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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

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

May 22, 1995

4WD-FFB

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

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

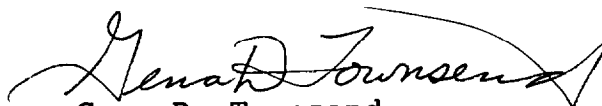
SUBJ: MCB Camp Lejeune  
Draft Remedial Investigation  
Draft Feasibility Study  
Operable Unit No. 7 - Sites 1, 28, 30

Dear Ms. Landman:

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

If you have any questions or comments, please call me at (404) 347-3016 or voice mail, (404) 347-3555, x-6459.

Sincerely,



Gena D. Townsend  
Senior Project Manager

Enclosure

cc: Patrick Waters, NCDEHNR  
Neal Paul, MCB Camp Lejeune

## Remedial Investigation

### General Comments

Overall, the potential health risks for OU No. 7 appear to have been conservatively (health protective) estimated, based on the assumed exposure parameters. Actually the risk (noncarcinogenic) from manganese in soil was overly conservative in using the reference dose recommended by the Agency for manganese in water. EPA currently allows a higher environmental exposure for manganese in food (compared to water), and generally uses the higher value for soil manganese also.

### Specific Comments

- ° Section 14.2.2.2, pg 14-3. The Risk-based Concentrations (USEPA Region III) should be used in addition to applicable state and federal regulations, in determining chemicals that need to be addressed in the baseline risk assessment.
- ° Section 16.5.1.2, & wherever else applicable in all volumes of this report. The statement is made that "There were no potential noncarcinogenic and carcinogenic risks from exposure to...". This should be reworded to read: "Estimated carcinogenic and noncarcinogenic risks from potential exposure to....fell within the range considered by EPA to be acceptable."
- ° Section 16.3.4.3, Table 16-7. Adequate justification (i.e., number hours spent at what level(s) of activity) is needed for the inhalation rate assumed for the child.
- ° Section 16.3.4.5 (Vol. II); & wherever applicable in Vols. I, III of RI. The aqueous dermal permeability constants (PCs) for organic constituents should be calculated rather than using a default value, if the particular chemical is not listed in Table 5-7 (predicted PC values) of *Dermal Exposure Assessment: Principles and Applications* (EPA, 1/92). The equation used to calculate a predicted PC for organics (using chemical-specific  $K_{ow}$ , mol. wt.) is found on pg 5-38 of the dermal guidance. This equation accounts for nonsteady-state conditions, which is thought to better reflect the short contact times of swimming and bathing. The default value (measured value for water) of  $1E-3$  cm/hr should be used for inorganics which are not listed in Table 5-3 of the dermal guidance.
- ° Section 16.4.4, pg 16-31, Table 16-9 (Vol. II), & wherever applicable in Vols. I, III of RI. EPA has oral reference doses (RfDs) verified for several forms of thallium (IRIS, 1995). If the form of thallium present at the site is not known,  $8E-5$  mg/kg-d (RfD for thallium carbonate, thallium chloride, and thallium sulfate) should be used.

° Tables 7-8, 16-9, 25-9, toxicity values.

The RfD of  $5E-3$  mg/kg-d is appropriate to use for manganese in water; for manganese in soil, the food RfD ( $1.4E-1$  mg/kg-d) should be used.

For chromium, the RfD for the hexavalent (more toxic) form should be used unless adequate justification is added.

The RfD of  $5E-4$  mg/kg-d is appropriate to use for cadmium in water; for cadmium in soil, the food RfD ( $1E-3$  mg/kg-d) should be used.

For naphthalene, EPA has a provisional RfD of  $4E-2$  mg/kg-d (ECAO, 1993).

For trichloroethylene (TCE), EPA has a provisional oral slope factor of  $1.1E-2$ /mg/kg-d (ECAO, 1992).

The carcinogenic Weight-of-Evidence for chlordane is B2.

"Region III RBC Table" should not be used as a reference for toxicity values; "EPA Environmental Criteria and Assessment Office (ECAO)" can be referenced where applicable. Make all appropriate changes to these toxicity values and resultant risks in Appendix R (risk spreadsheets) and in the text and other tables wherever applicable.

