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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

March 16, 1995

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. 7 - Sites 1, 28, 30

Dear Ms. Landman:

The Environmental Protection Agency (EPA) has partially completed its review of the above subject documents. 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

DRAFT REMEDIAL INVESTIGATION

1. General Comments

1. The placement of the sand packs and bentonite seals in the deep monitoring wells were not in accordance with guidelines provided in the ECB SOPQAM. The text states that both the sand pack materials and the bentonite pellets were poured manually down the boreholes. The ECB SOPQAM states that for boreholes greater than 50 feet deep, filter pack materials and bentonite pellets shall be placed by the tremie or positive displacement method to prevent materials from bridging in the borehole. Any such bridging or other discontinuities in these annular seal materials could create pathways for water and contaminants, causing the wells to be unusable. Future well construction events should comply with the ECB SOPQAM.

2. Monitoring wells installed at OU 7 were constructed of polyvinyl chloride (PVC). However, EPA discourages the use of PVC as a well construction material and recommends the use of stainless steel for the following two reasons: (1) Organic contaminants can leach from the PVC into the groundwater, resulting in nonrepresentative samples, and (2) It is possible for organic contaminants in the groundwater to adsorb to the PVC material, again resulting in nonrepresentative samples. Therefore, if PVC is to be used, specific analytical data should be provided indicating that neither the leaching nor the sorption of organic compounds from the PVC well materials will interfere with the data quality of the groundwater samples.

3. Although a Conclusions and Summary section is provided for each site in the Draft RI Report, recommendations are not provided for each site. The text should be revised to state whether further actions are needed at each site.

4. The report needs to explain the variation in the first round and second round sampling methods. The text should address how the different sampling methods affected the test results, particularly as it relates to the decreased level of total metal concentrations by the second round sampling technique.

5. The text, tables, and footnotes use inconsistent terminology. For example, the text uses both "round one" and "one round" when counting and referring to samples. All terms should be defined and used throughout the entire document. Also, the report should use a standard for definitions of qualifier codes recommended by EPA if available.

6. The soil types of the base-wide background samples have not been provided in the Draft RI Report. Therefore, it is impossible to compare the on-site samples to the background soil samples. The Draft RI Report should provide either detailed descriptions of the background soil samples collected during the investigation or supply a soil map which shows the background soil sample locations with respect to their soil types.

7. The Draft RI Report states that a drainage ditch which is located in the southern area of Site 1 and which receives surface water runoff from Site 1 was originally targeted for surface water and sediment sampling. No sediment or surface water samples were collected due to dry conditions during the field investigation. To fully characterize the site, sediment samples should be collected from this ditch, regardless if the ditch is dry.

   In addition, surface water and sediment samples should be collected from Cogdels Creek located northwest of Site 1. These samples are necessary to determine if there has been a release of contaminants to this nearby surface water body.

8. The Draft RI Report states that there are two groundwater supply wells located within a 1-mile radius of Site 1. However, the Draft RI Report states neither the depth of these wells, nor the aquifer in which these wells are screened. This information is necessary to determine if there is a potential for these wells to be impacted by site-related contamination.

9. On a number of figures in the Draft RI Report which show concentrations of contaminants detected in samples collected at Site 1, the footnote states that reported concentrations are in "micrograms per kilogram (mg/kg)." The abbreviation mg/kg represents milligrams per kilogram. Micrograms per kilogram should be abbreviated as ug/kg. As a result, it is not clear if the concentrations reported in these figures are milligrams per kg or micrograms per kilograms. Please correct this discrepancy.

10. It is not clear how the potential source areas at Site 1 were determined. Accurate location of these source areas is necessary to adequately characterize the site.

