UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
BOSTON, MASSACHUSETTS 02203-0001

July 25, 1997

Mr. Philip Otis
U.S. DoN, Northern Division - NAVFAC
10 Industrial Highway, Code 1811/PO - Mail Stop 82
Lester, PA 19113-2090

Re: Review of Draft Human Health Risk Assessment (HHRA): Sites 06, 08 and 11 Groundwater and Site 13 Soil and Groundwater, dated June 1997, at the former Naval Construction Battalion Center (NCBC) - Davisville, Rhode Island

Dear Mr. Otis:

Pursuant to § 7.6 of the NCBC Federal Facility Agreement (FFA), the Environmental Protection Agency's (EPA) has reviewed the above referenced document. Please find our comments enclosed.

Overall, the report is well prepared and thorough in its description of the methods and assumptions. However, a number of corrections are required that will impact all tables and therefore the overall results may change. EPA expects the Navy to respond to this letter with written responses and redlined change pages prior to issuing a final document.

If you have any other questions with regard to this letter, please contact me at (617) 573-5736.

Sincerely,

Christine A.P. Williams
Remedial Project Manager
Federal Facilities Superfund Section

Enclosure

cc: Richard Gottlieb, RIDEM
Jayne Michaud, EPA
Walter Davis, CSO
Bryan Wolfenden, RI RC&D Council Inc.
Howard Cohen, RIEDC
Susan Licardi, ToNK
George Horvat, Dynamac
Jim Shultz, EA

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EPA Review of the HHRA for Sites 6, 8, 11 & 13 (June 1997 version)

General Comments

Overall, the report is well prepared and thorough in its description of the methods and assumptions. However, a number of corrections are required that will impact all tables and therefore the overall results may change.

In the conclusions to this risk assessment, the Navy should provide a qualitative assessment and discussion of the nature and extent of contamination at Site 8, the range of detects and comparison to screening criteria. Although there were no COCs carried through the quantitative risk assessment, arsenic, beryllium and manganese concentrations exceeded the risk-based concentrations. Based on the comparison to the RBCs, qualitatively evaluate the potential for human health exposures and risks (e.g., would the hazard quotients add up to more than 1.0).

The groundwater ingestion pathway should be included in the commercial/industrial worker scenario to be consistent with the residential risk assessments. Risk managers need to understand all of the potential risks for the planned commercial/industrial workers at this site.

Specific Comments

1. **page 53**.First line. The Section number should read "**Section 1.5.2.6.2**".

2. **page 53**. First para. Correct both citations to read "**Jo et al.**"

3. **Section 1.5.2.6.1.** last para. RAGS (1989) is referenced as the basis for using the 95th UCL for construction worker exposure. It is not clear in RAGS that the 95th UCL average concentration is more appropriate for non-domestic sources. Regional guidance should be followed, which calls for the maximum concentration when calculating RME risks.

4. **Section 1.5.2.6.2.** Explain soil depth of 0-2 ft as it differs from Region 1 guidance for surface soil (0-1 ft). This does not require a correction if the data set does not result in diluted concentrations and risks. Please explain in the text and in a response to EPA.

5. **Section 1.6.2 Risk Characterization.** The general discussions on risks could be meaningful if the chemicals contributing to the risks are given. When reporting risk ranges, include the chemical associated with both ends of the range. State which chemical(s) contribute to any risk or hazard index presented.

6. **Section 1.8 Summary and Conclusions**. See General Comment.

7. **Table 1-4** The units are not shown (ug/l).

8. **Table 1-6** The detection limits for PCBs should be reported.

9. **Table 1-14** page 2. According to the numbers in this table, the maximum concentration for 2-methyl naphthalene is far below the risk based concentration; therefore, this chemical may be omitted from the risk assessment.

10. **Table 1-14** page 2. Aroclor 1260 must be included in the assessment in order to estimate the total PCB risk (as represented by the sum of the Aroclors).

11. **Table 1-15** Report the concentrations for pesticides and PCBs in this table. Zeros are incorrectly shown in the Max Detected Concentration column for these contaminants.

12. **Table 1-16** For future reference, EPA Region 1 (and most EPA Regions) do not consider the USGS data appropriate for background comparisons.

13. **Table 1-21** Specific comments below. As a general note, the footnotes in Table 1-21 are not in numerical order and should be corrected in the final report.

