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September 18, 2002

Mr. Kirk Stevens
Department of the Navy - Atlantic Division
Naval Facilities Engineering Command
Code 1823
Norfolk, Virginia 23511-6287

SUBJ: MCB Camp Lejeune
Draft Amended Remedial Investigation
Operable Unit No. 20, Site 86

Dear Mr. Stevens:

The Environmental Protection Agency (EPA) has completed its review of the above subject document. Comments are enclosed.

If there are any questions, I can be reached at (404) 562-8538.

Sincerely,

Gena D. Townsend
Senior Project Manager

Enclosure

cc: Dave Lown, NCDEHNR
Rick Raines, MCB Camp Lejeune

**US Environmental Protection Agency Comments on the
Draft Amended Remedial Investigation Report for
Operable Unit No. 20, Site 86, Tank Area AS419 - AS421
Marine Corps Base Camp Lejeune, North Carolina**

GENERAL COMMENTS

1. The Summary of the LTM Analytical Results has identified Freon –113 as a contaminant in wells GW10IW and GW25IW at detectable concentrations. Although the levels appear to be below health-based numbers, the compound should be documented and discussed within the body of the text. The two wells identified also contain chlorinated solvents and any remedial approach would include this area. The technology evaluations should include Freon 113 and address any impacts that may occur.
2. Surface water and sediment samples should be collected from the retention pond. The text should also include a more detail discussion of this area. (see additional comments below)

SPECIFIC COMMENTS

1. **Page 1-14, Section 1.5.5.** The statement at the bottom of the page suggests that the contamination in Well 86-GW32IW is due to vertical migration. As the hydraulic gradients are upward in this area, it is difficult to see how this contamination from below is possible. Please provide an explanation and revise the text as appropriate.
2. **Figure 1-1.** The legend key does not make sense. Marker and labels do not match. It is a cause of confusion and should be reconciled.
3. **Page 2-7 Section 2.1.5, Paragraph 3.** Text states that the aquifer dips to the southeast, yet the contamination is shown in later figures to migrate to the east-northeast. Please clarify that the reference to the southeastern dip of the aquifer is a regional reference and revise the text as appropriate.
4. **Figure 2-2.** This figure shows the soil types over a larger area. However, Site 86 is so small on this map, it would be helpful to show a blown-up section for Site 86. This would allow for small sections of soil change to be more noticeable and possibly reveal trends pertinent to the study.
5. **Page 4-2, Section 4.1, Paragraph 4.** The paragraph states that the split data generally correlates well(e.g. exhibits a high degree of correlation) when comparing the mobile lab data with the fixed based laboratory . Table 4.1 is the split data comparison. Four of the nine samples detected TCE, one of which compares poorly with an order of magnitude difference, one where the fixed lab measured a diluted sample three times higher than the

original sample at the mobile lab, one where the fixed based lab result was twice the mobile lab result and one where the mobile lab measured 5 times the value of the fixed-based lab. It cannot be agreed that the split data generally correlates well but there is agreement with the reference at the end of this section which characterizes the mobile lab data as adequate. Please revise the earlier reference for the correlations to >adequate=.