11. The text states that the objectives of the RI are "aimed at characterizing past waste disposal activities at Site 28, assessing potential impacts to public health and environment, and providing feasible alternatives for consideration during preparation of the ROD [Record of Decision]." To complete these objectives at Site 28, additional environmental samples are needed. The existing

soil, surface water and sediment sample spacing is too large to detect potential hot spots that may exist at the site as a result of past disposal activity. Based on the groundwater contour map of the surficial aquifer presented in the Draft RI Report, there are no downgradient monitoring wells along the southern portion of the site. Therefore, additional downgradient wells should be installed and sampled at Site 28 to verify whether contaminants from the site have been released to the groundwater in the surficial aquifer. In addition, soil, surface water and sediment samples from around the site, specifically the southern portion, should be collected and analyzed for full Target Analyte List/Target Compound List (TAL/TCL) analysis. The collection of additional samples should provide adequate characterization of the potential contamination at this site.

12. The Draft RI Report fails to assess the completeness of the RI data for Site 30. There are two data gaps which should be addressed: the lack of downgradient monitoring wells and the apparent insufficient number of soil samples.

13. Figure 22-4 is a groundwater contour map of the surficial aquifer at Site 30 based on water level information obtained during the RI. The figure indicates that there are no downgradient monitoring wells located in the site vicinity. Monitoring Well 30-GW01 is located within the site; Monitoring Well 30-GW03 is upgradient; and Monitoring Well 30-GW02, apparently originally intended to serve as a downgradient monitoring well, is actually in a side-gradient position with respect to the site. Therefore, additional monitoring wells should be installed downgradient of the site and sampled to determine whether contaminants from Site 30 have been released to groundwater.

14. The virtual absence of any detectable levels of organic constituents and concentrations of metals above background levels in soil data suggests that soil sampling within the site boundaries is insufficient, and/or that the site has not been accurately located. The site history indicates that at least 600 gallons of fuel tank sludges were disposed at the site. Such a large quantity of waste would be expected to result in contaminant hot spots in soil. Assuming that the site has been accurately located, it is likely that the existing soil sample grid spacing of approximately 125 feet is too large to detect any potential hot spots that may exist at the site as a result of tank sludge disposal activities. Furthermore, the Draft RI/FS Work Plan states that fill material may have been placed over Site 30 after disposal activities took place. This would have concealed any visible signs of surface soil contamination. Therefore, additional soil samples should be

collected within the site to reduce the sample spacing on the existing grid and to increase the confidence of site characterization results. Consideration should also be given to utilizing a soil screening technique to assist in selecting potential soil sampling locations.

2.0 SPECIFIC COMMENTS

1. **Page ES-1, Paragraph 4, Sentence 1.**
Ordinance is misspelled. The correct spelling should be added to the text.

2. **Page ES-9, Paragraph 1, Sentence 3.**
The text states that two of the four potable water wells are no longer in service. However, the text does not specify which two wells are not in use. The location and status of each well should be identified.

3. **Page ES-11, Table ES-1.**
The table lists the MCL for 1,2-Dichloroethene as 1000 ug/l and the MCL for Xylenes (total) as 10,000 ug/l. However, the figures should read 100 ug/l and 10,000 ug/l, (EPA, 1994), respectively. This discrepancy should be reconciled.

4. **Figure 5-1:**
The footnote for this figure states that reported concentrations are in "micrograms per kilogram (mg/kg)." The abbreviation "mg/kg" represents milligrams per kilogram, not micrograms per kilogram. See General Comment No. 9.

5. **Section 2-1, Page 2-1, Paragraph 6, Sentences 4 and 5.**
The text states that an underground storage tank (UST) of unknown capacity is associated with an active service island. However, the text does not state if the UST was considered a potential source of contamination. The text should state if the UST will be addressed according to applicable regulation for USTs or related releases.

6. **Sections 2.1 and 2.2, Page 2-1.**
The text provides a Site Description and Site History, but the water supply well HP-638 is not mentioned. HP-638 and its status should be identified in the text.

7. **Section 2.3.2.2, Page 2-5, Paragraph 1.**
The text states that in November 1986 surface water and sediment samples were collected from both Cogdels Creek and a drainage ditch, located adjacent to H.M. Smith Boulevard. According to Section 2.1 Site Description, the vehicle maintenance ramps discharge wastewater into these bodies of water. Although previous samples were collected during the confirmation study, the vehicle maintenance areas remained active sites. Therefore, wastewater discharge from these

areas should have been investigated during the remedial investigation.

