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CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Kevin Cloe
Navy Technical Representative
Installation Restoration Section (South)
Environmental Program Branch
Environmental Division,
Atlantic Division (LANTDIV), Code EV23KC
Naval Facilities Engineering Command
1510 Gilbert Street
Norfolk, VA 23511-2699

Re: Naval Station Roosevelt Roads - EPA I.D. Number PRD2170027203

EPA Comments on Tow Way Fuel Farm [SWMUs 7 & 8] Draft Final Corrective Measures Study (CMS) Task 1 Report [January 3, 2003] and the "Navy Responses to EPA Comments Dated October 24, 2002" [January 8, 2003]

Dear Mr. Cloe:

The United States Environmental Protection Agency (EPA) Region 2 has completed its review of the revisions to the Tow Way Fuel Farm [SWMUs 7 & 8] Draft Final Corrective Measures Study (CMS) Task 1 Report and the "Navy Responses to EPA Comments Dated October 24, 2002," which were submitted on behalf of the Navy by Baker Environmental's letters of January 3 and January 8, 2003, respectively. As part of its review, EPA requested our contractor, Booz Allen Hamilton, to review both documents. Booz Allen's comments, which EPA has reviewed and concurs with, are given in the enclosure #1 [Technical Review Dated February 10, 2003].

In addition, the Puerto Rico Environmental Quality Board (EQB) has also submitted comments on the above two documents. EQB's comments are given in enclosure #2.

EPA requests that within 35 days of your receipt of this letter, the Navy submit written responses to the comments given in the two enclosures, and/or an addendum to, or preferably, a complete revised CMS Task 1 Report, incorporating the January 3 and January 8, 2003 submissions, as modified to address the comments given in the two enclosures.

**TECHNICAL REVIEW OF THE JANUARY 3, 2003
DRAFT FINAL CORRECTIVE MEASURES STUDY (CMS)
TASK 1 REPORT, and
JANUARY 8, 2003 "NAVY RESPONSES TO EPA COMMENTS DATED OCT 24, 2002"
TOW WAY FUEL FARM**

**NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO**

**REPA3-0203-007
February 10, 2003**

I GENERAL COMMENTS

1. The response is partially adequate. The issues regarding the screening of technologies have been adequately addressed. However, there remain some concerns regarding the development of remedial alternatives for further study during the Corrective Measures Study (CMS) (see Specific Comment No. 35).
2. The response is adequate.
3. The response is adequate.
4. The response is adequate.

II SPECIFIC COMMENTS

2.3.1 Soil Contamination, Page 2-11

1. The response is partially adequate. The Naval Station Roosevelt Roads (NSRR) has provided a revised page that refers the reader to Appendix F for historical data, but there is no specific mention of total petroleum hydrocarbon (TPH) data in the text. NSRR should include a sentence that clarifies whether TPH data are available, and specifies the appendix table and figure where these data are presented.

2.3.3 Surface Water Analytical Results, Page 2-12

2. The response is adequate.

3.7 Step 3a of the Baseline Risk Assessment (Refinement of Conservative Exposure Assumptions), Pages 3-19 to 3-31

3. The response is adequate. NSRR has provided a convincing argument that the 10 fold dilution factor was adequately conservative and was applied for a limited number of analytes.

3.7.1.1.1 Risk Evaluation for Surface Soil, Pages 3-32 to 3-33

4. The response is partially adequate. NSRR has provided some clarification of background, but has not provided Figure 3-9, cited in the response to comments, to EPA. NSRR should provide Figure 3-9 and should briefly summarize the comparison of site background to the regional background that is referenced by NSRR.

3.7.1.3.1 Risk Evaluation for Sediment, Pages 3-36 to 3-38

5. The response is adequate. While EPA does not agree with the sediment toxicity benchmarks that NSRR has derived for polycyclic aromatic hydrocarbons (PAHs) using the equilibrium partitioning theory, NSRR has provided a convincing argument that individual sediment PAHs do not pose a risk in proximity to the Tow Way Fuel Farm (TWFF). The text and table provided in the response to comments should be included in the final report.
6. The response is adequate.

3.6.1.5.2 Aquatic Food Web Exposures, Page 3-25

7. The response is adequate.

3.7.2 Uncertainties Associated with the Refined Screening-Level Risk Characterization, Pages 3-39 to 3-42

8. The response is partially adequate. NSRR has provided a qualitative discussion of uncertainty and conservatism in the risk assessment for the manatee. In addition to the discussion, EPA requests that NSRR provide a more quantitative assessment of uncertainty and conservatism for the manatee. Specifically, NSRR should provide upper bound risk estimates for the manatee for a few chemicals (e.g., antimony, other potential risk drivers) in the uncertainty section. The upper bound estimates should be determined using maximum or upper 95% confidence limit values for sediment concentrations and bioaccumulation factors. EPA requests this because of the special status of the manatee and the requirement for protecting individuals rather than populations.

