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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

April 16, 1996

Commanding Officer
Attn: Code 1823/Lt. Conroy
NORTHNAVFACENGCOM
10 Industrial Hwy., MSC 82
Lester, PA 19113-2090

Re: Comments on draft "Groundwater/Surface Water Modeling Phase-I Work Plan Outline"

Dear Jim:

The United States Environmental Protection Agency (EPA) has reviewed the draft "Groundwater/Surface Water Modeling Phase-I Work Plan Outline" that you submitted to our office. EPA offers the following comments on this outline.

1. The outline should not presume that Phase-II work will be needed, as indicated in Task 9.4. (The flowchart is better in this respect.) The title should indicate that Phase-II modeling will be explored, and decided whether it would be useful and/or required. This task (or another, new one) should also include an evaluation of the need for further data collection and/or analysis, aside from an evaluation of the need for more modeling.

2. The work plan should include a task(s) for analyzing trends in the data, and for assessing and evaluating the trends and whether trends can be shown or not. Evaluating whether the situation is in "steady state" flushing mode, with declining groundwater discharge concentrations, is one of the most important aspects of Phase-I.

The work plan should also include exploring and discussing the uncertainties of the predicted/simulated trends in contaminant migration and resulting concentrations, i.e. the level of uncertainty in the analysis of trends.

3. In Task 3.3, the key point is to perform just the right amount of modeling, by representing the features essential for accurate simulation and prediction, and by not including features that are unnecessary and therefore "clutter." In this regard, Task 3.3.2 could be labeled "Analysis Tools" instead of "Complexities," and Task 3.3.3 could be

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"Evaluation of Uncertainties" in place of "Conservatism."

4. Task 3.5, Criteria of Success, is an important task. It deserves to have more detail in the work plan outline, because it should be the task in which the modeling analysis and result-interpretation approach will be developed in detail. Besides adding more detail to the outline, this task could be moved under Task 3.3, General Modeling Strategy, because "setting criteria" belongs under "strategy."

5. Add a task(s) for the review and evaluation of recent work and modeling tools applicable to the project, such as EPA's TSD for estuary/ocean modeling.

6. Similarly, or in conjunction with #5, add a task for "selection of analytical tools" or perhaps "selection of the type of analytical tools." This additional task could be provided as part of Section 7.3 under Analytical Equations.

7. Is Task 6.2.4 needed if there are no groundwater receptors?

8. Consider adding "groundwater" to "on-shore" and "surface water" to "off-shore" in all occurrences, to be specific and to match better the title of the work plan document, "Groundwater/Surface Water Modeling Phase-I Work Plan Outline."

9. Consider adding a new Section 6.3.1 to provide a review of the previous estuarine modeling or how the current work would build on or extrapolate from the previous effort. This would allow the proposed work to easily build off of earlier studies.

10. During the meeting held on March 18, 1996, we discussed the need to divide the island into compartments or analysis cells. These areas might correspond to the currently defined ones (e.g., the landfill and DRMO) or they might be smaller areas defined by variations in hydrogeologic/surface water hydraulic needs. Either way, a section needs to be added that describes the discretization of the facility and the factors that will be used to make these decisions.

11. Similar to #10, a section should be added that explains how the near-shore zone will be delineated for assessing compliance with criteria. During the March meeting, a multi-box analytical approach was presented by the Navy for predicting contaminant levels in the near-shore area. It is not clear from this outline whether the work plan will contain a thorough description of the reasoning of this approach. The approach also needs to incorporate mixing zone concepts, which will require interaction with MEDEP. It is assumed that the actual analytical techniques to be used will be included in Section 7.3.

12. Based on discussions held during the March meeting, a section should be added that describes how contamination from direct erosion of the island will be evaluated.

13. The subtasks under Tasks 7.0 and 8.0 may need to be rearranged.

One example of the need for rearrangement is the development or finalization of "cross-media COC screening," which is listed as Task 8.2. It is not clear why or how this can be done before the models are run (which appears to be planned for Task 8.3).

Another possible reordering (and addition) involves Task 8.3.1, Comparison with Measured Data. This is, in effect, a "calibration" task and should be placed within the "model development" Tasks 7.2/7.3.

14. Tasks 7.2.3/7.3.3 Parameter Sensitivity are good exercises, which can be done as part of model development. This would involve an exploration of sensitivity, based on the modeling approach, but not based on actual model output yet. A further exploration of uncertainty, performed with the calibrated models, should be done as part of "model application," under Task 8.3.2, Monte Carlo Uncertainty Analyses. The differences between Tasks 7.2.3/7.3.3 and 8.3.2 should be clearly distinguished in the outline.

15. There is some inconsistency between the Phase-I flowchart and the work plan outline. An example is the box in the flowchart for "determine source-area specific baseline impacts" which appears to have no counterpart in the work plan outline. Another example is that the first time the "conceptual model" is mentioned in the flowchart is in the box for "finalize source-area specific conceptual model," but there are no other boxes for the tasks in the work plan outline that include development of the conceptual model(s). The inconsistencies should be resolved, or explained (e.g., the flowchart could be described as an "abbreviated" or "highlight" flowchart).

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

Sincerely,

Meghan F. Cassidy

Meghan F. Cassidy
Remedial Project Manager

cc: Fran Endyke/PNS
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