

Baker

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September 9, 2005

U.S. Environmental Protection Agency
Region II
290 Broadway – 22nd Floor
New York, New York 10007-1866

Attn: Mr. Adolph Everett, P.E.
Chief, RCRA Programs Branch

Re: Contract N62470-95-D-6007
Navy CLEAN, District III
Contract Task Order (CTO) 0271
U.S. Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico
RCRA/HSWA Permit No. PR2170027203
Navy Responses to EPA Comments dated July 13, 2005

Dear Mr. Everett:

Baker Environmental, Inc. (Baker), on behalf of the Navy, is providing you with the Navy responses to the EPA comments dated July 13, 2005 on:

- Navy's May 19, 2005 response to EPA's comments on the SWMU 45 Draft Final Additional Data Collection Report and Screening Level Ecological Risk Assessment and Step 3a of the Baseline Ecological Risk Assessment Report
- SWMU 1 and 2 Draft Final Additional Data Collection Report and Screening Level Ecological Risk Assessment and Step 3a of the Baseline Ecological Risk Assessment Report dated March 18, 2005

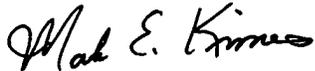
These attached responses are being submitted in accordance with the agreement made during the conference call conducted August 24, 2005 between the Navy, EPA Region II, BAH, and Baker. Upon EPA's acceptance of the responses the final documents will be submitted incorporating all the necessary changes outlined in the Navy's responses.

Mr. Adolph Everett, P.E.
U.S. Environmental Protection Agency, Region II
September 9, 2005
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If you have questions regarding this submittal, please contact Mr. Kevin Cloe, P.E. at (757) 322-4736. Additional distribution has been made as indicated below.

Sincerely,

BAKER ENVIRONMENTAL, INC.



Mark E. Kimes, P.E.
Activity Manager

MEK/lp

Attachments

cc: Mr. Kevin R. Cloe, NAVFAC Atlantic - Code OPCEV5 (1 copy)
Ms. Rochelle Lee, NAVFAC Atlantic – Code OPCAQ5 (letter only)
Ms. Bonnie P. Capito, NAVFAC Atlantic – Code EV31LR (1 hard copy)
Ms. Madeline Rivera, NAPR (1 copy)
Mr. Tim Gordon, US EPA Region II (1 copy)
Ms. Kathy Rogovin, Booz Allen & Hamilton (1 Copy)
Mr. Carl Soderberg, US EPA Caribbean Office (1 Copy)
Mr. Manny Vargas, PR EQB (1 hard copy and 1 Copy)
Ms. Janna Staszak, CH2M Hill Virginia Beach (1 Copy)

**BAH TECHNICAL REVIEW OF THE MAY 19, 2005, NAVY RESPONSES TO
EPA COMMENTS DATED MARCH 30, 2005, RELATED TO THE
DRAFT FINAL ADDITIONAL DATA COLLECTION INVESTIGATION REPORT AND
SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT (STEP 3A) FOR SWMU 45
NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO
June 17, 2005**

1. GENERAL COMMENTS

1. The Navy has adequately responded to all previous comments except those related to further evaluation of the West Indian manatee. The Draft Final Report should be revised in accordance with the Navy's responses. Note that Table 4-20a, as discussed in the response to Specific Comment 4, was not attached to the Navy's response. This table should be included in the revised report. Refer to General Comment 2 below regarding the responses to manatee risk evaluation comments.

Navy Response to BAH General Comment No. 1:

Comment noted. Table 4-20a was provided in the hard copies of the reports but was inadvertently left out of the electronic document. The table will be added to the electronic document.