8. **Section 3.3, Page 3-5, Paragraph 4, Sentence 2.**
See comment No. 4.

9. **Section 4.6, Page 4-4, Paragraph 5, Sentence 2.**
The text identifies two supply wells, HP-638 and HP-655. However, the text does not state the specific location or groundwater flow direction. This information should be included in the text.

10. **Section 4.6, Page 4-4, Paragraph 5, Sentence 3.**
The text states that both wells are contaminated; however, in the preceding paragraph, the text only offers the sampling results and sampling date for well HP-638. If well HP-655 is contaminated, the text should address analytical data of the sampling results.

11. **Section 4.6, Page 4-4, Paragraph 6, Sentences 3 to 5.**
The text states that well HP-638 was sampled in 1992 and put out of service because of benzene contamination. The text names an above storage tank (AST) formerly located next to the well house as a potential source of the benzene. However, the text is unclear if the AST location is incorporated into the surface soil investigation as a potential source area of soil contamination. The text should provide further explanation of this issue.

12. **Section 5.1, Page 5-1, Paragraph 4.**
The text refers to "NJ" data as a "tentatively identified" compound. The term "tentatively identified" is vague. If applicable, the text should list the standard EPA definition qualifier codes and clarify the meaning of "NJ".

Defined as "not detected", "UJ", does not appear in the tables. However, "ND" appears in the place of "UJ" in Tables 5.3. through 5.13. The footnotes, table notes, and the definitions and terminology used in the text are not consistent. The text should select, define, and use the same terminology.

13. **Section 5.0, Table 5-2.**
In the groundwater vs. volatiles column, MCL for 1,2-Dichloroethene is listed as 1,000 ug/l. However, the text should be revised to state the MCL for 1,2-Dichloroethene as 100 ug/l (EPA, 1994).

14. **Section 5.3.1.3, Page 5-6, Paragraph 1, Sentence 1.**
The text states that pesticides appear to be the most prevalent contaminants within soils at Site 1. However, Section 2.2 Site History does not account for the use of

pesticides. The text should explain the designation of pesticides as a potential contaminant of concern, especially if the use of pesticides is due to the soil matrix of Site 1.

15. **Section 5.3.2.1, Page 5-7, Paragraph 2.**
The text does not indicate that some detected VOCs exceeded either MCL or NCWQS standards. The text should specify at what levels VOCs were found.

16. **Section 5.3.2.2, Page 5-8, Paragraph 4, Sentence 3.**
The text indicates that the MCL and NCWQS standards for iron were exceeded. However, Federal does not have MCL guidelines for iron. Therefore, this reference to iron should be omitted from the text (EPA, 1994).

17. **Section 5.3.2.3, Page 5-8, Paragraph 5, Sentence 1.**
The text refers to potential contaminants as "inorganic elements." The term "inorganic contaminants" more closely identifies the subject and should be used instead.

18. **Section 5.0, Table 5-13.**
The text does not define "J". A footnote should be included to identify "J."

For the first round in the column of semi-volatiles, phenol should be listed as 6J instead of 6.1J as a minimum and a maximum concentration. Diethylphthalate should be listed as 1J instead of 1.3 as a minimum and a maximum, respectively. (See Table 5-7.)

19. **Section 9.0, Page 9-1, Paragraph 3, Sentence 2.**
The text states the well was closed because of contaminants in the water. However, the text does not specify the contaminants. The text should specify pesticides as the reason for the closing.

20. **Section 9.0, Page 9-2, Paragraph 2.**
The text states inorganics were detected at Site 1. However, the text does not specify the media in which the inorganics were detected.

21. **Section 11.0, Tables 11-2 and 11-4.**
In Table 11-2, NCWQS for zinc is found to be 5,000 ug/l, but then zinc becomes 2,100 ug/l in Table 11-4. The standard should be verified and revised accordingly.