° Table 16-14. Lead in soil at a concentration of 169.7 mg/kg would not be a primary contributor to risks. Recheck this listing.

According to the risk spreadsheets, arsenic is a primary contributor to the risk from groundwater.

° Section 16.7, pg 16-36; Appendix P, Lead UBK Model. The arithmetic mean (not UCL or maximum) lead values for each exposure medium should be used in the UBK model.

## Feasibility Study

### General Comments

Since this Feasibility Study report (FS) was submitted prior to receipt of comments, some items commented on by OHA were carried through to the FS without being addressed. The item with the most impact was that of quantification of the risks of manganese in soil. The FS, as did the RI, uses the water RfD to assess the noncarcinogenic toxicity of manganese in soil. EPA recommends that the food RfD be used for manganese in soil. This would result in a remediation goal that is 28 times higher (less stringent) than shown in the draft FS. This issue is addressed in a specific comment below.

Regarding remedial/action levels, this FS has "selected" the target risk of  $1 \times 10^4$  for individual chemicals. This could result in a cumulative risk greater than  $1 \times 10^{-3}$  for some potential receptors (outside of EPA's risk range).

### Specific Comments

- All items commented on by EPA for the OU7 Remedial Investigation report (RI) should be addressed in the Feasibility Study report (FS) as appropriate.
- Section 3.3, pg 3-1; Table 8-19. The language "final set of preliminary remediation goals" is contradictory. Delete the word "preliminary". Table 8-19 is titled "Preliminary Remediation Goals", a term EPA generally uses at the onset of the RI/BRA. The values in this table would be more appropriately called "Remediation Levels" or "Remedial Goals".
- All tables in Section 3 & 8 with risk-based values. The assumed carcinogenic risk/hazard quotient (HQ) should be listed. EPA recommends that remedial goal option (RGO) values be listed that represent  $10^{-6}$ ,  $10^{-7}$ , and  $10^4$  carcinogenic risk and a HQ of 0.1, 1.0, 10.0 for each chemical of concern (see Region IV supplemental guidance on PRGS, RGOS, and RLS attached with comments on previous C. Lejeune operable unit RI/FS reports).
- Tables 3-6, 3-8. Carcinogenic risk-based action levels should be calculated for trichloroethylene in groundwater (using the EPA provisional slope factor, see comments on OU7 RI/13RA).
- Table 3-8. The Federal MCL is 100 ug/L for trans-1,2-dichloroethylene and 70 ug/L for cis-1,2-dichloroethylene.
- Table 8-2. EPA's action level for lead in groundwater is 15 ug/L.
- All Action Level Tables in Section 8. Action Levels should be calculated by combining all pathways to which each receptor is assumed to be exposed (Many of the inhalation-based numbers do not make sense, anyhow, as they greater than one billion parts per billion).

The soil action level values are unnecessarily awkward to read due their fixed numeric presentation (displaying up to ten zeros for some values) and units of ug/kg. The values would be easier to read if they were displayed in mg/kg units and in scientific notation ( $2.2 \times 10^5$  mg/kg, rather than 220,000,000 ug/kg).

- Table 8-6. An explanation should be provided as to why some action levels on this table are "Not Applicable".
- Tables 8-9, 8-16, 8-20. As commented on for the OU7 RI/BRA, EPA recommends that the manganese "food RfD" be used to evaluate manganese in soil.
- Tables 8-10, 8-11. For dermal exposure the toxicity values should be adjusted to an absorbed dose value, as was done in the RI/BRA.
- Table 8-14. Define "OLM".
- Tables 8-19, 8-8, 8-9. For many of the organic chemicals (pesticides) with carcinogenic risk-based values ( $1E-4$  risk), the noncarcinogenic toxicity-based value is lower, and therefore should be used as the remediation level.

## Ecological

### Site 1

The Quotient Index in the terrestrial model should include dermal contact with soils by the receptors at this site.

### Site 28

This document does not state the number of grabs taken at each of the water quality and sediment stations, however it does seem to imply that three grabs were taken. Due to normal randomness of organisms in sediments and the patchiness of populations it is unlikely that three grabs will provide accurate data for developing indices as presented in this document. Unless enough grabs have been taken to assure an accurate account of the number of species present at a station the analyses using the data is suspect. This section should be reworded.