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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

January 10, 1994

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

4WD-FFB

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

SUBJ: MCB Camp Lejeune - OU5
Draft Remedial Investigation Report

Dear Ms. Berry:

The Environmental Protection Agency (EPA) has partially completed its review of the "Draft Remedial Investigation Report, Operable Unit 5, Site 2, dated December 7, 1993. Comments are enclosed from EPA (general review) and Dynamac (oversight contractor). Comments from the Risk Assessment Section will be forwarded by the end of the week.

Overall the document is clear and concise in its statement of the results, however, it appears that the extent of groundwater contamination has not been identified in the shallow aquifer. This area will be discussed in more detail within the body of the comments.

If there are any questions or comments, please call me at (404) 347-3016.

Sincerely,

Gena D. Townsend
Senior Project Manager

Enclosure

cc: Mr. Neal Paul, MCB Camp Lejeune
Mr. Patrick Watters, NCDEHNR

1.0 GENERAL COMMENTS

The following general comments were developed from review of the Draft RI Report.

1. The text should acknowledge that the extent of groundwater contamination has not been determined at Site 2 and that additional monitor wells are needed downgradient (east) of the mixing pad area. The RI results indicate that the mixing pad area contains the most highly contaminated soils at Site 2. Despite the fact that groundwater flow direction data is inconclusive, interpretations presented in the Draft RI Report indicate that flow is generally east. Therefore the additional wells should be installed east of the mixing pads. The additional wells can be installed during the Remedial Design phase of the project if needed. It is imperative to remember that this could cause an increase in the remedial alternative cost.

2. The Draft RI Report presents water-level data from both existing and newly installed monitor wells for the surficial aquifer. The text correctly concludes that not all of the water-level data appears reliable; not included among the explanations for why some data is unreliable, however, is the affect of stratigraphy. The water-level data appears unreliable because water-table gradients vary widely in the Site 2 vicinity in both direction and magnitude. These gradients do not reflect the local topographic surface nor the spatial relationship of Site 2 to local discharge points. The Draft RI Report presents the explanation that the unreliable water-level values are caused by clogged screens in the existing wells which have decreased the efficiency of these wells. This "decreased efficiency" does not account for the observed wide variation in water levels. The more likely explanation is that not all wells are screened at similar stratigraphic horizons. For example, the most permeable zone within the screened interval in "new" monitor well 2GW7 is above a clay-rich unit. The most permeable zone within the screened interval in "existing" monitor well 2GW4 is below what appears to be the same clay-rich zone. The water level data collected on June 5, 1993, indicates a 14-foot difference in water elevation between these two wells, which are only 160 feet apart. These two wells are clearly screened in different stratigraphic horizons and therefore would not be expected to accurately portray the water table surface. The screened intervals in the recommended shallow downgradient wells (see General

Comment No. 1) should be selected to ensure that screens are set in correlative water-bearing units.

2a. At well 2GW3D a ph reading of 12.62 was recorded. Is there a reasonably explanation for this occurrence or should there be another round of sampling conducted.

3. The use of "two times the maximum background concentration" to screen contaminants of potential concern (COPC) contradicts current EPA guidance and is unjustified. Under EPA's reasonable maximum exposure (RME) approach, contaminant levels should be compared to two times the average background concentrations, not two times the maximum background concentrations. Comparing COPC concentrations to the "artificially" elevated background levels used for screening could have resulted in incorrectly eliminating some COPCs and subsequently underestimating the potential health risks associated with these COPCs. Therefore the approach used in the baseline risk assessment (BRA) is unjustified.

4. Incorrect absorption factors (i.e., 1.0 for organic constituents and 0.1 for inorganic constituents) have been used in characterizing dermal exposure. The correct absorption factors should be 1.0 percent for organic constituents and 0.1 percent for inorganic constituents per EPA's New Interim Region IV Guidance. The errors in the absorption factors used in the BRA may have contributed to the unusually high risk values calculated for dermal exposure pathways when compared with risk values for other exposure pathways. The dermal exposure risk calculations in the BRA should be revised using the current absorption factors.

5. Throughout the BRA, potential risks associated with soil and sediment exposure were assessed under two scenarios: one before and one after the Time-Critical Removal Action (TCRA). However, the text contains statements which contradict whether the TCRA has already been conducted. Some statements describe the TCRA as a proposed activity while others refer to the apparent existence of post-TCRA confirmation sampling results, implying that the TCRA is complete. Furthermore, the soil cleanup levels that the TCRA is designed to achieve should be described in detail. Confirmatory sampling should be conducted to ensure that the anticipated cleanup levels are attained.

6. EPA's Uptake/Biokinetic Model for lead should be used to qualitatively evaluate lead exposure since lead was retained as a COPC and was detected in groundwater at concentrations exceeding its maximum contaminant level (MCL).

7. Because the soil exposure pathways evaluated consider only surface soil exposure, subsurface soil data need not be included or discussed in the BRA.

