

A handwritten signature in cursive script that reads "Michelle M. Glenn".

Michelle M. Glenn
Senior Project Manager

Enclosure

cc: Peter Burger, NCDEHNR
George Radford, MCB Camp Lejeune

COMMENTS
DRAFT WORK PLAN
Operable Unit One
(Sites 78, 21 and 24)

GENERAL COMMENTS

1. Due to the large number of solid waste management units (SWMUs) at Operable Unit No. 1, the groundwater data collected from previous sampling investigations should be summarized to show areas of high contaminant concentrations and potential trends so that the locations of proposed groundwater monitoring wells can be assessed more clearly. Analytes selected from the groundwater data from previous investigations should be presented on isopleth maps which include the surficial, intermediate and deep aquifer zones.
2. The hydrogeology section has not presented sufficient detailed information pertaining to the site-specific characteristics of the geology and hydrogeology for Operable Unit No. 1. The site-specific hydrogeology should include boring logs, detailed cross sections, horizontal and vertical hydraulic gradients and groundwater velocities. The aquifer zones' thickness and screened intervals will need to be presented to determine if the quality of the groundwater data is accurately represented.
3. The first round of ground water and soil samples for each site should be analyzed for the full Target Compound List/Target Analyte List (TCL/TAL) group of possible contaminants. This comprehensive sampling is necessary because the number of soil samples are limited. TCL/TAL analysis should be performed on new and existing shallow, intermediate and deep wells that have not had a full scan analysis performed to date.
4. Well construction data should be provided for all existing wells at each site. Water supply wells should be plotted on a figure with the monitoring wells.
5. Soil samples that are collected during well installation should extend below the water table. A soil sample should be collected from the interval that the monitoring well will be screened. Analysis from the soil ground water samples can be utilized to help establish soil/water partitioning coefficients. This type of sampling was proposed for sites 2 and 74 but not for the Hadnot Point area sites.

6. A table should be devised that summarizes ground water analyses for all monitoring wells at site 78. The table should include all constituents that were detected above method detection limits.
7. The locations proposed for surface water/sediment samples are adequate for determining potential pathways of contaminant migration from the sites at Hadnot Point. A background surface water/sediment sample should be collected at a location where no potential exists for site impact. An appropriate location would be north of the Hadnot Point in the Bearhead Creek.
8. Where waste disposal areas can be delineated, some samples must be collected directly from these areas.
9. No mention was made of background samples. At least two background samples are needed in each media to draw any conclusions about background concentrations.

SPECIFIC COMMENTS

1. Page 2-4, Section 2.1.3 - The wetlands and other natural resources on the base should be classified and delineated on site figures. The statement that the wet soil areas are not wetlands is not sufficient.
2. Page 2-15, Section 2.2.5.2 - The contamination in the abandoned supply wells is very high. Given that these wells are screened in a confined (or semi-confined) aquifer, this suggests that the well boreholes themselves are the contamination conduit. EPA strongly recommends that these wells be evaluated to determine whether or not they are adequately sealed and if not they should be properly abandoned as soon as feasible. This recommendation would also apply to any monitoring wells screened in this aquifer.
3. Page 2-27, Section 2.3.5.2, paragraph 3 and 5 - The samples collected from previous investigations for Site 21 should be presented on Figure 2-4.
4. Page 2-32, Section 2.4.5, paragraph 1 - The samples collected from previous investigations for Site 21 should be presented on Figure 2-4.

5. Page 3-8, Section 3.1.1.1, paragraph 1 - The groundwater data for Site 78 should be presented on isopleth maps. Several of the major analytes Camp Lejeune has detected from previous sample investigations of the groundwater should be plotted for each of the aquifer zones (shallow, intermediate and deep).

Specify the screened intervals for the existing monitoring wells. The geology section (2.1.6) needs to provide more detail as to the structural and hydrological characteristics of the lower aquifer units (See General Comment No. 3).

