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State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management



James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

November 23, 1994

Commander, Atlantic Division
Naval Facilities Engineering Command
Code 1823-1

Attention: MCB Camp Lejeune, RPM
Ms. Linda Saksvig P. E.
Norfolk, Virginia 23511-6287

Commanding General

Attention: AC/S, EMD/IRD
Marine Corps Base
PSC Box 20004
Camp Lejeune, NC 28542-0004

RE: Draft Remedial Investigation Report for Operable
Unit No. 4 (Sites 41, 69, and 74), MCB Camp
Lejeune.

Dear Ms. Saksvig:

The referenced document has been received and reviewed by the North Carolina Superfund Section. Our comments are attached. Comments on the Risk Assessment portion of this report are attached as a memo from David Lilley, our Industrial Hygienist to myself. Please call me at (919) 733-2801 if you have any questions about this.

Sincerely,

Patrick Watters

Patrick Watters
Environmental Engineer
Superfund Section

Attachment

cc: Gena Townsend, US EPA Region IV
Neal Paul, MCB Camp Lejeune
Bruce Reed, DEHNR - Wilmington Regional Office

North Carolina Superfund Comments
Draft Remedial Investigation Report
Camp Lejeune Operable Unit 4 (Sites 41, 69, and 74)

General

1. Chemical Warfare Material

The RI report references different classifications used by the US Army for sites suspected of having Chemical Warfare Material (CWM). Please include a specific US Army guidance document reference to indicate where these CWM classifications were obtained. It would be helpful in our review to include at least part of this information as an Appendix to the RI Report to help the reviewers better understand CWM.

2. Acetone Contamination

Soil samples for all three sites indicated elevated levels of acetone (as high as 45000 ug/Kg). The RI Report speculates that this may be the result of an inadequate decontamination procedure combined with the claim that pesticide grade isopropanol can contain up to 1.3% acetone. There is not enough data presented in the RI Report to allow the State to concur with this finding. Specific concerns are as follows.

The identical rationale was stated in the Final RI Report (page 4-1) dated June 1993 for Site 48 (OU 3) to explain the acetone levels seen in the soils at Site 48. The State is concerned that an apparent inadequate decontamination procedure identified over a year ago is still being used.

The analytical results stated in Section 6 and Appendix M for the QA/QC blanks do not provide adequate evidence to substantiate this claim. The highest acetone concentration seen in any of the blanks was 190 ug/L.

Data was not provided to substantiate the claim that the pesticide grade isopropanol used on these sites contained a substantial percentage of acetone.

In conclusion, because this is believed to be a procedural and material inadequacy, the State feels that those sample locations yielding suspect acetone values need to be resampled before characterization work on these sites is considered complete.

3. Metals Contamination in the OU 4 Groundwater

Regarding the inorganics values noted for each site, it is our understanding that these wells will be (or already have been) resampled using a very low flow technique. It is expected that this technique will resolve concerns about dissolved metals contamination in the groundwater for OU 4.

4. Former Pest Control Area at Site 74
It is not clear from the RI Report if there is enough evidence to link the former pest control area with the Mess Hall Grease Pit Disposal Area as being a Class 4 CWM site.
5. Glass Vials on Site 69
Page 2-20 of the OU 4 RI/FS Work Plan indicated that there were glass vials containing a white powder material scattered along the ground at Site 69. The contents or disposition of these vials was not discussed in the RI Report.

Specific Comments

6. Page 1-4, Section 1.2.6
The term "motor shells" should be "mortar shells".
7. Page 2-3, Section 2.2.3.1
The year indicated in the first paragraph should be 1993.
8. Page 4-4, Section 4.1.1.2.
This section does not include trichloroethene (TCE) and tetrachloroethene (PCE) as being above the NC groundwater standards. As a result, these contaminants were not discussed in the section on Extent of Contamination (4.1.2).

Also, the levels for benzene at 69GW03 and 69GW13 were determined to be 1.00J ug/L which is the NC groundwater standard for benzene. These samples were analyzed using a technique with quantitation limits above the NC groundwater standard for benzene. Because of the apparent uncertainty of these estimated values, these wells need to be resampled and reanalyzed at a lower quantitation limit to conclusively establish the levels of benzene contamination.
9. Page 4-7, Section 4.1.1.2
The text does not indicate that the hydropunch results for the Northeast and Southeast Drainage Areas exceed the NC groundwater standard for PCE (0.7 ug/L).
10. Page 4-9, Section 4.1.1.3
The text does not indicate that the NC surface water standard for TCE (3.08 ug/L) was exceeded at sample location 69-OS-SW01.
11. Pages 4-21 and 4-22, Section 4.2.1.1
The pesticides listed on these pages do not match those on Figure 4-20.
12. Page 4-23, Section 4.2.1.1
This section indicates that a tear gas degradation compound hydroxyacetophenone was detected in one surface soil sample on Site 74. This was not noted in the executive summary.