2. The Navy has not provided acceptable responses to comments related to risk evaluation of the West Indian manatee. The Navy states that manatee risks to arsenic, cadmium, mercury, and selenium contamination in Puerca Bay should not be further evaluated because these metals cannot be directly linked to Navy CERCLA/RCRA contaminated releases. This argument is not supported because:
 - The Navy has not defined the time frame when Outfall 015 was permitted under the National Pollutant Discharge and Elimination System (NPDES). Pre-NPDES permitted releases are subject to RCRA corrective action authority, and the Navy has not demonstrated that all metals releases occurred after the NPDES permit was put in place.
 - The Navy has not demonstrated that the NPDES outfall is the only source of metals listed above, nor that SWMU 45 or other former Roosevelt Roads SWMUs are the source of the metals in Puerca Bay. Note that a detailed fate and transport discussion of arsenic and mercury (i.e., analagous to the discussion for cadmium and selenium provided on p. 4-52 of the Draft Final Report) has not been provided in the Draft Final Report nor the responses to comments. Furthermore, based on the discussion for cadmium on p. 4-52, it appears that historically elevated concentrations of cadmium in groundwater could have been a source of elevated concentrations in Puerca Bay sediments.
 - It is also noted that threats to the environment from metals in Puerca Bay can be addressed under the RCRA permit pursuant to the "omnibus authority", given at 40 CFR 270.32(b)(2).

For these reasons, the Navy should adhere to recommendations made in March 30, 2005, EPA comments that manatee risks due to arsenic, cadmium, mercury, and selenium be further

evaluated, and that the Navy develop a proposal to collect and analyze seagrass samples for these metals.

Navy Response to BAH General Comment No. 2:

The Navy agrees to obtain seagrass samples for additional analysis of arsenic, cadmium, mercury, and selenium. The analyses will be conducted as part of the baseline ecological risk assessment for SWMU 45. The document will be revised to reflect that arsenic, cadmium, mercury, and selenium represent potential ecological risk drivers for the West Indian manatee.

**BAH TECHNICAL REVIEW OF THE MARCH 2005
DRAFT FINAL ADDITIONAL DATA COLLECTION REPORT AND SCREENING
LEVEL ECOLOGICAL RISK ASSESSMENT AND STEP 3A OF BASELINE
ECOLOGICAL RISK ASSESSMENT AT SOLID WASTE MANAGEMENT UNIT
(SWMU) I AND 2
NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO
July 6, 2005**

GENERAL COMMENTS

1. In general, the Draft Final Additional Data Collection Report (ADCR) and Screening Level Ecological Risk Assessment (SLERA) and Step 3a of Baseline Ecological Risk Assessment (BERA) at SWMUs 1 and 2 have adequately addressed previous EPA comments. A few concerns remain, however, regarding issues such as the presentation of statistical background comparisons and the selection of chemicals of potential concern (COPCs) for inclusion in Step 3b of the BERA. These issues are discussed in more detail in the comments below.

Navy Response to BAH General Comment No. 1:

Comment noted.

2. A number of ecological COPCs were eliminated from further evaluation under Step 3a based on comparisons to alternate screening criteria (e.g., see discussion of di-n-butylphthalate on p. 4-70). The rationale for the use of alternate criteria discussed in Step 3a of the BERA, as opposed to those presented in the SLERA, is not clearly presented. Although no revision based on this comment is necessary at this time, it is recommended that this practice not be generally adopted in the preparation of future ecological risk assessments. Rather, NAPR should select appropriate screening criteria to be used in the SLERA, so that exceedences of the selected screening criteria more accurately reflect which chemicals should be carried forward into Step 3b of the BERA. The analyses that should be reserved for Step 3a of the BERA are those that consider bioavailability, such as analysis of simultaneously extracted metals (SEM) to acid volatile sulfide (AVS) ratios.

Navy Response to BAH General Comment No. 2:

Comment noted.

3. In general, the statistical analysis approach used in Step 3a of the BERA, as presented in the flow chart shown in Fig 4-19a, is consistent with the statistical analysis process outlined in EPA's *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites* (EPA 540-R-01 -003, September 2002). Based on the statistical results presented in Tables 4-46, 4-48, 4-51, 4-53, 4-56, 4-58, 4-65, 4-67, 4-69, 4-71, and 4-73, the Navy's determination of significance and conclusions of site concentrations either being statistically equivalent to or elevated from the background concentrations appear to be consistent with EPA guidance. However, the tables do not provide support or justification for the use of particular statistical tests. For example, in Table 4-46 it is not clear why the Wilcoxon Rank-Sum (WRS) test is used for certain metals, and the t-test is used for others. The Navy should include notations in all statistical tables to demonstrate that the appropriate tests were conducted. In particular, notations should be made to indicate whether data distributions are normal or lognormal. Without such notations, it is not apparent how the results in the tables relate to the statistical analysis process shown in Fig 4-19a. Additionally, there should generally be at least ten data values in each data set to use the Gehan test; otherwise, the rationale for using this test should be noted on the applicable tables. Revise the tables accordingly.