22. **Section 11.2 Page 11-1, ,** Paragraph 6:
The thickness of the fill overlying Site 28 should be provided in the text.

23. **Section 11.3.2.1, Page 11-3, Paragraph 1, Sentence 1.**

The text references a number of inorganic contaminants identified during the two rounds of groundwater sampling. However, the text does not specify the well from which the contaminants are taken. The text should identify the well.

24. **Section 11.3.2.4, First paragraph sentences 8 and 9** stating the source of mercury contamination may have migrated from an upstream location is not acceptable. The text should offer more information, considering the source of mercury migration was not identified from sampling activities during the 1993 Additional Investigation nor in the 1984 through 1987 Confirmation Study, which called for identifying the source of mercury migration.

25. **Section 11.3.3.1, Page 11-6, Paragraph 5, Sentences 4 and 6.** The text indicates the wells are located near the eastern and western disposal areas, but the location of the disposal areas is not identified on the maps. The text should included a more detailed description of the placement of the wells.

26. **Section 11.3.3.1, Page 11-6, Paragraph 5, Sentence 7.** The text states that mercury was detected but does not identify the well. The report should include the well number where mercury was detected.

27. **Section 12.0, Figure 12-2.** Well 28-GW01 was installed in 1984/1986 (see Table 11-2) instead of 1994. The symbol should be altered to indicate the correct year of installation.

28. **Section 12.0, Figure 12-2.** The text mentions a temporary well, 28-TGWPA. However, the text does not indicate if 28-TGWPA is a newly installed well. The well should be depicted with a distinctive symbol since 28-TGWPA is the only temporary well and others are permanent monitoring wells.

29. **Section 12.2.2.** The text reviews the historical information that defines sampling locations for Site 28. The text notes two suspected disposal areas lying on both the east and west portions of Cogdels Creek. However, after reviewing the aerial photograph from 1964, the area north of the treatment facility should also be classified as a potential source of contamination. The aerial photograph legend identifies this area as a possible Leachate area. The sampling media should be addressed in this area as a possible source, since the Leachate is unknown.

30. **Section 12.3.1, Page 12-5, Paragraph 1, Sentence 1.**

The text identifies five shallow wells depicted on Figure 12-2; however, the Legend and the text do not correspond. The Legend should include a fourth symbol that depicts temporary wells or the well numbers should be listed in the text.

31. **Section 12.3.1 Page 12-5, Paragraph 5:**
The text states that the sand packs and bentonite seals were manually poured down the borehole. This is not in accordance with the ECB SOPQAM. See General Comment No. 1.

32. **Section 12.3.4, Page 12-6, Paragraph 4, Sentence 1.**
The text refers to six newly installed shallow wells, a temporary well and three newly installed deep wells at Site 28. However, Section 12.3.1 refers to five new installed wells. The text should rectify the discrepancy.

33. **Section 12.3.4, Page 12-7, Paragraph 4, Sentence 2.**
The text mentions an eastern disposal area. However, the type of waste and location of the disposal area is not identified. The report should include this information on a map.

34. **Section 12.3.4, Page 12-7, Paragraph 1, Sentence 1.**
The text does not correspond with the information presented on page 12-5 about the number of wells installed. If a temporary well was installed, the text should specify the well number of the temporary well.

35. **Section 12.3.6, Page 12-8, Paragraph 4, Sentence 1.**
The text says that only 11 samples were analyzed (three existing shallow wells, five newly installed shallow wells and three newly installed deep wells). This statement contradicts earlier statements which indicated a total of 14 samples were collected in round one sampling (see Section 12.3.4, Page 12-6, Paragraph 4, Sentence 1). Table 12-7 indicates that 13 samples were analyzed in round one: five existing shallow wells, four newly shallow wells, one temporary shallow well and three newly deep wells. The discrepancy in the number of samples should be verified and corrected in the text and tables.

36. **Section 12.4.2, Page 12-10, Paragraph 1, Sentence 1.**
The text should be stated: "At all 14 sampling stations a surface water sample from each station was collected . . ."

