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DEPARTMENT OF THE NAVY
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11 JUN 1996

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United States Environmental Protection Agency, Region IV
Attn: Ms. Gena Townsend
Waste Management Division
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Response to Comments, Draft Remedial Investigation Report, OU Number 6 (Sites 36, 43, 44, 54, and 86), MCB Camp Lejeune, NC

Dear Ms. Townsend:

Enclosed please find responses to your comments on the subject document. As previously discussed, these responses are being submitted in lieu of a Draft Final version of the document. In order to allow the Final version of the report to be submitted on schedule by July 16, 1996, we request that you provide any comments on the enclosed responses by June 20, 1996.

The Navy/Marine Corps appreciates your continued involvement in this project. Please direct any questions or comments to Ms. Katherine Landman at (804) 322-4818.

Sincerely,

L. G. SAKSVIG, P.E.
Head
Installation Restoration Section
(South)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Enclosure

Re: Response to Comments, Draft Remedial Investigation Report, OU Number 6 (Sites 36, 43, 44, 54, and 86), MCB Camp Lejeune, NC

Copy to:
NC DEHNR (Mr. Patrick Watters)
MCB Camp Lejeune (Mr. Neal Paul)
Baker Environmental, Inc. (Mr. Matt Bartman)
Activity Admin Record File

Response to Comments
Submitted by the U.S. Environmental Protection Agency, Region IV on the
Draft Remedial Investigation Report for
Sites 36, 43, 44, 54, and 86 (Operable Unit No. 6)
MCB, Camp Lejeune, North Carolina
Comment Letter by Ms. Gena Townsend
Received by Baker Environmental, Inc. on April 18, 1996

Site 36

General Comments

1. The use of Portland cement was limited to deeper monitoring wells installed below the Castle Hayne semi-confining unit. During construction of the Type III deep wells, Portland cement was used to secure eight-inch steel casing to the upper portion of the semi-confining layer. The Portland cement was also used to grout inside the steel casing, backfilling the annular space between riser pipe and steel casing. A combination of sodium bentonite pellets and sodium bentonite slurry was used to backfill the annular space from above the well screen and sand pack to the bottom of the steel casing (i.e., above the semi-confining unit). The use of Portland cement was restricted to portions of the deep wells above the Castle Hayne semi-confining unit.

   The unconsolidated nature of coastal geologic units makes the use of Portland cement necessary to adequately secure the steel casing in place while drilling operations continue. Although the Portland cement may break down over time in the presence of acidic surface soils, it is not expected to impact the usability or integrity of the deep monitoring wells. Section 3.3.1 text will be revised to incorporate this information and provide justification for the use of Portland cement.

2. Note No. 1 at the bottom of Table 4-2 states that metals in surface and subsurface soils were compared to twice the average base background positive concentrations for priority pollutant metals. Elsewhere within Table 4-2, however, twice the average base background is referred to as simply base background or BB. Section 4.0 text and Table 4-2 will be revised to clarify this terminology and present a consistent approach.

3. Concentrations of both organic compounds and inorganic analytes among surface water and sediment samples, unlike those among soil samples, may be compared to applicable state and federal screening criteria. The presentation of base background surface water and sediment inorganic concentrations is provided within the Draft RI report for comparative purposes only; the ranges of concentrations are not presented to eliminate inorganic analytes from further consideration. In order to avoid confusion, however, Section 4.0 text and Table 4-2 will be revised to limit the comparison of those inorganic concentrations which exceed the maximum base background concentrations.

4. The soil removal option will be considered during the preparation of a feasibility study report for Site 36; however, it is important to note that positive PCB and pesticide detections did not generate unacceptable levels of site risk.

Specific Comments

1. Section 1.4.4 text will be revised to specify that Figures 1-8 through 1-12 are the correct aerial photograph figure numbers.

2. Table 1-9 will be revised to reflect the actual units of potential contaminant concentration among sediment samples; in this case mg/kg.

3. Table 1-11 will be revised to indicate that milligrams per kilogram or parts per million (ppm) were the actual units of concentration.

4. Figure 2-2 depicts geologic cross sections and not water level elevations. A water table contour of the surficial aquifer is depicted on Figure 2-4 where monitoring wells 36-GW08 and 36-GW04 are shown with their corresponding elevations.

5. Figure 2-6 will be revised to accurately identify the one-mile radius circle around Site 36.

6. Figure 3-1 will be updated to include test boring 36-BB-SB03.

7. Section 5.2.1 text will be revised as per comment.

8. Section 5.2.4 text will be revised to indicate that no organic compounds were detected in the Castle Hayne Aquifer. The text will also be revised to clarify that a number of inorganic analytes were detected in the deep aquifer and that manganese was the only inorganic analyte detected at a concentration which exceeded an applicable state or federal standard.

