

Baker

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January 13, 2000

US Environmental Protection Agency
Region II Headquarters
Chief, RCRA Caribbean Section
290 Broadway – 22nd Floor
New York, NY 10007-1866

Attn: Ms. Nicoletta DiForte

Re: Contract N62470-95-D-6007
Navy CLEAN, District III
Contract Task Order (CTO) 0033
RCRA/HSWA Permit No. PR2170027203
U.S. Naval Station Roosevelt Roads
Response to Comments Received in EPA Letter Dated
December 10, 1999 Regarding the Revised Draft Final CMS Report for
SWMU 13 and SWMU 46/AOC C

Dear Ms. DiForte:

Baker Environmental, Inc. is pleased to provide you, on behalf of the Navy, responses to the comments contained in your December 10, 1999 letter. This letter and accompanying attachments provides the Navy's response to the comments. Please note responses to the EPA comments are included in italics.

**RESPONSE TO TECHNICAL REVIEW OF NAVAL STATION ROOSEVELT ROADS
SWMU #13, SWMU #46 AND AOC C
REVISED DRAFT FINAL CORRECTIVE MEASURES STUDY
JULY 27, 1999**

EPA COMMENTS

Comment No. 1: Page 1. The response is partially adequate. NSSR has provided the requested exposure parameter values and calculations used in the exposure evaluations; however, several deficiencies were identified in this added information. Specific comments pertaining to the exposure parameter values and calculations used in the CMS are provided in the attached technical review of the CMS report.

Response: Acknowledged.

Comment No. 2: Page 1. The response is partially adequate. NSSR appropriately included an evaluation of longer-term workers (i.e., commercial/utility workers) in the CMS report. However, it remains unclear why the proposed cleanup levels at SWMU 46/AOC C are based on a transient receptor population (i.e., construction workers) and are not based on the commercial/utility worker population. Although the revised CMS states that construction workers are the more likely receptors under current conditions, there is no documentation provided to support this statement. In order to support the selection of cleanup levels based on construction workers, the CMS must demonstrate that institutional controls such as restrictive land use



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are protective of commercial/industrial workers under current conditions, as well as other potential receptor populations under future land use conditions.

Response: The CMS presented cleanup goals for the most likely current use scenario, the construction worker. Additional rationale for the selection of this receptor/land use scenario will be provided in the final CMS report. Rationale will include current property use by SWMU and AOC and a description of potential future site use. The final CMS will also describe the residual risk for other property use scenarios to demonstrate that cleanup goals established for the construction worker produce residual risks within generally acceptable risk ranges. Institutional controls will be established for any land use producing residual risks above those considered to be generally unacceptable.

Comment No. 3: Page 1. The response is adequate.

Response: Acknowledged.

Comment No. 4: Page 1. The response is adequate.

Response: Acknowledged.

Comment No. 5: Page 1. The response is adequate.

Response: Acknowledged.

BOOZ-ALLEN & HAMILTON COMMENTS

GENERAL COMMENTS

Comment No. 1: Page 2. The response is partially adequate (see EPA Comment No. 1 above).

Response: Acknowledged.

Comment No. 2: Page 2. The response is partially adequate. NSSR has modified the CMS to include sufficient documentation the institutional controls at the site will be protective of residential exposures. However, the CMS does not provide adequate documentation that institutional controls at the site are protective of commercial/utility worker exposures. The CMS should be modified to demonstrate that institutional controls such as restrictive land use are protective of commercial/industrial workers under current conditions, as well as other potential receptor populations under future land use conditions.

Response: The CMS does demonstrate that the corrective measure is adequately protective of construction workers and commercial/industrial workers. To this extent, corrective action objectives will be established at the beginning of Section 3.0 and corrective will consider all potential property use scenarios and receptors. Institutional controls will be established for any land use producing residual risks above those considered to be generally acceptable. Additional documentation will be provided in the final CMS report to support the selection of corrective measure and the use of institutional controls (if necessary) to prevent unacceptable human health risks.

Comment No. 3: Page 2. The response is adequate.

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Response: Acknowledged.

Comment No. 4: Page 2. The response is adequate.

Response: Acknowledged.

SPECIFIC COMMENTS

Comment No. 1: Page 2. The response is partially adequate. NSSR provided the exposure parameter values and calculations utilized in the exposure evaluations; however, several deficiencies were identified this added information. In addition, NSSR failed to include a discussion of the factors influencing dermal absorption of chemicals in soil and sediment, including the use of adjustment factors to modify oral toxicity criteria. Specific comments pertaining to the exposure parameter values, calculations, and adjustment factors used in the CMS are provided in the attached technical review of the CMS report.