37. **Page 12-10, Section 12.4.3, Paragraph 3:**
Due to the detection of pesticides in the soil and groundwater surrounding Site 28, surface water and sediment samples should also be analyzed for pesticides. The surface water and sediment samples in areas that receive runoff from Site 28 should also be analyzed for pesticides.

38. **Section 12.0, Tables 12-1 through 12-3.**
TCL VOA and TCL SVOA should be TCL VOC and TCL SVOC. The text should clarify if TCL organics include TCL VOC and TCL SVOC.

39. **Table 12-5:**
Table 12-5 should be revised to include the groundwater elevation measurements for Site 28. The inclusion of these measurements in this table will aid in understanding the groundwater conditions at Site 28.

40. **Table 12-6:**
The well depths presented in Table 12-6 do not correspond to the well depths in Table 12-5. These tables should be revised to consistently present the well depths at Site 28.

41. **Section 12.0, Table 12-6.**
Samples from well 28-GWO7DW have relatively high pH levels except one reading at 5.05, which appears much lower than the rest of the samples (pH 9.92-10.99). This significant difference of pH at one well should be discussed. According to SOPQAM D.26, a water parameter is stabilized when at least three readings are in a close range.

42. **Section 12.0, Table 12-6.**
Samples from well 28-GW06 had relatively low pH levels (4.88 average), which were below EPA recommended pH level of 6.5-9 (EPA, 1993). More explanation may be required for the high and low pH levels listed in Table 12-6, especially as it concerns the dissolution of metal ions in acidic water.

43. **Table 12-8:**
The column titled "Frequency of Collection" states that equipment rinsate samples will be collected at the rate of one per day. The frequency at which rinsate samples will be collected should not be at the rate of only one per day. The ECB SOPQAM, Section B.2.4, states that every time equipment is cleaned in the field, a rinsate blank should be collected. Future sampling events should comply with the ECB SOPQAM.

44. **Section 12.0, Table 12-9.**
The table does not define the title Field Water. However, the table shows that the sample IDs are the same ones used to measure surface water and sediment in Table 12-10. The title should read "Surface Water and Sediment".

45. **Section 12.0, Table 12-10.**
The text mentions "Full TCL organics". However, other portions of the text indicate "TCL organics". Both terms seem to be synonymous. The text should be consistent in terminology.

46. **Section 12.0, Table 12-12.**
The table does not define "field water." The text should read aquatic survey sampling instead.

47. **Section 13.3.1, Page 13-2, Paragraph 2:**
The text states, "The thickness of the fill material and debris varied from approximately 3 to 22 feet." This statement does not correspond to Section 11-2 of the text. Section 11-2 states that the fill material and debris at Site 28 varied from 5 to 10 feet. The text should be revised to consistently state the thickness of the fill material and debris at Site 28.

48. **Section 14.2.2.2, Page 14-4, Paragraph 4:**
The text states, "It is assumed that iron and manganese are naturally occurring inorganic elements in groundwater, and their presence is not attributable to site operations." This statement is incorrect. While iron and manganese do occur naturally in groundwater, their presence may be attributable to site operations. Site 28 was a burn dump that received unknown quantities of unknown materials. The text should be revised to state that iron and manganese could have been disposed at the site and therefore may be attributable to site operations.

49. **Section 14.3.1.3, Page 14-8, Paragraph 3:**
The text states, "Based upon their wide dispersion, infrequent detection, and low concentration, the occurrence of volatile compounds in soils at Site 28 does not appear to be the result of past disposal practices." This statement is incorrect. Site 28 was a burn dump that received unknown quantities of unknown materials. The text should be revised to state that the volatile compounds detected in the soils may be attributable to site operations.

50. **Section 14.3.2.1, Page 14-9, Paragraph 3:**
The text states that pesticides were not detected in any of the five groundwater samples collected and analyzed during the round two sampling event at Site 28. The laboratory analysis sheets for the five groundwater samples submitted for pesticide analysis from the round two sampling event have not been provided. These sheets should be provided to validate the statement that pesticides were not detected from the round two groundwater sampling event.