6. Page 5-2, Section 5.3.1.1 - Specific parameters for surveyed data are presented in the IFF. Some of the parameters include latitude, longitude, elevation in feet of mean sea level, accuracy and survey methods. These parameters should be included as part of the RI/FS process.
7. Page 5-4, Section 5.3.1.2 - Selecting 1,1,1-trichloroethylene (TCE) as the only analyte for soil gas surveys is not acceptable for Site 78. Previous sample investigations have shown volatile and semivolatile compounds which will go undetected if TCE is used as the only parameter. Additional justification is required to indicate why TCE can be shown to adequately delineate the area. A broader range of analytical parameters used to detect volatile compounds is recommended at this time.
8. Page 5-4, Section 5.3.1.3 - According to the text, soil samples will be collected at buildings 903, 1502, 1601, 1300, and 1103 because these areas are suspected UST locations. However, during the soil gas survey conducted in 1988, TCE vapors were detected at building 1202 and 1709 (page 2-18). Soil samples should be collected at these buildings as well.

All surface soil samples should be analyzed for full scan TCL organics and TAL inorganics.

9. Pages 5-5 and 5-6, Figures 5-2 and 5-3 - Provide groundwater flow directions, even if inferred.
10. Page 5-9, Table 5-1 - Provide an explanation as to why the Target Compound List (TCL) volatile compounds are proposed to be analyzed by EPA Method 601/602.

11. Page 5-15, Table 5-1:
 - a. SW-846 methods are incomplete without the appropriate extraction/preparation methods.
 - b. Sources of the methods should be shown in footnotes.
12. Page 5-20, Section 5.3.1.3, 1st paragraph - The text states that based on the results of the soil gas survey, additional wells may be installed at the site. It should be noted that based on the contaminant concentrations of existing wells, additional shallow wells are necessary to delineate the extent of the contaminant plume in the surficial and Castle Hayne Aquifers. Based on the concentrations from existing monitoring wells, appropriate surficial aquifer well locations are: wells southwest of HPGW1 and HPGW29, a well west of HPGW20, a well southeast of HPGW16, and a background well northeast of HPGW25.

The results from the soil gas survey may indicate ground water sampling locations are necessary in addition to the ones listed above to delineate the extent of the plume. Once the soil gas survey results are obtained, it may be more time and cost effective to delineate the extent of the contaminant plume by collecting shallow ground water samples with a hydrocone instrument.

13. Page 5-20, Section 5.3.1.3, 3rd paragraph - The second sentence which states that all groundwater samples will be analyzed for TCL volatile inorganic compounds should be changed to Target Analyte List (TAL) inorganic compounds.

All ground water samples for the first round should be analyzed for full scan TCL organics and TAL inorganics. It should be mentioned that filtered sampling data is not acceptable for use in the risk assessment.
14. Page 5-23, Section 5.4 - Documents for data validation need to be updated to "National Functional Guidelines for Organic Data Review," USEPA, 1991, and "National Functional Guidelines for Inorganic Data Review," USEPA 1988.
15. Page 5-27, Section 5.3.2.2 - A statement should be added to this section to clarify why the analytical data from the monitoring wells will undergo quick turn around. The primary purpose of quick turn around data is to provide real time input into an ongoing field investigation, or, to provide needed information in a situation which is believed to pose an immediate and/or substantial threat to human health and/or the environment. Neither of these situations would seem to apply here.

All surface soil samples should be analyzed for full scan TCL organics and TAL inorganics.

16. Page 5-31, Section 5.3.2.3, paragraph 1 - Utilizing polyvinyl chloride (PVC) for construction of monitoring wells is not in compliance with the ECB SOPQAM. PVC is not acceptable for monitoring organic compounds because of its sorption and leaching properties. The ECB SOPQAM recommends that the well casing and screen be constructed of stainless steel (304 or 316) or Teflon unless otherwise approved.

All ground water samples for the first round should be analyzed for full scan TCL organics and TAL inorganics. It should be mentioned that filtered sampling data is not acceptable for use in the risk assessment.

