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UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5001

IN REPLY REFER TO
6287/5
BEMD

From: Commanding General, Marine Corps Base, Camp Lejeune, North Carolina 28542-5001
To: Commander (Code 1822), Atlantic Division, Naval Facilities Engineering Command, Norfolk, Virginia 23511

Subj: REVIEW OF SITE ASSESSMENT REPORT FOR SITES 6, 48 AND 69

Ref: (a) ESE Draft Site Assessment Report for Sites 6, 48 and 69

1. Marine Corps Base, Camp Lejeune has reviewed the reference. In addition to our comments below, we were not pleased with the sampling effort at Site 48. During the sediment sample collection at Site 48, the sediment was greatly disturbed. Hence, the absence of mercury in the sediment samples is not conclusive (see page 5 - 15). The following comments are provided for your review:

- The report is very repetitive of background information. Combining sections into one would make the report much more readable.

- Section 3.1, page 3-1. The sentence pertaining to sample depth is inconsistent with page 2-2, Section 2.1 Verification for Site 6 says soil samples were composited from 1 - 3 feet (page 2-2); however, page 3-1 says soils for Site 6 were composited from the surface to 1 foot. Please clarify.

- Item 4 on page 3-5 states deep wells were grouted in two stages. The previous section states all wells installed during this investigation were installed to a depth of 25 feet. This needs to be clarified.

- Section 3.3, page 3-15, states that there was laboratory decontamination of PVC bailers. Previous sections state each well contained a dedicated bailer. However, the report does not state if dedicated bailers were used for purging only and clean bailer used for sampling.

- Section 4.3.3, page 4-5 and Figure 4-9, discuss ground water contour mapping for Site 69. Text states groundwater northwest of 69GW1 and 69GW4 flows to the northwest and groundwater south of these wells flows southeast. The contour lines projected on Figure 4-9 do not support thi conclusion due to a lack of data points southeast of these well conclusion maybe based on surface drainage flow area. This should be stated in the report.

Encl. (5)

- Section 6.2.1.1, page 6-13. Define the 6 matrices. Only surface water, shallow groundwater, sediment, and water supply wells, are presented in the analytical results.

- Section 6.2.1.2, page 6-16. The last paragraph mentions bioaccumulation of heavy metals and chlorinated pesticides; however, chlorinated pesticides were not detected in the media sampled.

- Section 6.2.1.2, page 6-17. In the discussion of potential exposure pathways, there is no mention of DDD, DDE or DDT contaminated soil.

- In the section data (Table 6-8, page 3 of 4), antimony is detected 4/5 times, not 5/5 times. Vanadium is spelled incorrectly. The qualifier for methylene chloride is incorrect.

- Section 6.2.2.1, page 6-28. Sediment data should not be compared directly to federal water quality criteria. Also, fish tissue concentrations should not be compared to water quality standards.

- Section 6.2.1.1, page 6-7, discusses data evaluation for Site 6. Report states likelihood of contaminants entering shallow groundwater is low without explanation. Groundwater is very shallow at site (2 feet) and contaminants (DDT) were observed to be on the ground surface. Soils underlying the site are silty sands to coarse sands. This information would indicate that the possibility of contaminants entering the groundwater may be greater than expressed.

- Section 6.2.1.1, page 6-13, states metals at Site 6 in sediments were above national average levels, however, due to area of sample collection and dredging techniques authors determined that levels represent background for area. Dredging techniques should be discussed. Report also states shallow wells and water supply for inorganic parameters did not exceed MCLs. Table 6-3 indicated shallow wells exceeded MCLs for chromium, cadmium and lead.

- Section 6.2.1.3, page 6-18, are the conclusion for Site 6. Report does not attempt to provide any explanation for detecting pesticides in the 1984 and 1986 sampling events but not in the 1991 sampling event. Agree with report that additional soil sampling is necessary to delineate areal extent of contamination. However, with the amount of data generated for this site, some discussion regarding the extent of contamination should be given.

- Section 5.2.1, page 5-5, discusses groundwater sampling as Site 6. Report should provide the locations and total depths for the two water supply wells, WS651 and WS653.

- Section 5.3.1, page 5-13, discusses Supplemental Characterization sampling of Site 6. Text lists Aroclor-1260 as a pesticide and not a PCB compound.

- Section 5.4.3, Site 69, states acetone concentrations in tissue samples at 28,000 ug/l and discarded as a laboratory contaminant. Report does not state that the laboratory confirmed this conclusion. The appearance of acetone and methylene chloride throughout the report is generally accepted, by the authors, as a laboratory contaminant without verification. Please support these statements with laboratory documentation of a validation report.

- Table 5-3, page 5-7. Data for wells 69GW5 through 69GW8 are missing.

- Section 5.2.3, page 5-9. In reference to the following statement on standards, "Lead exceeded the new standard (15 ug/l) in the samples collected...," it is not surprising that the "standard" was exceeded in specific wells. The concept of the new rule on lead and copper (Federal Register, June 7, 1991, Volume 56, Number 110) is to prevent corrosion from piping systems and therefore is more stringent and involves a series of tap sampling. Thus, the new rule recommending an action level of 15 ug/l in not relevant to samples collected from groundwater. Since no other standards exist for goundwater, the old MCL of 50 mg/l should be used for comparison purposes with the caveat that no groundwater standards currently exist.

- Table 6-3, pages 6-9 to 6-12 (page numbers are missing). Duplicate QA/AC samples should not be used in the statistical calculations performed on environmental samples. All of the PAHs presented for the sediment data were detected in the duplicate sample. This needs to be explained and resampling may need to be performed. These data should not be included as the environmental sample data.

- Table 6-3. Please clarify why surface water standards for the ingestion of fish and water are compared to data collected from the water supply wells.

- Section 6.2.1.1, pate 6-13, first paragraph. Soil background levels are considered to be the same as sediment background levels. These media may not be correlated and, therefore, this statement may not be valid.

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2. If there are any questions please contact Stephany Del Re'-Johnson at (919) 451-5093.

Danny D. Sharpe

DANNY D. SHARPE
Director, Hazardous Waste &
Pollution Control Division
Environmental Management
By direction of
the Commanding General