

From: <Gordon.Timothy@epamail.epa.gov>
To: Mark Kimes <MKIMES@mbakercorp.com>
CC: <kevin.cloe@navy.mil>, <rogovin_kathy@bah.com>
Date: 5/24/2005 8:48 AM
Subject: Re: SWMUs 1 and 2, and SWMU 45 EPA Reviews
Attachments: Roos Rds SWMU 1 & 2 BERA. 05 April 27.wpd

Mark,

There are a few remaining issues with the Draft Final Additional Data Collection Report and Screening Level ERA and Step 3a of the Baseline ERA at SWMUs 1 and 2 dated March 18, 2005. See Booz Allen's April 27 Technical Review attached below. Although I have not yet officially transmitted those to the Navy, if you wish to address them now, to expedite your planned field work, that is OK. Please then advise when you would target completing the response.

With regards to the May 19, 2005 Draft Final Additional Data Collection Report and Screening Level ERA and Step 3a of the Baseline ERA at SWMU 45, that is currently being reviewed by Booz Allen.

(See attached file: Roos Rds SWMU 1 & 2 BERA. 05 April 27.wpd)

Timothy R. Gordon
U.S. Environmental Protection Agency
RCRA Programs Branch
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290 Broadway, 22nd. Floor
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Phone (212) 637-4167

Mark Kimes
<MKIMES@mbakercorp.com>
To
Timothy Gordon/R2/USEPA/US@EPA
05/23/2005 09:22 AM cc
kevin.cloe@navy.mil
Subject
SWMUs 1 and 2, and SWMU 45 EPA
Reviews

Tim,

I am in the process of trying to plan for possible upcoming work at

SWMUs 1 and 2 and SWMU 45. I was wondering if you have a timeline of when we might hear something from you on the Draft Final Additional Data Collection Report and Screening Level ERA and Step 3a of the Baseline ERA at SWMUs 1 and 2 dated March 18, 2005 and on the Navy Response to EPA Comments dated March 30, 2005 submitted by Baker on behalf of the Navy on May 19, 2005 with regards to the Draft Final Additional Data Collection Report and Screening Level ERA and Step 3a of the Baseline ERA at SWMU 45 dated September 22, 2005?

Thank you,

Mark

April 27, 2005
B-09075-0142-1203
REPA3-1203-053

Patricia Rosa
Regional Project Officer
U.S. EPA Region 2
290 Broadway, 22nd Floor
New York, NY 10007-1866

Subject: EPA Contract No. 68-W-02-037, Work Assignment R02703-1, Naval Activity Puerto Rico, Task 4. Technical Review of the Draft Final Additional Data Collection Report and Screening Level Ecological Risk Assessment and Step 3a of Baseline Ecological Risk Assessment at Solid Waste Management Units (SWMUs) 1 and 2, Naval Activity Puerto Rico, Ceiba, Puerto Rico.

Dear Ms. Rosa:

In response to Work Assignment R02703-1, under EPA Contract No. 68-W-02-037, Booz Allen Hamilton (Booz Allen) has reviewed the Navy's September 22, 2004, Draft Final Additional Data Collection Report and Screening Level Ecological Risk Assessment and Step 3a of Baseline Ecological Risk Assessment at SWMUs 1 and 2 (Draft Final Report), at Naval Activity Puerto Rico (NAPR) (formerly known as Naval Station Roosevelt Roads), in Ceiba, Puerto Rico.

In general, the Draft Final Report has 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 for inclusion in Step 3b of the baseline ecological risk assessment. These issues are discussed in more detail in the attached comments.

It is also noted that risks for the West Indian manatee, a federally endangered species, are indicated in Ensenada Honda. Consequently, EPA may wish to share this document with the U.S. Fish and Wildlife Service.

If you have any questions regarding this deliverable, please contact me at (617) 428-4441.

Sincerely,

Kathy Rogovin
Work Assignment Manager

BOOZ ALLEN HAMILTON

cc: Tim Gordon, Work Assignment Manager
Susan Neiheisel, Contracting Officer (cover letter only)
Tijuana Silvers, Contract Specialist (cover letter only)
Betsy Lopez, Acting Regional Project Officer
Booz Allen EPMT QA/QC Coordinator

TECHNICAL REVIEW

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) 1 AND 2

NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO

REPA3-1203-053

APRIL 27, 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 SWMU 45 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.
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.
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.

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 BERA.

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.

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.

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.

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 BERA.

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.

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.