Site 43

General Comments

1. During the 1991 Site Inspection, the pilot test boring for shallow monitoring well 43-GW01 was identified as having elevated concentrations of polynuclear hydrocarbons (PAHs). The somewhat focused sampling activity surrounding well 43-GW01 was performed in an effort to further define the extent of surface soil contamination. One of the initial soil samples collected adjacent to well 43-GW01 and submitted for seven-day confirmation analyses exhibited PAHs. As a result, further sampling was performed during the latter portion of the RI to further delineate the potentially impacted area.

2. See general response to comment No. 1 from Site 36.

3. See general response to comment No 2 from Site 36.

4. See general response to comment No. 3 from Site 36.

5. Recommendations will be added to Section 8.0. At this time, however, no further remedial actions are warranted for this site.

Specific Comments

1. The "SR" protected classification will be defined within the legend of Table 1-4.

2. Figure 2-6 will be revised to accurately identify the one-mile radius circle around Site 43.

3. Figure 3-1 will be revised to depict each of the five exploratory test pit locations at Site 43.

4. Section 4.2.2.1 text will be revised to eliminate the typographical error.

5. Section 4.3.4.1 text will be revised to state that carbon disulfide was detected at concentrations of 20 and 26 mg/kg in sediment samples obtained from Edwards Creek.

6. Table 4-2 will be revised to indicate that cadmium was detected only once among the 21 surface soil samples at a concentration which exceeded twice the average base background.

Site 44

General Comments

1. Background soil samples were collected from each of the five sites which comprise Operable Unit (OU) No. 6. The two samples collected to the west of Site 44 (44-BB-SB01 and 44-BB-SB02) were incorporated into a much larger database of soil samples collected throughout MCB, Camp Lejeune. Section 4.0 text will be revised to better explain the significance of the resulting database and how it was employed for comparative purposes within the RI report.

2. See general response to comment No. 3 from Site 36.

3. See general response to comment No. 2 from Site 36.

4. The total number of positive inorganic detections among soil samples make presentation of this data particularly difficult and overwhelming. An alternate approach would be to use a generally accepted screening method to depict only the highest inorganic concentrations among soil samples. Additional figures that depict concentrations of inorganic analytes in excess of USEPA Region III soil criteria protective of groundwater will be assembled for the Final RI.

5. The text in Section 6.0, BRA, will be revised to clarify the screening values.

6. A complete description of potential upstream sources (e.g. Site 89) will be presented within Section 4.0 of the text. Figures depicting the location, relative to Site 44, of these potential sources will also be provided within Section 4.0.

7. Surface water sampling results depict a clear trend of similar organic contaminants, detected at increasing concentrations, originating from an upstream source (refer to Figure 4-5). In an effort to provide adequate coverage of the site and based upon analytical data gathered during the SI, a systematic grid pattern of investigation was not employed at Site 44; instead, a more focused sampling approach was utilized to determine if disposal operations had occurred at all. If former disposal operations at Site 44 were actively contributing to the presence of organic compounds among surface water samples, corroborating evidence of organic compounds among soil and groundwater site media would be expected.

8. Recommendations will be added to Section 8.0. No further remedial actions, however, are warranted at this site.

Specific Comments

1. The "SR" protected classification will be defined within the legend of Table 1-4.

2. Table 1-10 will be updated with accurate MCLs and NWQSs for potential contaminants in groundwater.

3. The text and Table 1-10 will be revised to include references.

4. Figure 2-6 will be revised to accurately identify the one-mile radius circle around Site 44.

5. The reference to Appendix M in Section 3.2.4 will be revised to state that USCS classifications are presented in Appendix L.

6. The definition of matrix spike and matrix spike duplicate (MS/MSD) samples is presented in Section 3.2.5 of the text. However, the List of Acronyms will be revised to include MS/MSD.

7. The initial reading of pH 3.39 may be the result of groundwater stagnation within the well over time. Immediately following this initial reading, the pH levels began to stabilize.

8. Section 4.4.2.2 text will be revised to state that a total of seven semivolatile compounds were detected in well 44-GW03.

9. Section 4.4.4.1 text will be revised to state that the concentration of acetone at 610 mg/l is not "low."

10. Section 4.4.4.4 text will be revised to state that inorganic analytes among Site 44 sediment samples were compared to maximum background concentrations.

11. Figures 4-5 and 4-6 will be updated to indicate a direction of surface water flow.

12. Section 5.2.1 will be revised to include the correct spelling of "immobile."

13. Section 5.2 text will be revised to include groundwater as a potential transport pathway.

Site 54

General Comments

1. Figure 1-5 will be revised to depict the location of the 12,000-gallon underground storage tank (UST) located to the west of the burn pit at Site 54.

2. Little information is available concerning the construction of the previous burn pit. Section 1.3.2 text presents all known history regarding the former burn pit.

3. An explanation for the upward trend in water levels will be provided.

4. This correction will be made in the final report.

5. Well 54-GW05 is not screened in both aquifers but is depicted incorrectly on Figure 2-2. This figure will be revised for the final report.