13. Page 4-35, Section 4.3.1.1
This section indicates that a chemical surety degradation compound acetophenone was detected in a subsurface soil sample on Site 41. This was not noted in the executive summary.
14. Page 4-46, Section 4.3.1.3
The "TC", "UN", and "NE" sample designations are not used on the surface water figures 4-46 through 4-52.
15. Page 4-51, Section 4.3.2.1
The last paragraph indicates that the US Army Technical Escort Unit indicated that Site 41 may have been used to destroy ordnance based on field observations. Please elaborate on what these field observations were.
16. Page 4-52, Section 4.3.2.2
Some of the highest levels of metals contamination seen at Site 41 were in the upgradient well 41GW05. Because this is an upgradient location, it is significant enough to warrant some discussion in Section 4 and probably some further field investigation.

November 17, 1994

TO: Patrick Watters

FROM: David Lilley

DBL

RE: Comments prepared on the Draft Remedial
Investigation Report, Operable Unit 4
(Sites 69, 74, and 41), MCB Camp Lejeune, NC

After reviewing the above mentioned document, I offer the following comments:

1. Page 6-7, Section 6.2.2.1: It is claimed that after eliminating concentrations of methylene chloride that are below 10 times the blank concentration (10 times the blank concentration is equal to 80 ug/l) the chemical was found in less than 5% of the samples. According to Appendix Q.1, page 18 of 30, methylene chloride concentration in sample 9401036-03A is 97 ug/kg, and 9401036-04A is 105 ug/kg, both of which are above 10 times the blank concentration. This would mean methylene chloride was detected more than 5% of the samples. Please explain.
2. Page 6-7, Section 6.2.2.1, second paragraph: It is claimed that bis (2-ethylhexyl)phthalate and di-n-butylphthalate were eliminated from the list of COPC because the prevalence of the concentrations that exceeded 10 times the blank concentration was less than 5%. According to Table 6-1, the lowest concentrations were 43 ug/kg and 36 ug/kg for bis (2-ethylhexyl)phthalate and di-n-butylphthalate, respectively. The numbers corresponding to 10 times the blank concentrations (according to page 6-6) are 40 ug/l and 20 ug/l for bis (2-ethylhexyl)phthalate and di-n-butylphthalate, respectively. Since 10 times the blank concentration did not exceed even the lowest concentrations for these chemicals, it is not possible to eliminate the chemicals on this basis.
3. Page 6-7, subsurface soil, first paragraph: It is unclear to the reader how the sample result for acetone of 45,000 ug/kg is considered to be attributable to concentrations detected in the investigation associated blanks. The blank concentration was 190 ug/l, or 1/237 that of the sample. Please explain.
4. Page 6-7, subsurface soil, second paragraph: The logic used to eliminate the phthalate esters from the list of COPCs is unclear. The sample concentrations of both di-n-butylphthalate and bis(2-ethylhexyl)phthalate exceed 10 times the blank concentrations.
5. Page 6-8, second paragraph: The selection criteria seems to have been applied inconsistently. According to Table 6-4,

chromium and manganese were not the only inorganic constituents which were frequently detected at concentrations which were greater than two-times the average base-specific concentrations. Why was chromium, which exceeded twice the average background once, retained as a COPC, when aluminum, barium, beryllium, copper, magnesium, potassium, sodium, and zinc all exceeded twice the average background just as often but were not retained. In fact, arsenic, exceed twice, and iron and vanadium exceeded three times and were not retained. Please explain.

