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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

April 16, 1996

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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 54

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

Gena D. Townsend
Senior Project Manager

Enclosure

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

1.0 General Comments

1. Section 1.3.1, Page 1-10, states that an underground storage tank (UST) is located northwest of the burn pit. However, Figure 1-5, the site map for the Crash Crew Fire Training Burn Pit, does not depict the location of the UST. The location of the UST should be indicated on Figure 1-5.

2. Section 1.3.2, Page 1-11, Paragraph 1, gives the site history of Site 54 which states that fire training was originally conducted on the ground surface within a bermed area until a pit was constructed in 1975. However, Figure 1-5 does not identify the location of the original bermed area, and the text does not discuss the placement of the soil that was disposed during the construction of the pit. Also, the text neither indicates if the Fire Crews used the pit before it was lined nor if the excavated soil was spread over the west section of the site where soil contamination is prevalent. The text should provide further description of the bermed area and identify the location of the bermed area on Figure 1-5.

3. Section 2.5.1, Page 2-4, Paragraph 2, attributes the downward trend of groundwater in the surficial aquifer (monitoring well 54-SG01) to a lack of precipitation during the months of March and August. However, the text does not fully explain the upward trend of groundwater elevations in monitoring wells 54-GW03 and 54-GW08. The text should be clarified to fully explain the reason for the upward trend.

4. Section 2.6, Page 2-6, Paragraph 5, Sentence 3, states that Site 54 is downgradient of the supply wells. However, Figure 2-6 shows that Site 54 is upgradient of the supply wells. The text should state that Site 54 is upgradient of the supply wells and explain the effects of groundwater contamination at Site 54 on the water supply wells.

5. Figure 2-2 shows that well 54-GW05 is screened in both the surficial aquifer and the Castle Hayne confining unit. However, the well may fill with silt because it is screened partly in the confining unit. The text should explain why the well was partly screened in the confining unit, since the well would be more appropriately screened from the top of the Castle Hayne confining unit, upward through the surficial aquifer only.

6. Section 3.3.1, Page 3-6, Paragraph 4, Sentence 9, states the monitoring wells were backfilled with a mixture of Portland cement and five percent powdered bentonite. Because the soils in the area consist of acidic Baymeade soil complex, ECB recommends that monitoring wells used for prolonged monitoring be grouted with pure gold bentonite to prevent deterioration of grout (Till, 1995).

7. Section 3.3.2, Page 3-7, Paragraph 1, states that following well construction, each newly installed well was developed. The text also states that the well development records are provided in Appendix E. However, the temporary wells (TW04-TW07) were not developed, according to the field well development records. The EPA Region IV SOPQAM states that after placement, a temporary well should be pumped to remove turbidity resulting from formation disturbance (EPA, 1991). The text should explain why the four temporary wells were not developed.

8. Table 3-6 presents pH values of groundwater from shallow and temporary monitoring wells. The low pH values are found in wells 54-GW09, GW10, TW05, TW06 and TW07 (pH 3.97 - 4.99). However, these low pH values are not found in well 54-TW04, a well that is very close to wells 54-TW05, TW06, and TW07. The text does not explain why the pH values of well 54-TW04 (6.83 - 6.89) are much higher than those of surrounding wells. The explanation regarding the varied pH values found in those wells which are close to each other should be presented accordingly.

9. 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.

10. Section 5.3.2, Page 5-7, Paragraph 3, discusses contamination of PAHs at a location of sample 54-DD-SB05 indicating that the soil with sorbed PAHs were washed from the burn pit area during rain events to this location, where the soil accumulated and resulted in relatively high concentrations of PAHs. However, there were no detections of PAHs in surface soil samples at the 54-DD-SB05 location. Because there were no detections in the surface soil, the conclusion about the accumulation of PAHs by washing at this location appears to be unsubstantiated. Thus, the text should justify the conclusion regarding the migration of PAHs.

11. Section 8, Page 8-1, lists conclusions based on the results of this Remedial Investigation (RI), but this section is incomplete. According to EPA guidance, recommendations for future work and recommended remedial action objectives must be included in the list of conclusions (EPA, 1988). The text should be revised accordingly.

2.0 Specific Comments

1. **Figure 1-6.**
Section 1.4.2.2 states that Confirmation Study Investigation groundwater sampling locations, including AS-5990, are provided on Figure 1-6. However, the figure neither shows supply well AS-5009 nor an arrow pointing toward the location of the well. If there was not enough space to include the location of the supply well, the text should give the location of the well within the text.

2. **Section 2.4, Page 2-1, Paragraph 5.**
The text states that the observed geological sequence is similar to the generalized North Carolina coastal plain sequence in Figure 1-1. The text also states that the "Begrade Formation" is called the Castle Hayne confining unit. However, the geological units are described in Table 1-1, not Figure 1-1; and the formation also known as the Castle Hayne confining unit is the Belgrade, not the "Begrade", Formation. These mistakes should be corrected in the text.

   This comment also applies to page 2-2, paragraph 1, sentence 1, where the text also mistakenly refers to Figure 1-1 instead of Table 1-1.

3. **Section 2, Pages 2-2 and 2-4.**
The text contains sentences that are incomplete or fragmented. For example, page 2-2, paragraph 6, sentence 9, seems to be missing some words. In addition, page 2-4, paragraph 3, sentence 4, is a fragment. These grammatical mistakes should be corrected.

4. **Section 2.6, Page 2-6, Paragraph 6, Sentence 1.**
The text states that four of the seven supply wells were sampled in 1992. However, the text is inconsistent and identifies five water supply wells. If there are other supply wells within a one-mile radius of the site, the text should identify these additional wells and their locations.

5. **Figure 2-6.**
Figure 2-6 shows potable water supply wells within a one-mile radius of Site 54. However, the figure labels the one-mile radius as Site 54. The label should read "One-mile Radius around Site 54".

6. **Section 3.3.2, Page 3-7, Paragraph 2.**
The text states that pH, specific conductance, and temperature were recorded after each well volume was removed. However, in Appendix E, some of the well data is missing from the development records. The text should be revised to state that most pH, specific conductance, and temperature readings were recorded during well development.

7. **Section 5.3.1, Page 5-6, Paragraph 3, Statement 1.**
The text states that the burn pit is probably the primary source of contamination and a "signal" plume has resulted. However, the text contains a typographical error. The word "signal" should be replaced with "single".

8. **Section 5.3.1, Page 5-6, Paragraph 3, Statements 3 and 4.**
The text states groundwater has transported contaminants downward to the upper portion of the Castle Hayne aquifer based on the fact that VOCs and SVOCs were detected in greater concentrations in well 54-GW08 than in well 54-GW01. In addition, the text states that relatively less mobile SVOCs are present in wells 54-GW01 and 54-GW08. However, Table 4-7 and Figure 4-3 show that VOCs and SVOCs were not detected in well 54-GW08. The text should revise the two statements (3 and 4) describing fate and transport to be consistent with groundwater sampling results.