51. **Section 14.3.2.2, Page 14-10, Paragraph 3, Sentence 3.**
The text says that manganese was identified above MCL or NCWQS levels. However, only NCWQS has a level for iron and manganese (EPA, 1994L); Federal does not have a MCL for iron.

52. **Section 14.3.2.3, Page 14-10, Paragraph 5, Sentence 2.**
The text says that a SVOC compound has the concentration of 99 ug/l but does not identify the compound. Because there are 32 components in the SVOC group, the text should specify the compound as naphthalene.

53. **Section 14.0, Table 14-12.**
Sample 28-MW13 should be listed as 28-GW13. The correction should be applied to the rest of the tables.

54. **Section 14.0, Table 14-12.**
Selenium maximum concentration at column of detected contaminants should be 5.6J instead of 5.1J.

55. **Section 14.0, Table 14-12.**
The table should include a footnote that indicates the concentration unit as ug/l.

56. **Section 14.0, Tables 14-7 through 14-12.**
Sample 28-MW13-01 should be 28-GW13-01. Sample 28-MW13-02 should be 28-GW13-02. The corrections should be applied to the rest of the tables.

57. **Section 15.2.3, Page 15-4; Paragraph 2, Sentence 2.**
To compare the groundwater analytical results with soil sample analytical results, it is suggested that a table be created.

58. **Section 18.0, Page 18-3, Paragraph 3, Sentence 1.**
The text should be ". . . aquatic receptors at Site 28."

59. **Section 18.0, Page 18-3, Paragraph 3, Sentence 2.**
The text should be ". . . the most significant related to COPC that . . ."

60. **Section 20 Page 20-1,**
This section should include a discussion on whether there are visible signs of contamination at the site, such as soil staining or other features that would confirm where disposal activities took place at Site 30. This information has a bearing on whether potential source areas have been adequately sampled. The discussions in this section do not present a clear indication of where potential hot spots are likely to be or the degree of confidence associated with the site boundaries.

61. **Section 20.3.2.1, Page 20-2, Paragraph 2, Sentences 4 to 5.**
The text states that monitoring well 30-GW20 was placed down-gradient of the site. However, monitoring well 30-GW20 does not appear to be down-gradient of groundwater flow in Figure 20-2. The text states in Section 22.2 (Surface Water Hydrology and Drainage Feature) that flow is toward the

North in the direction of the New River. Therefore, either the location of well 30-GW20 is mislocated on Figure 20-2, or the well location should be designated as a suspected area.

62. **Figure 20-1:**
This site map and all subsequent maps depicting the site location lack topographic contours. Topographic contours should be added to this figure to permit the full evaluation of potential contaminant migration pathways.

63. **Section 20.0, Table 20-1.**
A footnote is listed beneath the table. However, the referenced information does not appear in the table.

64. **Section 21.3.1 Page 21-4:**
The text presents the specifications and installation procedures for only Monitoring Well 30-GW03 installed in 1994. The Draft RI Report should also include the specifications and installation procedures for monitoring wells 30-GW02 and 30-GW01 installed in 1984. This information is important in assessing the effects of monitoring well construction, if any, on the reliability of the groundwater analytical data.

65. **Section 21.3.1, Page 21-4, Paragraph 5, Sentence 1.**
The text mentions a well installed but does not identify it by number. The monitoring well number should be included in the text.

66. **Section 21.3.5, Page 21-6, Paragraph 6, Sentence 3.**
The sentence is unclear. The text should clarify the meaning of the sentence.

67. **Section 21.4.1, Page 21-7, Paragraph 6, Sentence 1.**
The text reads that water and sediment samples were collected from Site 28. The text should read Site 30.