8. There are numerous statements in the BRA indicating that site history has been used to eliminate COPCs from further consideration or to conclude that a contaminant is not site-related. Site history should not be a criterion for screening potential COCs or site contaminants.

2.0 SPECIFIC COMMENTS

The specific comments are listed on the following pages in the order of their occurrence in the Draft RI Report. The comments are organized by section number, page number, paragraph number, figure and/or table number as appropriate.

1. Page 3-11, Paragraph 3:
   The text states that clogged well screens have resulted in the apparent unreliable water-level data, but another contributing factor is likely the relationship between screened interval and stratigraphy. See General Comment No. 2.

2. Page 3-11, Paragraph 5:
   The text states that the water table slopes gradually toward the east. However, the previous paragraph states that groundwater flow is to the northeast, and figures 3-7 and 3-8 show flow directions varying from northeast to northwest. The text should be corrected to be internally consistent and consistent with the figures.

3. Page 4-2, Section 4.1.2, Paragraph 1:
   Repeated sentence.

4. Page 4-9, Paragraph 2:
   The Draft RI Report states that six metals were detected above base-specific reference levels. This section should present the reference-level values to permit verification of these exceedences.

5. Page 4-15, Section 4.2.3:
   Section 4.2.3, Groundwater Investigation, should acknowledge that there are no monitor wells located downgradient from the primary source areas identified in the RI. Assuming that groundwater flow is generally east, as asserted in the text, monitor wells should be installed east of the mixing pad area in order to assess the nature and extent of groundwater contamination at Site 2. See General Comment No. 2.

6. Page 4-30, Paragraph 1:
   The text states that volatile organic compounds (VOCs) were detected in only 1 out of 15 sampling stations located within the drainage ditch. This understates the frequency of VOC detections; VOCs were actually analyzed in samples at 10 of the 15 sample locations. The text should be modified

in this paragraph and throughout Section 4.0 to more accurately characterize detection frequency.

7. Page 4-34, Paragraph 5:
It should be determined if there is carbon disulfide contamination in Overs Creek. The explanation that it is not a site related contaminant is irrelevant. If it is in Overs Creek it should be remediated. The surface water should be re-sampled to verify the presence or absence of the contaminant.

8. Page 5-9, Last Paragraph:
The text presents seepage velocities calculated for three cases corresponding to assumed hydraulic conductivity (K) values of 1 X 10^{-5} centimeters per second (cm/sec), 8 X 10^{-4} cm/sec and 2.1 X 10^{-3} cm/sec. The seepage velocities presented in the text for the 8 X 10^{-4} cm/sec and 2.1 X 10^{-3} cm/sec cases are reversed and should be corrected.

9. Page 6-4, Paragraph 2:
The EPA-specified range for the excess upper-bound lifetime cancer risk to an individual is 10^{-6} to 10^{-4}, not 10^{-7} to 10^{-5}.

10. Page 6-4, Paragraph 5:
Because the default values used in deriving the risk-based concentrations (RBCs) may differ from the site-specific values, the RBCs should be applied with caution in selecting COPCs. The exposure scenario(s) under which these RBCs were developed should be described.

11. Page 6-5, Paragraph 2:
The text states that "because the number of site-specific background samples for soil and sediment for the Camp Lejeune area are not statistically significant, twice the maximum concentration of the background sample was used for comparison to the maximum concentration of the chemical detected onsite." This approach is consistent with neither EPA's RME approach nor with current EPA Region IV guidance which directs the use of two times the average background concentration. Therefore, the approach used in the Draft RI Report is unjustified.

12. Page 6-9, Paragraph 4:
Describe the rationale for including subsurface soil data in the BRA; the exposure pathways evaluated in the BRA consider only surface soil exposure.

13. Page 6-18, Paragraph 2:
The last sentence in this paragraph makes no sense and must be revised to clarify its meaning. Rationale should be stated for the elimination of bromomethane as a COPC.

14. Page 6-21, Paragraph 1:
Delete the sentence, "Lead was not detected in the background well," as it contradicts the earlier sentence which states that lead was detected in background well 2-GW09-01 for Site 2.

15. Page 6-34, Paragraph 4:
The dermal absorption factor of 1.0 for organic constituents is incorrect. The correct absorption factors should be 1.0 percent (0.01) for organic constituents and 0.1 percent (0.001) for inorganic constituents, as described in the New Interim Region IV Guidance.

16. Page 6-35, Paragraph 4:
See Specific Comment No. 13.

17. Page 6-35, Section 6.3.4.3, Equation:
The symbol "PEF" in the numerator of the intake equation should be replaced by "1/PEF."

18. Page 6-41, Paragraph 1:
The wording, "An exposure time of 0.25 minutes per day . . ." should be revised to read, "An exposure time of 0.25 hours per day . . .".

19. Page 6-93, Table 6-25:
See Specific Comment No. 13.