Navy Response to BAH General Comment No. 3:

Notations will be added to the above mentioned tables to demonstrate that the appropriate tests were conducted.

4. The Step 3a uncertainty sections (i.e., Sections 4.7.1.8 and 4.7.2.7) does not include a discussion of the uncertainties associated with the statistical background comparisons. This section should be revised to address the uncertainties associated with the use of the various statistical tests given the samples involved in the SERA.

Navy Response to BAH General Comment No. 4:

Section 4.7.1.8 will be revised to include a discussion of uncertainties associated with the use of the various statistical tests used in Step 3a of the baseline ecological risk assessment.

SPECIFIC COMMENTS

4.7.1.2 Refined Risk Calculation and Risk Evaluation for Subsurface Soil, Page 4-59

1. 4,4'-DDT was recommended for additional evaluation in Step 3b based on the magnitude of the maximum detection above the screening value and the presence of 4,4'-DDT biodegradation products (i.e., 4,4'-DDD and 4,4'-DDE) at elevated concentrations. However, 4,4'-DDE was not recommended for additional evaluation in Step 3b due to a mean hazard quotient (HQ) less than 1.0 and the low magnitude of detections above the surface soil screening value. Considering 4,4' DDE is a biodegradation product of 4,4'-DDT, further discussion or evaluation of 4,4'-DDE is warranted to be adequately protective of future exposure.

Navy Response to BAH Specific Comment No. 1:

Considering that 4,4'-DDE is a biodegradation product of 4,4'-DDT, this pesticide will be carried into Step 3b of the baseline ecological risk assessment. Section 4.7.1.2 will be revised

accordingly to reflect this decision.

4.7.1.4 Refined Risk Calculation and Risk Evaluation for Estuarine Wetland Sediment, Page 4-66

2. Table 4-53 indicates that silver was not detected in sediment background samples. However, it appears that silver concentrations in estuarine wetland sediment were statistically compared to background. Text indicating a background comparison was conducted should be removed from the document if silver was not detected in background samples. Additionally, recent EPA guidance (*Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks for the Protection of Benthic Organisms. Metals Mixtures*, January 2005, EPA-600-R-02-011) recommends including silver in SEM/AVS analyses. Considering that the mean HQ for silver was greater than one, the SEM/AVS analyses should be revised to include silver. Revise Table 4-53a and Section 4.7.1.4 accordingly.

Navy Response to BAH Specific Comment No. 2:

The Navy disagrees with this comment and offers the following points of clarification. Because the statistical comparison tables also serve as a means of presenting available background data for metals identified as ecological COPCs in Step 2 of the screening-level ecological risk assessment, the Navy does not believe that the silver comparison should be removed from Table 5-53. With regard to SEM/AVS analyses, silver cannot be added to the existing SEM/AVS analyses since this metal was not extracted and analyzed for as an SEM metal (extraction procedures used for SEM metals in the SEM/AVS analyses differ from those used for Appendix IX metals). Note that the EPA guidance identified above was published after sediment samples were collected and analyzed for SEM metals. As such, at the time samples were collected and analyzed, this relationship was not known. It is also noted that a mean HQ greater than 1.0 can be explained by the high reporting limits for non-detected results (reporting limits ranged from 3 mg/kg to 4.3 mg/kg). A review of the analytical data shows that silver was detected in a single estuarine wetland sediment sample (0.76 J mg/kg in 01EWSSD01) at a concentration greater than the sediment screening value (0.73 mg/kg).

