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CTO-369/ARF

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

December 14, 1998

Commander, Atlantic Division
Naval Facilities Engineering Command
Code 1823
Attention: MCB Camp Lejeune, RPM
Ms. Maritza L. Montegross
Norfolk, Virginia 23511-6287

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

RE: NC Superfund Section Comments
Draft Site Investigation Report
Site 10 - Original Base Landfill
MCB Camp Lejeune, North Carolina

Dear Ms. Montegross:

The referenced document has been received and reviewed by the North Carolina Superfund Section and our comments are attached. Please call me at (919) 733-2801, extension 278 if you have any questions.

Sincerely,

David J. Lown, LG, PE
Geological Engineer
Superfund Section

ATTACHMENTS

cc: Gena Townsend, US EPA Region IV
Neal Paul, MCB Camp Lejeune
Diane Rossi, DENR - Wilmington Regional Office

401 OBERLIN ROAD, SUITE 150, RALEIGH, NC 27605
PHONE 919-733-4996 FAX 919-715-3605

ATTACHMENT 1

NC Superfund Section Comments
Draft Site Investigation Report
Site 10 - Original Base Landfill
Marine Corps Base, Camp Lejeune

1. Table 1-1. For the soil-to-groundwater pathway (S3:G1), screening levels should be calculated using the equation in the EPA Soil Screening Guidance and data appropriate for North Carolina. There should be very few compounds labeled "NE" for this exposure pathway. The NC Draft Risk Analysis Framework document should be used with caution. Data contained in the document has not been reviewed or updated since November 1996. We can provide additional information if needed.

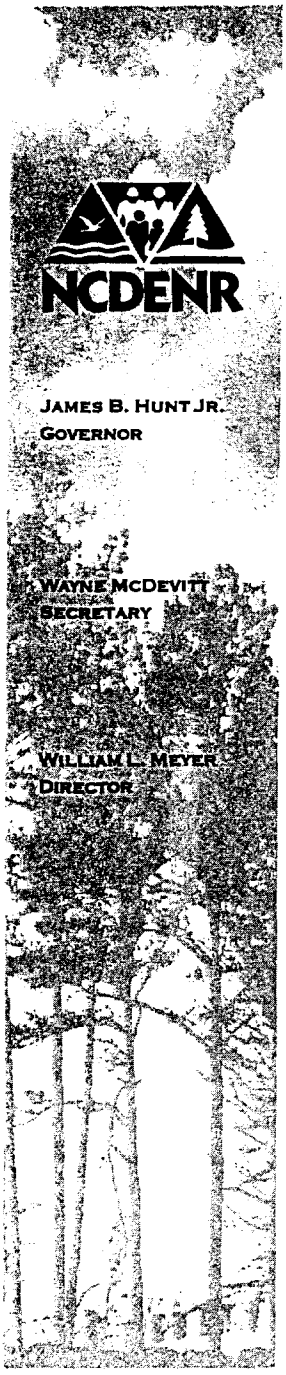
2. Tables 4-4 through 4-12. In addition to the standards shown here, soil data should be compared to residential exposure levels. For data not contained in the NC Draft Risk Analysis Framework, see comment 1.

3. Section 4.4.3 Surface Water/Sediment Investigation. Surface water levels should be compared to NC Surface Water standards. See comment 18 in memo from Dave Lilley.

4. Section 8.0 Conclusions and Recommendations. Addition work is needed for this site. Soil contamination is above the Region III RBC residential levels and above soil-to-groundwater screening levels. Marines may have been exposed to unknown contaminants by digging in the landfill. Inorganics, above levels allowed by standards are in the groundwater. The inorganics may be due to turbid groundwater sampling.

   Land use controls are necessary to ensure that troops do not dig in the soil and that future use of the site does not include residential uses without additional cleanup.

   Institutional controls and a cap on the landfill may be necessary to protect the groundwater. Additional sampling of the aquifer should be performed to characterize the inorganics. Non-turbid samples must be collected. If non-turbid groundwater does not show exceedances of the groundwater standards or it can be demonstrated that the inorganics are of natural origin, then aquifer controls and a cap of the source may not be necessary.



NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

November 25, 1998

TO: David Lown

FROM: David Lilley DBL

RE: Comments prepared on the Draft Baseline Risk Assessment contained within the Site Investigation Report for Site 10-Original Base Landfill, MCB, Camp Lejeune, NC
August, 1998

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

1. Page 6-8: The Method I, Categories S-1 and G-1 contained within the NC Risk Analysis Framework (RAF) document are **DRAFT** numbers and **NOT** to be used or cited in Baseline Risk Assessments. The use of the **METHODOLOGIES** contained within the RAF is acceptable.

2. Table 6-2: According to page 6-5, the latest update of the Region III RBCs is April, 1998. The screening values in Table 6-2 is dated October, 1997. Please use the latest version of the Region III RBC tables for Table 6-2.

3. Page 6-8 and Table 6-3: The North Carolina Groundwater Standards (15A NCAC 2L.0202) **must** be used as a screening tool and cleanup levels in the state of North Carolina.

4. Table 6-8: Footnote 2 (Medium EPC Rationale) is undefined.

5. Table 6-11: Zinc was chosen as a COPC, but left off this table. Please correct.

6. Table 6-16: The inhalation rate for a child is not contained within the cited document (USEPA, 1991). Please correct.

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7. Table 6-17: For the construction Worker Scenario, a soil ingestion rate of 480 mg/day , exposure frequency of 250 days per year, and an exposure duration of 1 year should be used . Also, since a construction worker is an adult, a body weight of 70 kg should be used (as described on page 6-23 of this document).

8. Table 6-25 through 6-27: For chemicals where an RfD is given, please explain how the "source of the RfD: Target Organ" can be listed as N/A.

9. Table 6-26: According to an IRIS search conducted on 11-20-98, IRIS does not recommend an inhalation RfC for barium at this time.

10. Table 6-28: According to an IRIS search conducted on 11-20-98, IRIS does not offer a quantitative estimate of carcinogenic risk from inhalation exposure to benzo(a)pyrene at this time.

11. Appendix J.1: Why was carbazole included in the subsurface soil ingestion exposure assessment for future construction workers but not included in Table 6-9? Please explain.

12. Appendix J.2, dermal contact with groundwater: According to page 3-4 of the Supplemental Guidance to RAGS: Region 4 Bulletins, Bulletin No. 3, 1995, "It should be assumed that showering exposure is equivalent to exposure from ingestion of two liters of contaminated water per day...". "This method includes exposures via inhalation and dermal routes and is applied to adolescents and adults". Please revise this appendix accordingly.

13. Table 6-32: The ICR of 1.8E-08 for the dermal risk for exposure to arsenic from dermal exposure to surface soil does not match the ICR of 4.3E-07 given in Appendix J. Please explain.

14. Table 6-34: The ICRs for the cPAHs do not match the values given in Appendix J for Subsurface soil, dermal exposure. Please explain.

15. Table 6-29: The HQ of 6.7E-04 for inhalation of surface soil does not match the HQ of 1.7E-04 for this scenario given in Appendix J. Please explain.

16. Table 6-32, surface water, carcinogenic risk: The total should be 6.2E-07, not 2.2E-07. Please correct.

17. It is recommended that the construction worker scenario include exposure to surface soil.

18. Table 6-4: The surface water on this site needs to be compared to the NC Water Quality Standards for Surface Water obtained by calling Dianne Reid at (919) 733-5083, ext. 568. I did this on 11-23-98 and Ms. Reid sent me the following standards (all in ug/l):

Toluene:	11
Aluminum	87
Arsenic	50
Barium	1,400
Calcium	no standard
Copper	7
Iron	1,000
Lead	25
Magnesium	no standard
Manganese	no standard
Mercury	0.012
Potassium	no standard
Sodium	no standard
Vanadium	47
Zinc	50

Please incorporate these numbers into Table 6-4 and adjust the report accordingly.