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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

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

April 16, 1996

4WD-FFB

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

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

SUBJ: MCB Camp Lejeune  
Draft Remedial Investigation  
Operable Unit No. 6 - Site 44

Dear Ms. Landman:

The Environmental Protection Agency (EPA) has partially completed its review of the above subject document. Comments are enclosed.

If you have any questions or comments, please call me at (404) 347-3016 or voice mail, (404) 347-3555, x-6459.

Sincerely,

A handwritten signature in cursive script that reads "Gena D. Townsend".

Gena D. Townsend  
Senior Project Manager

Enclosure

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

## 1.0 General Comments

1. Section 4.2.2 states that soil, groundwater, surface water, and sediment samples will be compared to base-background samples. However, the text does not explain why background samples collected for this investigation were not used for comparison. For example, two soil borings west of Site 44 (44-BB-SB-01 and 44-BB-SB02) were advanced to assess background contaminant concentrations. The text should explain the significance of the background samples collected for this investigation.
2. Table 4-2 states that total metals in surface water and sediment were compared to the range of positive detections in upgradient samples at MCB, Camp Lejeune. However, a positive detection can not be compared to a range of values. It appears that maximum metal detections in surface water and sediment were compared to the maximum background concentrations. The text should state that total metals in surface water and sediment were compared to maximum positive detections in upgradient samples.
3. Table 4-2 states that metals in surface and subsurface soils were compared to twice the average base background (BB) positive concentrations for priority pollutant metals. However, Table 4-2 defines the detections as base background concentrations (see column 5). In addition, the distribution column notes that some detections exceeded the BB. Appendix P shows that, in fact, the base background concentrations listed in Table 4-2 are two times the average base background levels. The text and the table should consistently label base background comparison data as twice the average base background concentrations.
4. Figures 4-1 and 4-2 present locations and detections of samples for organic analyses in surface and subsurface soils. However, the text does not contain a figure for locations and detections of samples for metal analyses in the surface and subsurface soils. The figure for the locations and detections of samples for metal analyses should be included.
5. Section 5.2.4, Page 5-4, Paragraph 5, indicates that based on the analytical results groundwater contamination at Site 44 resultant of contaminants leaching from soil is not evident. However, according to the results discussed in Section 6 (BRA), arsenic was found to exceed risk screening levels for surface soil, subsurface soil, and groundwater, indicating contaminants leaching from soil to groundwater is evident. Since two different screening values for arsenic are used (NCWQS of 50  $\mu\text{g}/\text{L}$  and Tap Water Screening Value of 1.1/0.4  $\mu\text{g}/\text{L}$ ), two different conclusions about the leaching can be drawn from the same arsenic data (2.8  $\mu\text{g}/\text{L}$ ) in groundwater. Thus, it is important to address the different

screening values while drawing conclusions. The text should clarify the screening values to avoid any contradiction on the leaching of arsenic from soil to groundwater.

6. Section 5.3.1, Page 5-5, Paragraph 1, Sentence 1, states that two potential upstream sources were noted during a site walk-through in early January, 1996: the DRMO storage facility and Site 89 (former waste oil UST). However, the text does not show the two sources on a map or figure. The text should attach a map or figure to identify the two sources for review. In addition, the text should provide a complete description of these sites in Section 3.1.
7. Section 8 states that VOCs were detected throughout Edwards Creek and the source of VOCs does not appear to be originating from Site 44. However, the sampling program did not employ a systematic grid pattern, nor was there a sampling program for the marsh areas. Also, the geophysical survey may not have covered the entire site. For these reasons and since the site covers approximately five acres, there may be hot spots located at this site that were not identified during the RI.
8. Section 8, Page 8-1, list conclusions based on the results of this Remedial Investigation, but this section is incomplete. Recommendations for future work and/or recommended remedial action objectives should included. Also, the "future studies" should be defined as to the approximate time the studies will be conducted to identify the upgradient source of surfacewater contamination.

