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

July 22, 1997

Mr. Fred Evans
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mailstop #82
Lester, PA 19113-2090

Re: EPA Review of Navy's Responses to Comments on the Draft Phase I Fate and Transport Modeling Report for Portsmouth Naval Shipyard, Kittery, Maine

Dear Fred:

The United States Environmental Protection Agency (EPA) has reviewed the Navy's responses to comments submitted on the draft Phase I Fate and Transport Modeling Report for the Portsmouth Naval Shipyard in Kittery, Maine. The responses were submitted to EPA in a letter dated May 16, 1997.

EPA's comments on the Navy's responses are provided in Attachment I to this letter.

If you have any questions regarding this matter, please contact me at (617)573-5785.

Sincerely,

Meghan F. Cassidy

Meghan F. Cassidy
Remedial Project Manager

Enclosure

cc: Marty Raymond/PNS
Iver McLeod/ME DEP
Andrea Sewall/CDM FPC
Forest Lyford/USGS
Carolyn Lepage/Lepage Environmental
RAB Members

ATTACHMENT I

The following are EPA's comments on the Navy's responses to comments submitted on the draft Phase I Fate and Transport Modeling Report for the Portsmouth Naval Shipyard in Kittery, Maine. The responses were submitted to EPA in a letter dated May 16, 1997.

GENERAL COMMENTS

1. Although some errors were discovered during the review process, EPA believes that the Phase I modeling results adequately achieve the goals and objectives set forth in the Phase I work plan. It is unlikely that further "fine-tuning" of the Phase I modeling would cause the results to change significantly.

2. EPA recommends that the Navy proceed with the project's next step(s), one of which we presume to be the formulation of Phase II work plan modifications and refinements, including the analysis, evaluation, and presentation of low-flow sampling results.

3. The Navy seems to be somewhat inconsistent concerning whether Phase I/II modeling can or cannot be used to help guide the monitoring that may be performed in future phases of remediation. While we would insist that rectifying such inconsistency should not delay the completion of Phase I, we do recommend that any inconsistencies be identified during the finalization and approval of Phase II.

4. Several errors were discovered by the MEDEP and EPA in performing cursory reviews of some of the report's tables. Although these errors do not appear to have had any significant consequences, and many of them appear to have been explained adequately by the Navy, we recommend that a very thorough check of the results be conducted for any operable unit that may be dropped from Phase II consideration. This would help ensure that such a screening decision is appropriate, and it would help identify whether the low-flow sampling data could lead to a different decision.

6. EPA is concerned that too much dependence may be placed on the Monte Carlo simulation results. The Navy says that the simulations show that the Phase I modeling results are very conservative. However, this was known to be the case, generally, during the Phase I work plan development process, even before Monte Carlo modeling was suggested. EPA feels that the Monte Carlo simulations were not necessarily needed.

   The ranges of key parameters, which were input to the Monte Carlo simulations, were set so that they pre-determined the outcome of this statistical modeling. For example, the soil Kd minimum value was set equal to the value used in the Phase I modeling. A better minimum value would have been zero, or at least a value between zero and the Phase I model's value. Similarly, the near-shore flushing return factor, Df, was assigned a Monte Carlo limit so that the amount of tidal return contaminant mass flux would be no greater

than that simulated during the deterministic Phase I modeling. Thus, the possibility of "worse" values for at least two key parameters was not tested.

EPA would like additional information regarding the rationale for the Navy's emphasis on Monte Carlo modeling and how this technique will be used during Phase II and future phases, especially the Feasibility Study.

6. Throughout the Phase I reporting and comment-response cycling, a greater and greater emphasis has been placed on subjects that simply do not belong in the report, and which by their inclusion confuse the issues and the screening process. This does not mean that we would like to diminish the importance of such concerns as reaching agreements on criteria, or of agreeing how to evaluate the impacts to the biota in the benthic and pelagic communities. However, we recommend that the Phase I Report remain focused on the goals and objectives of Phase I. In essence, the Phase I report is not a risk assessment nor is it a feasibility study or remedial investigation. It is purely a screening document, that presumes (or assumes) prior agreement on standards and target criteria, which are the basis for the screening decisions.

SPECIFIC COMMENTS

1. Response to EPA Comment #2: Still need to resolve the discrepancies between the comment and response on Site 29's location. Is it within OU2 or OU5?

2. Response to EPA Comment #9: The Navy may still need to add the recommended explanation in the Executive Summary (and not just in Section 10).

New Section 9

1. The Navy submitted new text and tables/computations for the Monte Carlo simulations. EPA performed a cursory review of this new Section 9. See our comments below.

2. We feel that showing results in exponential form (i.e., scientific notation) actually makes them much harder to read and understand. For example, is it better to see "310" as a concentration, or "3.10E02"?

3. EPA believes that the Navy should have considered using Kd=0 as the minimum values for the on-shore groundwater mass transport calculations. This would have been better than using the Phase I model values as the minimum values, because their approach did not allow variation beyond (i.e., below) the amount believed to be the "best estimate" or "appropriately conservative value". The Navy's approach therefore appears to have been counter to the objective of showing the sensitivity of results to the possible spread in values of key parameters.

However, it is unlikely that modeling Kd (partitioning coefficients) with a greater spread would change the Phase I results and conclusions, and therefore we recommend that such a modification is only necessary if the Navy intends to perform additional Monte Carlo simulations based on the results of the low-flow sampling.

Attachment C -- Table C-1

1. There are far too many footnotes in the table. The footnotes' contents should be inserted directly into the tables' entries.

Attachment D -- Revised Tables Section

1. Tables 8-6 and 8-7: We suggest deleting the "Half-Life" column because all entries are "NA". If not deleted, then the "NA" needs to be footnoted.

Attachment D -- Monte Carlo Simulation Text and Tables

1. Change the verb tense from future (e.g., "will") to past ("was"). It appears that the verb tense remains from the "proposal" version of the text.

2. Should the groundwater flow rate have been included in the simulations? This is only an issue if the Navy will be performing further Monte Carlo simulations following evaluation of the low-flow sampling data.