9. The response is partially adequate. NSRR agrees to include a sediment toxicity benchmark for total PAHs, and states that the screening value is presented in Table 3-11 and the risk results are presented in Tables 3-23 and 3-34. The total PAH benchmark and screening results could not be located in Tables 3-11, 3-23 and 3-34. Revised Tables 3-11, 3-23 and 3-34 should be provided to EPA.

3.7.3 Conclusions and Recommendations, Pages 3-42 to 3-43

10. The response is adequate.
11. The response is adequate.
12. The response is adequate.

4.3 Summary of Human Health Risk Assessment and Selection of Contaminants of Potential Concern, Page 4-3

13. The response is adequate.

4.4.2 Quantitative CAOs, pages 4-4

14. The response is adequate.

4.4.2 Quantitative CAOs, pages 4-5 and 4-6, Target Risk Levels

15. The response is adequate.

Table 4-1 Cancer Risks and Hazard Indices from the RFI

16. The response states that Table 4-1 was proofed and corrected. However, no replacement Table 4-1 was provided. Considering Table 4-1 provides a summary of previous risk assessment results performed for the RFI and not for the CMS, Table 4-1 should be provided to EPA.

Table 4-6 Groundwater Data and COPC Selection

17. The response is adequate.

Table 4-10 Summary of Soil-to-Air Volatilization Factor (VF) Calculation

18. The response is adequate.
19. The response is adequate.

Table 4-12 Summary of Quantitative CAO Calculations, Exposure Via Dermal Absorption of Chemicals of Soil

20. The response is adequate. However, a minor editorial issue remains. The definition of the absorption factor (ABS) parameter at the bottom of Table 4-12 references the reader to Appendix D. The correct reference is Appendix H.

Table 4-16 Determination of Dermal Absorption Factor (DAF) for Use in Calculating Dermal Absorption of Organic Chemicals from Water

21. The response is adequate.

Table 4-17 Dermal Absorption Factor Parameter Values for Groundwater COPCs

22. The response is adequate.

Table 4-18 Toxicological Data Summary

23. The response is adequate. However, an editorial mistake has been made in the revision of Table 4-18. The inhalation Slope Factor value for ethylbenzene has been put in the column under Unit Risk Factor. The correct toxicity factor has been used in subsequent risk calculations, so this is merely an editorial issue.

Table 4-19 Quantitative Soil CAOs

24. The response is adequate.

4.5.3 Approach to Evaluating Carcinogenic PAHs, page 4-9

25. The response is adequate.

5.0 Identification of COCs, Pages 5-1 to 5-2

26. The response is partially adequate. NSRR has provided some clarification of the Corrective Action Objectives (CAOs), but additional discussion of soil, surface water and sediment is needed in this section of the report. EPA requests this because a number of ecological Contaminants of Potential Concern (COPCs) are identified in the ecological risk assessment, but these do not have CAOs. For example, page 3-42 identifies zinc in soil as a COPC and notes that a number of metals have the potential to impact aquatic invertebrate populations. In addition to the uncertainty evaluation in Section 3, Section 5 should provide a brief summary (possibly a table) of the rationale for excluding any ecological COPCs from the CAO development. Additionally, the generic statement that "Ecological COPCs had higher CAOs than the equivalent Human Health COPCs" is not adequate. NSRR should provide a quantitative comparison for all chemicals with a CAO.

27. The response is adequate.

5.2 Soil COCs, page 5-2

28. The response is adequate.

Table 5-1 Groundwater COCs and CAOs

29. The response is adequate.

Table 5-2 Soil COCs and CAOs

30. The response is adequate.

Table 6-1 Potentially Applicable Corrective Measures Technologies, Soil Matrix

31. The response is adequate.

6.0 Preliminary Corrective Measures Technologies

Table 6-2 Corrective Measures Treatment Technology Descriptions, Soil Matrix

32. The response is adequate.

7.0 Screening of Corrective Measures Technologies

Table 7-1 Treatment Technologies Screening Matrix

33. The response is adequate.

Table 7-2 Applicable Corrective Measure Technologies, Soil Matrix

34. The response is adequate.

8.0 Identification of the Corrective Measures Alternative, Page 8-1

35. The response is partially adequate. The list of remedial alternatives has been expanded as requested. However, the remedy alternatives are quite complex with five or six different technologies, but there is no explanation as to why these elements were grouped together. The rationale behind some of the groupings is unclear. For example, electro chemical geo oxidation (ECG) is retained as an alternative for soil treatment and groundwater treatment, but in separate alternatives (Alternative 3 for soil and Alternative 5 for groundwater). It would seem more appropriate to include these in the same alternative. Another example is Alternative 4, in which high temperature thermal desorption (HTTD) is

proposed for soil that can be excavated and soil vapor extraction (SVE) is proposed for soil that must be treated in-situ. A primary benefit of HTTD is the removal of PAHs, which is a primary weakness of SVE. These do not appear to be a good pairing. Further, justification for the grouping of technologies into alternatives is necessary. Evaluating alternatives for each media (groundwater, phase separated hydrocarbon, and soil) separately, while waiting until the final remedy selection to group them together, should be considered as an alternative to the current approach of formulating complex alternatives addressing all media.