68. **Page 21-5, Paragraph 4:**
The well development data provided in Appendix D does not indicate the level of turbidity in groundwater achieved after the development of Monitoring Well 30-GW03. The well development log in Appendix D describes the groundwater in this monitoring well as having "coffee color, very organic," which is not descriptive of turbidity. In addition, no well development results are included for the older monitoring wells, 30-GW01 and 30-GW02. The text should include a description of the degree of turbidity since the Draft RI Report proposes that metals adsorbed to suspended sediment particles may contribute substantially to the concentrations of metals in total metals analyses. In addition, the text should indicate the procedure used to measure turbidity.

69. **Page 21-6, Paragraph 6:**
The sentence beginning with "Samples collected ..." is incomplete and should be corrected to accurately convey the meaning.

70. **Section 21.0, Table 21-1.**
The table provides a Soil Sampling Summary. However, the identification of background or control sample location seem to appear that the samples were collected from a soil-boring not identified on Figure 21-1. The text should define the control samples and the location from which they were collected in Section 21.2.

71. **Section 21.0, Table 21-7.**
pH at sample 30-SW/SD01 is quite low. The level pH 4.1 is below EPA recommended pH level 6.5-9 for fresh water aquatic life (EPA, 1993). Reasons of having such a low pH level should be discussed in the report.

72. **Page 22-1, Paragraph 6:**
Explain the meaning of "operational activities" in this sentence: "Due to operational activities at Site 30, however, the soils described in the SCS publication may differ from current site conditions."

73. **Section 22.3.2 Page 22-1,:**
This section provides a description of site soils, however, there is no indication of the thickness of fill materials at Site 30. The Draft RI Work Plan for OU 7 stated that at least eight of the soil borings were installed to "verify the thickness of the fill material which may have been placed on top of the disposal area." The text should include a description of any fill material encountered since the Draft RI Work Plan for OU 7 implied that the fill was apparently emplaced after the disposal activities had occurred at Site 30.

74. **Section 22.4,**
The text refers to a groundwater elevation contour map for the surfacial aquifer. Figure 22-4 depicts the direction of groundwater flow, based on the surfacial aquifer contour map; groundwater flow is toward French Creek in a north by northwest direction. The monitor well 30-GW02 is not located north or northwest. This well should not be referred to as a down-gradient well for Site 30. The location of piezometor well 30-PZ01 is more likely to be down-gradient from the suspected disposal area than well 30-GW02. Monitor well 30-GW02 should be identified as a well located in a suspected area or a well west of Site 30.

75. **In Section 22.6,**

The text does not specify if the two potable water wells (HP-632 and HP-640) are down or up-gradient of Site 30 or if the wells are hydrogeologically connected to Site 30. However, it is a part of the conclusion and should also be pointed out in the text.

76. **Section 23.3.2, Page 23-7, Paragraph 2, Sentence 4.**
The text states ". . . at least one of the nine groundwater samples . . ." However, only three samples were collected (see Table 23-11).

77. **Section 23.3.2, Page 23-6, Paragraph 4, Sentence 4.**
The text states that chloroform is either a VOC or a SVOC. Chloroform is a VOC (Viessman and Hammer, 1985).

78. **Page 23-3, Paragraph 5:**
The text indicated that facility-wide soil background analytical values are in Appendix M, but the Draft RI Report does not include the locations of the background samples. This information is important in determining the validity of the background samples and in verifying the degree to which the background sample locations may have been impacted by Camp Lejeune operations.

79. **Page 23-5, Paragraph 3:**
The text states that the "majority" of soil samples were analyzed for TCL volatile and semivolatile organic compounds and TAL inorganic compounds." The term "majority" is ambiguous. The use of a percentage is a better description.

80. **Section 27.0, Page 27-1, Paragraph 3.**
The conclusion does not indicate if the two water supply wells are still in service. Also, the kind of Site 30 disposal activities need to be described within the conclusion and summary.

81. **Section 27, Page 27-1:**
This section, which is titled "Conclusions and Summary," accurately summarizes the Draft RI Report results, but does not present any conclusions or recommendations. This section should assess the results and present conclusions and recommendations regarding the next step in the RI/FS process, particularly on whether further sampling and analysis is warranted. See General Comment No. 3.