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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

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

April 23, 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 86

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,

Gena D. Townsend
Senior Project Manager

Enclosure

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

1.0 General Comments

1. Section 1.3.2, Page 1-11, states that a small pump house was constructed to transfer fuel oil to and from the ASTs. However, the location of the pump house or the associated piping is not identified on Figure 1-6. The location of the pump house and the piping should be identified on this figure and all other applicable figures.

2. Section 3.3.1, Page 3-6, Paragraph 3, states that the newly installed monitoring wells were backfilled with a mixture of Portland cement and five percent powdered bentonite. However, because the site is underlain by the Goldsboro Urban land complex soil, which is strongly acidic, the wells should be backfilled with pure gold bentonite to prevent deterioration of the grout, as recommended by ECB (Till, 1995).

3. Section 3.3.5, Page 3-7, Paragraph 5, states that based upon preliminary analytical results from the original 24 monitoring wells, three additional intermediate monitoring wells were installed south and southeast of the study area. However, it is unclear why these locations for groundwater sampling wells were chosen because groundwater flows east-northeast at Site 86. The text should explain the rationale for the locations of the three additional intermediate monitoring wells (86-GW211W through 86GW231W).

4. Tables 3-1 and 3-2 present soil sampling summaries which show duplicate samples and MS/MSD as analytical parameters. However, the notes should give a definition for MS/MSD since it is not defined in the List of Acronyms. The text should be clarified and revised accordingly.

5. Tables 3-6 and 3-7 present pH values of groundwater samples in Rounds one and two. According to the tables, samples from well 86-GW09 (Round one) and well 86-GW10 (Round two) have their pH values below 5. Such a low pH value for groundwater should be addressed because the EPA secondary MCL for the pH range is 6.5 - 8.5. The text should address the low pH values accordingly.

6. Section 3.2.2, Page 3-3, Paragraph 4, Sentence 4, states that four soil borings were collected from two separate locations where ancillary piping and equipment associated with the former storage tanks were located. However, Figure 3-1 does not depict the location of the piping, the location of the equipment, or the location of the pump house. Also, the text does not identify the four soil borings. The text

should depict the location of all piping, equipment, and the pump house to verify that the proper amount of samples were collected. Also, the sampling locations should be identified in the text.

7. Section 4.3.2.1, Page 4-8, Paragraph 2, Sentence 9, states that higher positive VOC detections were limited to portions of the surficial aquifer just above the Castle Hayne semi-confining unit. However, Section 2.5, page 2-3, paragraph 5, states that the Castle Hayne confining unit is absent in the vicinity of the site. In addition, the text states that the surficial and Castle Hayne can be considered one aquifer. The text should clarify that the higher positive VOC detections were limited to the lower levels of the surficial aquifer.

8. 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 O shows that, in fact, 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.

9. Figures 4-4 shows TAL metals above screening values in groundwater. However, there are no figures presenting TAL metals above screening values in surface and subsurface soils. The figures identifying metals in the surface and subsurface soils are equally important as the figure which identifies metals in the groundwater. Additional figures for TAL metals above screening values in the surface and subsurface soils should be provided.

10. Section 5.3.4, Pages 5-6 and 5-7, discusses fate and transport of metals in groundwater. However, the text does not address any effects of low pH values which were observed in two wells (Table 3-6). A number of metals detected in groundwater samples have a high and a medium relative mobility under acidic conditions. Thus, a discussion regarding the effects of pH on the metal fate and transport is necessary. The text should present the discussion about the pH effects.

11. Section 8.0, Page 8-1, states that the VOCs appear to be migrating in the general direction of north-northeast. In addition, the text states that the maximum VOC detections were located to the southeast of the former ASTs. Therefore, the ASTs do not appear to be the source of the contamination. However, the text does not provide an explanation regarding the source of contamination south of the site. Since the contamination was found south of the

site and groundwater flows north-northeast, the text should provide an explanation about the source of this contamination.

12. Section 8.0, Page 8-1, lists the conclusions of the RI for Site 86. However, recommendations for future work and remedial action objectives were not included, as required by EPA guidance (EPA, 1988). Recommendations for future work and remedial action objectives should be added to Section 8.0.

13. Section 8.0, Page 8-1, Bullet 4, states that iron yielded unacceptable risks to human receptors. However, previous studies indicate that iron is ubiquitous in all media at MCB Camp Lejeune. Therefore, iron is not a site-related contaminant. The text should state that although iron yielded unacceptable risks to human receptors, site related activities probably did not cause these high iron concentrations.

2.0 Specific Comments

1. **Table 1-4**.
Table 1-4 lists the protected species within MCB, Camp Lejeune. However, the protected classification SR is not defined. The protected classification SR should be defined either in the List of Acronyms or in the legend of Table 1-4.

2. **Table 1-8**.
Table 1-8 presents a summary of detected organic contaminants in groundwater. However, chloroethane which is listed in the table was not detected in any of the samples. Thus, chloroethane should not be listed in this table. The text should be revised accordingly.

3. **Section 2.4, Page 2-1, Paragraph 5, Sentence 2**.
The text states that Table 2-2 contains the stratigraphic sequence discussed in a USGS report. However, Table 2-2 is a summary of groundwater elevations. The text should refer to the figure containing the stratigraphic sequence of Camp Lejeune.

4. **Table 3-6**.
Table 3-6 shows a pH value for a sample from well 86-GW13 as 2.83. However, such a low pH value for groundwater is improbable. This data appears to be the result of a human error or a false reading of an instrument. The text should be clarified and revised accordingly.

5. **Section 4.1.1, Page 4-1, Paragraph 4, Sentence 2.**
The text states that chain-of-custody forms are provided in Appendix D. However, chain-of-custody forms are located in Appendix C. The text should be revised accordingly.

6. **Section 4.3.1.1, Page 4-5, Paragraph 6, Sentence 4.**
The text states that Appendix P contains base-specific inorganic background concentrations. However, Appendix O, not Appendix P, contains these base-specific inorganic background concentrations. The text should reference Appendix O instead of Appendix P.

7. **Section 5.3.2, Page 5-6, Paragraph 2.**
The text states that due to the tendency of PAHs to adsorb to soils, PAHs were only detected in well 86-GW08IW at low concentrations. However, according to the data summary (Table 4-2), PAHs (naphthalene and fluorene) were detected in wells 86-GW10IW and 86-GW07. Thus, the text appears to be incorrect. The text should be clarified and revised accordingly.