APPENDIX E ADDITIONAL DATA COLLECTION INVESTIGATION REPORT

GENERAL COMMENTS

36. The response is adequate.

APPENDIX G DRAFT GROUNDWATER MODEL REPORT-TOW WAY FUEL FARM

GENERAL COMMENTS

37. The response is adequate.

SPECIFIC COMMENTS

1.1 Groundwater Modeling Objectives

38. The response is partially adequate. The response acknowledges that, if necessary, various pumping scenarios can be developed using the model for optimization of such a system and that, if necessary, transport modeling could be done using the results of the steady-state groundwater flow model. However, both the response and the revised Appendix G indicate that the pump-and-treat option is not the preferred option developed in the CMS. At this point in the CMS process there should be no preferred option and all options should be treated equally as potential alternatives.

3.2 Model Grid and Boundary Conditions

39. The response is adequate.

3.3 Recharge

40. The response is adequate.

4.1 MODFLOW Results

41. The response is adequate.

42. The response is adequate.

4.2 MODPATH Pathline Analysis

43. The response is partially adequate. The model has been revised, and much more realistic travel times have been predicted by the pathline analysis. Moreover, the overall calibration of the model does appear to be reasonably good, particularly given the variation in water levels. However, it should be noted that model calibration appears to have resulted in overestimating somewhat the gradient in the lower TWFF area in the vicinity of Ensenada Honda. Consequently, the travel times presented by the model may still be somewhat overestimated. Since the ultimate role of the model has not been defined (see Specific Comment No. 38), the impact of this model error is not clear. The impact of this error on any potential application of the model during the CMS will have to be evaluated, and recalibration to emphasize a better match between predicted and observed water level data in the lower TWFF area may have to be considered.

APPENDIX H Corrective Action Objectives (CAO) Calculations

44. The response is adequate.
45. The response is adequate.
46. The response is adequate.

**Environmental Quality Board List of Comments on Naval Station Roosevelt Roads
January 6 and 8, 2003 Letters on Tow Way Fuel Farm CMS Task 1 Report**

- 1. Section 3.7-Baseline Risk Assessment (Refinement of Conservative Exposure Assumptions), Page 3-31. (Navy comment response number 3).**

Figure 3-9 is absent from the document. This figure should show the location of base background surface soil and groundwater sampling locations. Subsequently, the List of Figures obviously has to be replaced.

- 2. Section 3.7.1.1.1- Risk Evaluation for surface Soil, Pages 3-32 to 3-33 (Navy comment response number 4).**

The pages 32 @ 33 have not been replaced. The navy response to this comment #4, made reference and mention again the Figure 3-9, which is absent from document.

- 3. Section 3.6.1.5.2 Aquatic Food Web Exposures, Page 3-25 (Navy comment response number 7).**

This section should give the Table 3-25 as a reference. The table provide information of the Hazard Quotients (HQs) for Conservative Food Web Exposures (Aquatic Receptors). Correction should be made in Section 3.6.1.5.2, page 3-25, 3rd sentence. It's not "twelveeleven", the correct number is twelve. This must be clarified to avoid confusion.

- 4. Section 3.0, Pages 3-41 and 3-42 (Navy comment response number 9).**

A comparison of total PAH concentration in Encenada Honda sediment to the total PAH sediment screening value should be in table 3-23(step 2 sediment screening table), (step 3 sediment screening table) in table 3-34 and the total PAH screening valve in table 3-11. Tables 3-11, 3-23, 3-34 apparently has not been revised. Amendments should be provided to USEPA and EQB to approve the document.

- 5. Table 4-1 Cancer Risk and Hazard Indices from the RFI (Navy comment response number 16).**

The information on table 4-1 was not appropriately corrected. The NSRR does not clarified the real value of the total hazard index for the future construction worker. This USEPA comment is apparently unanswered.

- 6. Table 4-18, Toxicological Data Summary (Navy comment response number 23).**

All toxicity values mentioned were updated in table 4-18 but not were placed in the correct column. Correction apparently should be made to the position of the Provisional Inhalation Cancer Slope Factor (SF) number that is (3.85 E-02 Kg-d/mg).

The Inhalation Unit Risk Factor (URF) for Ethylbenzene is absent in the table. (1.1E-03 (mg/m³).

7. Draft Groundwater Model Report-Tow Way Fuel Farm (Navy comment response number 37).

Groundwater Modeling Report CD not provided.

8. Section 1.1 (Appendix G)Ground Modeling Objectives, Page 1-1 (Navy comment response number 38).

The report does not present the preferred alternatives developed for the CMS and does not have any reference in the document regarding the matter.

9. Section 4.2 MODFLOW results (Navy comment response number 42).

The USEPA comment regarding the sensitivity analysis is apparently not completely answered in all the components. For example: The estimate in the potential error in the computed travel time is absent in the 4.1.1. section.

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