## 2.0 Specific Comments

1. **Table 1-4.**  
Table 1-4 lists protected species within MCB, Camp Lejeune. However, the SR protected classification is not defined in the table. The table footnotes should include an explanation of SR.
2. **Table 1-10.**  
Table 1-10 presents MCLs and NCWQS for contaminants in groundwater during a site inspection. However, the table does not present most of the MCLs and NCWQS correctly. For example, MCL for ethylbenzene should be 700  $\mu\text{g/L}$  instead of 29  $\mu\text{g/L}$ , and NCWQS for ethylbenzene should be 29  $\mu\text{g/L}$  instead of 700  $\mu\text{g/L}$ . The text should replace the MCLs and NCWQS by checking the standards for ethylbenzene, beryllium, chromium, copper, and thallium.
3. **Table 1-10.**  
Table 1-10 lists two references for MCLs and NCWQS. However, the text does not show the year of these two references, although the text indicates that the site

inspection was conducted in 1991. The text should provide the year for both of the references.

4. **Figure 2-6.**  
Figure 2-6 presents potable water supply wells within a one-mile radius of Site 44. However, the circle identifying the one-mile radius is labeled as Site 44. This circle should be labeled as the one-mile radius around Site 44.
5. **Section 3.2.4, Page 3-4, Paragraph 5, Sentence 1.**  
The text states that findings from the listed ASTM procedures and USCS soil classification analyses are presented in Appendix M. However, this information is found in Appendix L. The reference to Appendix M should be changed to Appendix L.
6. **Tables 3-1, 3-2, 3-8, and 3-11.**  
The tables show MS/MSD as analytical parameters. However, the tables do not give the definition of MS/MSD. The definition of MS/MSD should be given since it is not included in the List of Acronyms at the beginning of the document.
7. **Table 3-7.**  
Table 3-7 presents pH values for eight samples from well 44-GW04. However, one of the sample's pH value is 3.39, which is a much lower value than the pH values (5.98 to 6.48) of the remaining seven samples. Such a low pH value should be addressed.
8. **Section 4.4.2.2, Page 4-14, Paragraph 2, Sentence 1.**  
The text states that a total of six semivolatiles compounds were detected in the sample obtained from shallow monitoring well 44-GW03 (Figure 4-3). However, according to Figure 4-3 and Table 4-2, there are seven SVOCs detected in the sample from well-44-GW03. The text should be revised accordingly.
9. **Section 4.4.4.1, Page 4-17, Paragraph 0, Sentence 1.**  
The text indicates that the low concentration and limited occurrence of acetone in a sediment sample suggests that its presence may be the result of laboratory contamination. However, acetone as a laboratory contaminant in blanks is only 24  $\mu\text{g/L}$  (Section 4.2.1, page 4-2), and acetone in the sediment sample is 610  $\mu\text{g/kg}$ . Using 10x blank concentration as a screening level, the acetone in the sediment is 2.5 times this screening level (610/240). Thus, such a concentration (610  $\mu\text{g/kg}$ ) should not be regarded as a low concentration. The text regarding the concentration of acetone should be revised accordingly.
10. **Section 4.4.4.4, Page 4-18, Paragraph 0, Sentence 1.**  
The text states that neither the lead nor the zinc detections in sediment samples obtained from Site 44

exceeded base-specific background concentration ranges. However, concentrations can only exceed specific values not ranges. For example, the background concentration range for lead is 1 to 314 mg/kg, and maximum detected lead is 56.3 mg/kg (Table 4-2). The value of 56.3 mg/kg is compared with 314 mg/kg, but not with 1 mg/kg. Thus, the text should conclude that the detected lead did not exceed the maximum background concentration of lead.

11. **Figures 4-5 and 4-6.**

Figures 4-5 and 4-6 present locations and detections of surface water samples for organic and inorganic contaminants analyses. However, the figures do not indicate direction of the surface water flow at Edwards Creek. The water flow direction should be indicated on the figures.

12. **Section 5.2.1, Page 5-3, Paragraph 2, Sentences 2 and 3.**

The text misspells "immobile" as "immoble". This misspelling should be corrected.

13. **Section 5.2, Page 5-2, Paragraph 6.**

The text lists the potential contamination transport pathways. However, the text does not list the pathway of groundwater movement to surface water. Although little contamination was identified in the groundwater on Site 44, the text should include groundwater as a potential transport pathway.