- Title. Replace "quantitative toxic potency concentrations" with "toxicity". Toxicity Value is the correct term for slope factors and reference doses.

- Values taken from IRIS or HEAST should be referenced accordingly; footnote 7 is incomplete without reference(s) or more supporting information.

- The subchronic reference dose (RfD) for arsenic is in HEAST and should be cited as such (i.e., as written, footnote 3 is not informative).

- The EPA Superfund Technical Support Center (STSC) has found insufficient data to develop a subchronic inhalation toxicity value for arsenic; therefore, the proposed value is considered inappropriate for risk assessment and should not be used. (Chronic evaluation only should be in the report.)

- For hexavalent chromium (Cr VI), the subchronic RfD is 2e-02 mg/kg-d, according to the HEAST (cite HEAST rather than RAGS). The RfD is based on a one-year assay therefore footnote 7 should be deleted.

- EPA has a provisional subchronic RfC for Cr(VI) of 4e-6 mg/cu m (derived by STSC), which may be used in this risk assessment.

- Bis (2-ethylhexyl) phthalate. The RfD is based on a one year assay; therefore, the footnote 6 method is incorrect and the RfD should be applied to subchronic exposures.

- 1,2-Dichloroethylene. The RfD value of 2e-02 mg/kg-day should be cited as an IRIS value. The subchronic RfD in HEAST is 2e-01 mg/kg-day; please reference HEAST.

- The Aroclor 1254 RfD is based on a chronic 2-year assay and therefore should be used without adjustment. Use 2e-05 mg/kg-day as the subchronic RfD. The RfD reference is IRIS.
- Aroclor 1248: the Reference Doses used on this table are inappropriate and should be omitted, therefore only cancer risks to due to exposure to Aroclor 1248 can be evaluated.

14. **Table 1-21 and in all risk calculations for child.** Cancer slope factor for vinyl chloride should be doubled when assessing children's risk.

15. **Delete Dermal Toxicity Values, Table 1-21 Delete Footnotes 2, 5, 8, 9, 13, 14, 15.** The following comments are based on EPA's draft interim guidance on dermal risk assessment, which will supplement EPA's 1992 Dermal Exposure Assessment guidance. This guidance is under EPA review and is not available for distribution, but is appropriate for on-going risk assessments.) Correct Table 1-21 and all text and tables.

    - Table 1-21: Delete the "dermal" columns and just provide one footnote to the oral toxicity columns that adjusted oral values are typically used to assess dermal exposures (cite appropriate text for details).

    - The EPA Region 4 dermal guidance should be deleted from this report since it will be superseded by national guidance.

    - EPA interim draft guidance provides guidance on adjusting chemical toxicity values. For the chemicals in this risk assessment, **oral absorption** is close to **100%**, therefore adjustments to the toxicity values are not necessary. (Specifically, the draft interim guidance shows that arsenic, PAHs, PCBs, and some pesticides do not require adjustment because the gastrointestinal (GI) absorption of the compounds in their respective toxicity studies was not significantly below 100%. Cadmium, however, was identified as requiring adjustment using a factor of approximately 5%). It should be noted that assuming the default value of 100% may underestimate dermal risks. Please include in an uncertainty section of the report.

    - **Footnote 8, 1st sentence.** The statement is not correct. Use of a soil absorption

factor does not yield a dermal slope factor. For dermal exposures to PCBs in soil, an absorption factor of 14% should be used to estimate the amount of soil-bound PCB that may permeate the skin. No adjustments to slope factors or reference doses are needed since the GI absorption is 100%.

16. **Table 1-22, *Relative Absorption Factors*. See Comment #11.**
GI absorption for PCBs should be 100%.
Pentachlorophenol: use a dermal absorption factor (soil) of 0.25
Dermal absorption of volatiles in soil is usually thought to be negligible and the 50% absorption factor is high; therefore, if risks are predicted for volatiles (i.e, if risks exceed those for soil ingestion), the risk assessor should revisit the 50% assumption and discuss the uncertainties.

17. **Tables 1-23 through 1-25, and relevant intake and risk summary tables.** The maximum concentrations to calculate the RME risks for groundwater, rather than the 95th upper confidence limits on average concentrations (UCLs).