17. Page 5-35, Section 5.3.3.2 - All surface soil samples should be analyzed for full scan TCL organics and TAL inorganics.
18. Page 5-40, Section 5.3.3.3, paragraph 3 - Utilizing polyvinyl chloride (PVC) for construction of monitoring wells is not in compliance with the ECB SOPQAM. PVC is not acceptable for monitoring organic compounds because of its sorption and leaching properties. The ECB SOPQAM recommends that the well casing and screen be constructed of stainless steel (304 or 316) or Teflon unless otherwise approved.
19. Page 5-41, 2nd paragraph - Provide an explanation as to why the Target Compound List (TCL) volatile compounds are proposed to be analyzed by EPA Method 601/602.
20. Page 5-47, Section 5.6.1.4, 3rd paragraph - For completeness under the exposure scenarios, include the air pathway or an explanation as to why this exposure route will not be included. Dermal contact for groundwater should also be added to the fourth bullet.
21. Page 6-2, Figure 6-1 - Provide in the Project Organization Chart the reporting lines of authority between Baker, Camp Lejeune and EPA Region IV.

COMMENTS
Draft Sampling and Analysis Plan
Operable Unit One
(Sites 78, 21 and 24)

GENERAL COMMENTS

1. Please provide well construction details in the draft final document.

SPECIFIC COMMENTS

1. Page 2-22, Table 2-2 - The Data Quality Objectives (DQO) selected for some of the sampling criteria such as physical properties of soils and aquifers may not be possible to obtain with the field equipment. DQO Level III for water level elevations, hydraulic conductivity or transmissivity can usually only be considered as good as Level II. If higher DQO Levels are under consideration, propose the quality control measures or procedures which will be used.
2. Page 3-3, Section 3.1.3.1 - The document should make a clear statement that the field methods described in the US-EPA, Region IV, Environmental Services Division, Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (ECBSOPQAM), February 1, 1991, will be followed. These are the methods that should be referenced in this document. If additional guidance from other sources such as ASTM is desired, then it must be stated that where ASTM methods and ESD methods are in conflict, the ESD procedure will prevail.
3. Page 3-11, Table 3-1:
 - a. SW-846 methods are incomplete without the appropriate extraction/preparation methods.
 - b. Sources of the methods should be shown in footnotes.
4. Page 3-14, Section 3.1.3.1 - The text is unclear. At least one of the samples should be collected at the water table.
5. Page 3-19, Section 3.1.4 - Previous sampling has shown the deeper aquifer (Castle Hayne) to be contaminated. EPA recommends that wells downgradient of the various sites (and at least one control well) be installed in this unit. In addition, downgradient wells in the surficial aquifer should be paired to monitor DNAPLs, one well screen to be astride the water table, the other well screen to be at the top of the semi-confining unit.

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To	Ray Wattraass	From	Linda Berry
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6. Page 3-27, Section 3.2.3.1 - EPA recommends the use of stainless steel well casings and screens for this study. While the use of PVC materials may not significantly influence the data for this project, ESD does not feel it is the best choice. If PVC is used, however, it must meet the specifications of NSF Standard 14 in addition to ASTM Schedule 40. If the Navy declines to follow the EPA recommendation, all contaminants identified in the groundwater will be considered to represent the conditions of the aquifer. No cement grout should be used on PVC wells, all well grout used on PVC wells must be pure bentonite materials. PVC well casings and screens must not be steam-cleaned or solvent rinsed. If the PVC is cement grouted, steam-cleaned, solvent rinsed, or does not meet NSF Standard 14 wc, integrity and/or effectiveness of the wells for monitoring purposes may be compromised.
7. Page 3-30, Section 3.2.4.1 - The sample from the surface water and sediment control station should be collected first, if one exists.
8. Page 3-31, Section 3.2.4.2 - The coring device is not adequately described. Before recommendation for approval, the Navy should submit a description of the device including a clear drawing, list of materials of construction, and a description of how the device works and is decontaminated.
9. Page 3-38, Section 3.4 - Field QC samples should include blanks of drilling materials such as drilling water or mud (if used), bentonite, and sand. In addition, EPA recommends that the Navy submit a table showing the numbers and types of field QC samples to be taken. Further, the Navy should be aware that USEPA may submit blind QA/QC samples for analysis as a check on the laboratory.
10. Page 3-39, Bullet 2 - Provide additional information as to number and frequency at which the preservation blanks will be analyzed.
11. Page 5-4, Section 5.1.3 - Care must be taken that sample material collected from the backhoe bucket has not been in direct contact with the bucket.
12. Page 5-5, Section 5.2 - The augers proposed for use are too small. Four inch I.D. wells will require eight inch I.D. augers to allow proper construction.
13. Page 5-6, Bullet 3 - The minimum thickness for the bentonite grout should be 24 inches, not 12 inches. Seals of insufficient thickness can cause premature failure of the well.