6. Page 6-8, groundwater, first paragraph: The selection criteria seems to have been applied inconsistently. Vinyl chloride is listed on Table 6-5 as having exceeded the NCWQS and the MCL 2 times. 1,2 dichloroethene exceeded the NCWQS and MCL once. Please explain why 1,2 dichloroethene was retained as a COPC and vinyl chloride was not.
7. Page 6-9, biota: Please include a table that lists the COPCs for biota.
8. Page 6-9, biota: It is claimed no semivolitiles were found in the biota. According to Appendix Q.30, pages 14 and 15, 2-methylphenol and di-n-octylphthalate were detected.
9. Appendix Q.32: Pages 42 through 52 are missing.
10. Page 6-9, Surface Soil, second paragraph: It is claimed that bis(2-chloroethyl)ether and di-n-butylphthalate detection frequencies are less than 5%. The information given on Table 6-14 does not support this claim. Please explain.
11. Page 6-9, Surface Soil, second paragraph: Endrin and endosulfan II are eliminated from the list of COPCs because the frequency of detection is less than 5%. Table 6-14 lists the frequency of detection of endrin and endosulfan II as 3/60 each. Appendix Q.32, page 54 of 55 lists the frequency of detection as 4/60 each, which is above the 5% cutoff. Please explain.
12. Page 6-9, Surface Soil, third paragraph: It is claimed the remainder of inorganics listed on Table 6-15 were eliminated from the list of COPCs because they were detected with a frequency of less than 5% or they were not detected in concentrations above two times the background concentration. Of the inorganics eliminated on Table 6-15, only three (beryllium, colbalt, and lead) meet this criteria. Why were the other inorganics eliminated?
13. Page 6-10, first paragraph: The first sentence should read: "The VOCs, methylene chloride and acetone, were detected in 1 of 47 and 32 of 47 subsurface soil samples, respectively".

14. Page 6-10, second paragraph: According to the information in Appendix Q.34, bis(2-ethylhexyl)phthalate was present in six samples in concentrations greater than 10 times the lab blank, and di-n-butylphthalate was present in seven samples in concentrations greater than 10 times the lab blank. Therefore, the first sentence of the second paragraph is not valid. Please explain.
15. Page 6-10, second paragraph: No mention of whether heptachlor was to be kept or eliminated as a COPC is included on page 6-10.
16. Page 6-10, fourth paragraph: It is not understood by the reader why lead was retained as a COPC in the subsurface soil when it was found in the surface soil with an equal prevalence at twice the concentration, but not kept as a COPC. Please explain.
17. Page 6-11, Surface Soil, first paragraph: It is claimed that acetone is associated with QA/QC blanks. According to page 6-6, acetone was found in lab blanks at a concentration of 190 ug/l. The high concentration found in the surface soil on site 41 is 2,800 ug/kg, which is more than ten times the blank concentration, therefore acetone cannot be eliminated from the list of COPCs for this reason.
18. Table 6-21: The following chemical frequency rates on this table do not match the frequency rates given on page 44 in Appendix Q.43: beta-BHC, delta-BHC, lindane, methoxychlor, endrin ketone, aroclor 1242, aroclor 1260. Please explain.
19. Page 6-11, Surface Soil, fourth paragraph: Please explain why the rest of the inorganics on Table 6-22 were eliminated from the list of COPC.
20. Page 6-11, Subsurface Soil, first paragraph: It is claimed that acetone is associated with QA/QC blanks. According to page 6-6, acetone was found in lab blanks at a concentration of 190 ug/l. The high concentration found in the subsurface soil on site 41 is 6,000 ug/kg, which is more than ten times the blank concentration. Please explain.
21. Page 6-12, first paragraph: It is claimed that the phthalate esters are associated with QA/QC blanks. According to page 6-6, bis(2-ethylhexyl)phthalate was detected at 4.0 ug/l, and di-n-butylphthalate at 2.0 ug/l. According to Table 6-23, bis(2-ethylhexyl)phthalate was found in 33/66 samples in concentrations ranging from 39 ug/kg to 7,00 ug/kg, and di-n-butylphthalate was found in 26/66 samples in concentrations ranging from 40 ug/kg to 230 ug/kg. The information provided in Table 6-23 does not support the claim that the phthalate esters are associated with QA/QC blanks, therefore, the phthalate esters should be retained as COPCs.

22. Page 6-12 third paragraph: Please explain why the rest of the inorganics on Table 6-24 were eliminated from the list of COPCs.
23. Page 6-12. Groundwater, first paragraph: Benzene and bromoform were detected in concentrations above the North Carolina Water Quality Standards for Groundwater and should be retained as COPC.
24. The following chemicals have been omitted from the following tables:

TABLE

CHEMICALS

6-28	bis(2-ethylhexyl)phthalate di-n-butylphthalate 4-methyl-2-pentanone hydroxyacetophenone
6-8	acetone copper
6-14	bis(2-ethylhexyl)phthalate
6-15	cyanide
6-12	cyanide
6-22	cyanide
6-23	methylene chloride
6-25	colbalt vanadium

25. The risk assessment portion of this document has only been reviewed up to section 6.3. All of the above comments are on the selection of chemicals of potential concern (COPC) process. Since the entire risk assessment is effected by the selection COPCs, an effective review of the remainder of this risk assessment is not possible until the above concerns are addressed.