6. **Page 4-8, Section 4.5.2.1, Paragraph 1.** 1,1-DCE was found in one well (86-GW25IW), suggesting an upgradient source. In reviewing the potentiometric surface maps in Appendix C, it is unclear what is the predominant flow direction for the groundwater around this well. In some maps, the groundwater flows towards the site and in other maps, the groundwater flows away from the site. With such uncertainty, the contamination in this well cannot be dismissed as being from an upgradient source. In fact, this occurrence of 1,1-DCE is not mentioned later in the report. It should be a topic for further delineation.
7. **Figure 5-1.** These lines do not represent real data. No data markers are present here, and as only two points are needed to make a line, the plot is not believable. There should be individual plots for each well, if this is the intent, or possibly a contour plot for the area showing CVOCs contamination levels at each time of year (Dec-Feb, Mar-June, etc).
8. **Page, 6-4. Section 6.2.2, Para 2.** The text states that it was determined that there was no significant differences between the 1995 analytical data and the data collected more recently as part of post-RI and LTM investigations. Based upon this conclusion, it was determined that the older data would not skew the more recent data in either directions, and the data sets were combined. The text does not indicate if a statistical analysis was performed or if some other method was used to evaluate if a significant difference in the data sets. The text should be expanded to provide information on the methods used to determine if there was a significant difference in data sets and to provide an operational definition of Asignificant.
9. **Page 7-7, Section 7.1.1.6, Para 4.** This paragraph states that no surface water or sediment data were available from the retention pond. The risk assessment did look at groundwater inputs into the retention pond. However, the failure to sample surface water or sediment presents a large amount of uncertainty into this SLERA.
10. **Page 7-11, Section 7.2, Para 2, Bullet 1.** The bullet lists sediment as a media that was used for COPC screening. Sediment should be removed from this list as it was not sampled. In addition, the sentence should be revised to state that surface water was not sampled but that surface water screening values were used to screen groundwater concentrations of chemicals.

11. **Page 7-14, Section 7.3.1, Para 2.** The text states that alternative screening values were introduced, when available, for chemicals that did not have screening values. Text needs to be added to discuss the decision process used to select alternative screening values.
12. **Page 7-17, Section 7.3.5, Para 2.** It is stated that aquatic receptors inhabit the retention pond. However, an evaluation of upper trophic level risks to receptors was not performed since no sediment or surface water was collected from the pond. Additionally, it is stated that calculation of risks to these receptors based upon groundwater data would contain too much uncertainty. There are two issues present with this rationale.

First, modeling should have been done with the groundwater data and then the uncertainty associated with any risks discussed in the uncertainty section. Second, the failure to collect sediment and surface water from the retention pond prevents the assessment of risk to upper trophic level receptors present at the pond. The conceptual site model shows a direct link between groundwater discharging to surface water and sediment at the pond. While the comparison to ecological screening values compared to groundwater concentrations of constituents was performed, this screening does not address concentrations of contaminants potentially present in surface water and/or sediment from historical groundwater discharges. The uncertainty associated with failure to collect surface water and sediments from the retention pond needs to be addressed.

13. **Page 7-18, Section 7.3.7.1, Para 5.** The text states that COPCs in surface soil consisted of PAHs, SVOCs, pesticides, and inorganics. For PAHs, a risk should be presented for total PAHs, not just for individual PAHs. Text should be added to this section discussing the risk from total PAHs.
14. **Page 7-19, Section 7.3.7.1, Para 0.** Risk from exposure to dieldrin was estimated to pose a moderate risk (refined HQ of 46.80). It is then stated that there was no indication that the presence of pesticides at this site is related to site activities. While dieldrin may not be site related, it is present at the site and therefore, some mechanism must be established to address the risk from this COPC.
15. **Page 7-21, Section 7.4, Para 3.** It is stated that the use of groundwater data provides a more conservative evaluation of risks to aquatic habitat. It is unclear how this fact can be true. First, no sediment or surface water samples were collected, providing a large degree of uncertainty. Second, while the screening of groundwater against surface water screening criteria provides a measure of conservatism, it does not necessarily provide a more conservative evaluation of risks to aquatic habitat, especially since modeling of risks from groundwater exposure to upper trophic level aquatic receptors was not performed. This paragraph should be re-written to address how groundwater was screened and the results from screening groundwater concentrations of COPCs for both the initial and refined screening steps. Additionally, the uncertainty of not collecting surface water and sediment samples needs to be addressed.

16. **Page 7-21, Section 7.5, Para 2.** It is stated that based on the results of the SLERA and refinement, no further ecological evaluation is recommended for Site 86. Based on the uncertainty of not sampling surface water and sediments from the retention pond and not evaluating risk to upper trophic level aquatic receptors, this statement can not be validated at this time.
17. **Page 8-1, Section 8.1.** For the third bullet, please include the units for the distance cited.