A notch or other permanent mark should be placed on the well casing as a survey and measurement point.

14. Page 5-7, Section 5.2 - The concrete pad should be a minimum of 4'x4'x6", extending two feet below the ground surface in the annular space and set two inches into the ground elsewhere. If water table conditions prevent having a 24 inch bentonite seal and the concrete pad as specified, the concrete pad depth should be decreased. Two weep holes must be drilled into opposite sides of the protective casing just above the concrete pad.

"Flush" type wells should be installed into a sloped concrete pad such that the top of the cover is 4 to 6 inches above the finished grade of the surrounding pavement. These type wells should not be installed in areas prone to standing water.

15. Page 5-8, Figure 5-1 - This figure is missing.
16. Page 5-9, Section 5.2 - Monitor wells should be developed as specified in the ECBSOPQAM.
17. Page 5-11, Section 5.4 - Samples must be preserved in the field, with the exception of VOAs. Pre-preserved sample containers invite poor sample quality and erroneous analytical results.
18. Page 5-12, Section 5-5 - The use of clear plastic tube inserts for sediment coring devices is unacceptable. The ECB SOPQAM recommends either Teflon or glass inserts or the use of stainless steel coring devices.
19. Page 5-12 to 5-18, Section 5.6 - This section needs to be rewritten and resubmitted to EPA. In addition, it is unacceptable for the Navy to reword the EPA Region IV ECBSOPQAM such that QA/QC is greatly reduced and submitted for review as the original material. Section 5.6 contains the following statement: "The following decontamination procedures are taken from EPA IV Standard Operating Procedures (sic) (1991)". The reference is to the ECBSOPQAM, which contains the following statement (disk version):

The procedures described within the ECBSOPQAM may be modified as necessary (procedures for modification are described within the document), with the following proviso: If the procedures are changed they may no longer be referred to as the procedures described in this document. The Environmental Compliance Branch (which is an integral part of the document review and field overview process in Region IV) will strongly resist any attempt to modify these procedures and have them submitted for review as the original procedures.

EPA will be unable to approve this document until this situation is corrected. In addition, the Navy submitted the wrong procedures for review. Field sampling equipment should be cleaned as specified in Appendix b, Section B.8, other field equipment should be cleaned as specified in B.7, drill rigs and associated equipment are covered in Appendix E, Section E.9. The Navy must also specify grades of material to be used, as covered in Appendix B.

20. Page 5-19, Section 5.8 - The section for drum sampling should include how the contractor will handle the drums (e.g., storage, overpacking and leaking, among others).
21. Page 5-20 to 5-25, Section 5.9 EPA strongly recommends that IDW not be placed onto the ground. IDW should be containerized, characterized, and placed in a solid waste landfill or approved wastewater treatment facility if no contaminants are above Permit limits. If contaminant concentrations are too high to permit this, the material must be properly treated for disposal.
22. Page 5-22, Section 5.9.3.1 - The use of the photoionization detector is not acceptable for determining if the investigative derived waste (IDW) is hazardous or nonhazardous. The IDW needs to be containerized until analytical data confirms the status of the material.
23. Page 6-9, Table 6-1:
 - a. SW-846 methods are incomplete without the appropriate extraction/preparation methods.
 - b. Sources of the methods should be shown in footnotes.

QUALITY ASSURANCE PROJECT PLAN

1. If the photoionization detector is going to be used for head space analysis, the procedure for doing so should be provided.
2. Page 9-1, Section 9.1 - Temperature must also be measured in the field.