6. See general response to comment No. 1 from Site 36.

7. The seven temporary wells installed at Site 54 were purged prior to sampling rather than being developed. During installation of the temporary monitoring wells, formation disturbance, and thus turbidity, was minimized. In addition, each temporary well did not employ the use of a sand pack and drilling fluids. For these reasons development was not required in the case of temporary monitoring wells.

8. An adequate explanation for the variability of observed pH values among groundwater samples is impossible, in this case, to provide. Some of the possible reasons for the variability of observed pH values include: soil chemistry; human error; equipment malfunction; and presence of unobserved potential contaminants.

9. See general response to comment No. 2 from Site 36.

10. The conclusion regarding the migration of PAHs will be further evaluated in the final report.

11. Recommendations will be added to Section 8.0.

Specific Comments

1. Section 1.4.2.2 text will be revised to describe the location of supply well AS-5009, relative to Site 54 (i.e. direction and distance from the study area).

2. Section 2.4 text will be revised to accurately reference Table 1-1 rather than Figure 1-1. In addition, the typographical error referencing the Belgrade Formation will be corrected.

3. The grammatical errors and incomplete sentences found within Section 2.0 will be corrected.

4. Section 2.6 text will be revised to accurately refer to the supply wells that were sampled in 1992. The number of supply wells found within a mile radius of Site 54 will also be clarified.

5. Figure 2-6 will be revised to accurately identify the on-mile radius circle around Site 54.

6. Section 3.3.2 text will be revised to state that a majority of readings were recorded during well development and transferred to the Development Records provided in Appendix E.

7. Section 5.3.1 text will be revised to eliminate the typographical error; "signal" will be changed to "single."

8. The information presented on Table 4-7 and on Figure 4-3 is corrected. VOCs and SVOCs were note detected in 54-GW08. Accordingly, the text in Section 5.3.1 will be revised.

Site 86

General Comments

1. The location of the pump house and ancillary piping is not known for certain; insufficient information exists regarding their exact location. The presentation of these items in figures would only serve to mislead the reader. For the purposes of the field investigation, professional judgment was used to approximate the location of former equipment. The location of the three above ground storage tanks (ASTs) was apparent.

2. See general response to comment No. 1 from Site 36.

3. Site 86 is located within a heavily industrialized portion of MCAS, New River. The three intermediate wells that were installed to the south and southeast of the study area were situated to determine whether contaminants had migrated from an off-site source. Section 3.3.5 will be revised to adequately provide rationale for the placement of these additional monitoring wells.

4. The definition of matrix spike and matrix spike duplicate (MS/MSD) samples is presented in Section 3.2.5 of the text. However, the List of Acronyms will be revised to include MS/MSD.

5. Section 3.0 text will be revised in an attempt to address the low pH values encountered during groundwater sampling operations.

6. Section 3.2.2 text will be revised to identify the four additional soil borings completed adjacent to the suspected former location of the ancillary piping. Please refer to response No. 1 which addresses the location of the pump house and ancillary piping.

7. Based on further review of the boring logs and cross-section, it appears that the Castle Hayne confining unit is absent in the area of Site 86. The surficial aquifer and the underlying Castle Hayne aquifers are interconnected and appear as one unit. However, the surficial and Castle Hayne are two distinct aquifers from a hydraulic property standpoint (i.e. hydraulic conductivity and transmissivity). This information will be added to the text.

8. See general response to comment No. 2 from Site 36.

9. See general response to comment No. 4 from Site 44.

10. The average pH measured during the monitoring well purging was around 6.2, which is within the typical range of pH values for this aquifer setting (i.e. coastal plain environment). Consistent, relatively low pH readings were measured in shallow well 86-GW09 (4.56 to 4.41), but this represents only a small portion of the total number of measurements collected. There was an erroneously low pH value recorded at well 86-GW13 (2.83), but this value was most likely the result of an equipment error or a miss-interpreted value from the meter. Note that the pH stabilized at 5.65 before sampling this well. Accordingly, there is not conclusive evidence that this aquifer has low pH values in the area of the site which may affect the transport of metals.

11. Section 8.0 text will be revised to provide a possible source of the observed organic contaminants.

12. Recommendations will be added to Section 8.0.

13. This bulleted item will be revised per the comment.

Specific Comments

1. The "SR" protected classification will be defined within the legend of Table 1-4.

2. Table 1-8 will be revised to exclude chloroethane from the list of detected contaminants in groundwater.

3. Section 2.4 text will be revised to indicate that a figure, not Table 2-2, contains the stratigraphic sequence of MCB, Camp Lejeune.

4. Table 3-6 will be revised to exclude the suspect pH reading.

5. Section 4.1.1 text will be revised to indicate that Appendix C contains chain-of-custody documentation.

6. Section 4.3.1.1 text will be revised to indicate that Appendix O contains base-specific inorganic background information.

7. Section .3.2 will be revised to state that PAHs were detected in wells 86-GW08IW, 86-GW10IW, and 86-GW07.

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