4.7.1.7.2 Aquatic Food Web Exposures, Page 4-86

3. NAPR has identified only mercury as a potential risk driver for the West Indian manatee in SWMU 1. Because concentrations of arsenic and selenium are elevated above background levels and result in HQs greater than one for the manatee, these metals should also be retained for further evaluation. NAPR indicates that arsenic and selenium should not be further evaluated because there is no evidence of a release of these metals from SWMU 1. Whether or not the elevated concentrations of these metals originated specifically from SWMU 1 is inconsequential; the important issue is whether or not the elevated concentrations are facility related. Given that detected concentrations exceed background concentrations, it must be assumed that the contamination is facility related, unless NAPR can prove otherwise. Thus, NAPR should present evidence that elevated concentrations are not facility related, or further evaluate arsenic and selenium in the BERA.

It is emphasized that particular care must be taken in evaluating risks to the manatee because this species is known to frequent the area, is listed as a federally endangered species, and is likely to draw public interest. It is recommended that NAPR collect

seagrass samples for analysis of metals to further evaluate manatee risks in the BERA.

It is further noted that Table 4-38a, in which risks are calculated based on toxicity reference values that incorporate and inter-species extrapolation factor, indicates HQ values greater than one for several other metals. NAPR should consider whether cadmium, copper, and zinc should also be identified as potential risk drivers for the manatee, given the bioaccumulative potential of these metals. In particular, it appears that copper should be retained because sediment concentrations are elevated with respect to background concentrations. This section should be revised to specifically discuss the potential for risk from these metals to the manatee, and present the rationale for their exclusion from further evaluation.

Navy Response to BAH Specific Comment No. 3:

The Navy agrees to obtain seagrass samples for additional analysis of arsenic, cadmium, copper, selenium, and zinc. The analyses will be conducted as part of the baseline ecological risk assessment for SWMU 1. Section 4.7.1.7.2 will be revised to show that these five metals represent potential ecological risk drivers for the West Indian manatee.

4.7.2.6.2 Aquatic Food Web Exposures, Page 4-119

4. Maximum selenium exposure doses for the West Indian manatee exceeded no observed adverse effect level (NOAEL)-based screening values. In lieu of sediment background comparison, the maximum surface and subsurface soil selenium concentrations at SWMU 2 were compared to background data. However, because selenium was not detected in background sediment samples, it should not be eliminated from further evaluation in Step 3b. Although a clear relationship between SWMU 2 surface/subsurface soil concentrations and Ensenada Honda sediment concentrations has yet to be defined, selenium should still be identified as a potential ecological risk driver for mammalian herbivore aquatic food web exposure. See also Specific Comment 3 regarding special status considerations for the manatee, and the requirement that NAPR prove that a chemical is not facility related in order to exclude it from further evaluation in the SERA.

Similar to the recommendations made in Specific Comment 3, NAPR should consider whether cadmium, copper, lead, and zinc should also be identified as potential risk drivers for the manatee, given the bioaccumulative potential of these metals, and the risks indicated in Table 4-38b. In particular, it appears that copper and lead should be retained because sediment concentrations are elevated with respect to background concentrations. This section should be revised to specifically discuss the potential for risk from these metals to the manatee, and present the rationale for their exclusion from further evaluation.

Navy Response to BAH Specific Comment No. 4:

The Navy agrees to obtain seagrass samples for additional analysis of cadmium, copper, lead, selenium, and zinc. The analyses will be conducted as part of the baseline ecological risk assessment for SWMU 1. Section 4.7.2.6.2 will be revised to show that these five metals represent potential ecological risk drivers for the West Indian manatee. It should be noted that selenium was not found in the soils and/or linked to an IR release.

4.7.2.3 Refined Risk Calculation for Estuarine Wetland Sediment, Page 4-103

5. In response to Specific Comment 41 from EPA's April 9, 2004, review comments, NAPR has included some additional discussion regarding the potential for toxic effects from thallium to benthic organisms. However, NAPR has not discussed available information on the toxicity of thallium to other aquatic life, which was previously requested in Specific Comment 41. In cases where no toxicological data for benthic invertebrates exposed to contaminated sediments are available, toxicological data for other aquatic life in water-only exposures can be considered. A more rigorous discussion of the toxicity of thallium relative to other metals is needed to clearly document the rationale for eliminating it from further evaluation.

Navy Response to BAH Specific Comment No. 5:

Section 4.7.2.3 will be revised to include a more rigorous discussion of the toxicity of thallium relative to other metals.