Response: Exposure parameter values and calculations will be reviewed to determine whether correct or most recent toxicity information and adjustment factors were used in the calculation of cleanup goals. Most recent, published toxicity information and adjustment factors will be used in the final CMS report. A table containing exposure parameters, toxicity information and adjustment factors will also be added to the final CMS report to facilitate regulatory review.

Comment No. 2: Page 2. The response is adequate.

Response: Acknowledged.

Comment No. 3: Page 2. The response is adequate.

Response: Acknowledged.

Comment No. 4 (a): Page 2. The response is adequate.

Response: Acknowledged.

Comment No. 4 (b): Page 2. The response is partially adequate (see EPA Comment Nos. 1 and 2 above).

Response: Acknowledged.

Comment No. 4 (c): Page 2. The response is partially adequate. NSSR has modified the CMS to provide sufficient documentation that institutional controls at the site will be protective of residential exposures. However, the CMS does not provide adequate documentation that institutional controls at the site are protective of commercial/utility worker exposures (see Booz-Allen General Comment No. 2).

Response: Institutional controls will be established for any land use producing residual risks above those considered to be generally acceptable. Risks to commercial/industrial workers fall within generally acceptable risk ranges. Text will be added to the final CMS report to address concerns with clean up goals, exposure factors, toxicity information and institutional controls as described in previous comment responses.

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**RESPONSE TO TECHNICAL REVIEW OF NAVAL STATION ROOSEVELT ROADS
SWMU #13, SWMU #46 AND AOC C
NAVAL STATION ROOSEVELT ROADS
CEIBA, PUERTO RICO
SEPTEMBER 30, 1999**

GENERAL COMMENTS

Comment No. 1: Page 3. For the purposes of reviewing the Corrective Measures Study (CMS) Final Report, it is assumed that previous reviews of the baseline human health risk assessment are appropriate, and that the CMS Final Report is an extension of a defensible risk assessment. It is also assumed that the risk assessment results presented in the CMS (including the total cumulative risk values for each receptor and the chemicals of concern [COCs] identified as contributing 90 percent of the total risk for each medium), accurately reflect the results and conclusions presented in the baseline risk assessment.

Response: Acknowledged. Additional information concerning the disposition of the property at SWMUs and AOCs, potential property uses and receptors will be obtained from the Draft RFI report and baseline Risk Assessment (Baker, 1996 and 1998). This information will be added to the CMS report to support the selection of COCs, exposure scenarios and exposure parameters used to calculate clean up goals. Exposure parameters and toxicological information will be updated, if necessary to reflect current data and risk assessment practices.

Comment No. 2: Page 3. The CMS contains several deficiencies with the calculation of risk-based cleanup levels for soil and sediment at SWMU 13 and SWMU46/AOC C. These deficiencies include, but are not limited to, the use of incorrect toxicity criteria, incorrect exposure parameters, and undocumented absolute oral absorption factors. The risk based cleanup levels for all receptors and media should be re-calculated based on the specific comments presented below.

Response: Acknowledged. Most recent, published toxicity information and adjustment factors will be used in the final CMS report. A table containing exposure parameters, toxicity information and adjustment factors will also be added to the final CMS report to facilitate regulatory review.

Comment No. 3: Pages 3-4. As discussed in the review of the 10/8/99 response to EPA's 7/27/99 comments, the CMS identifies appropriate technical approaches to address releases to sediment in SWMU 13 and releases to the surface and subsurface soil in SWMU 46/AOC C. For SWMU 13, various industrial and residential risk-based cleanup levels are calculated for sediment. Furthermore, the proposed corrective action measure involving the complete removal of sediments from the concrete-lined drainage is ultimately protective of both industrial and hypothetical residential receptors. For SWMU 46/AOC C, the proposed corrective action measure includes remediating polynuclear-aromatic hydrocarbons (PAH)-impacted soils to a level protective of construction workers, remediating poly-chlorinated biphenyls (PCB)-impacted soils based in a cleanup goal of 25 mg/kg in accordance with the final PCB disposal rule (40 CFR Parts 750 & 761), and establishing institutional controls to prevent property use other than low occupancy. These goals are based, however, on a construction worker. It is not clear why the construction worker rather than the commercial/utility worker is considered the more likely current human receptor and upon which the remediation goals are based. Without supporting documentation, it would be more appropriate to select a more frequent receptor population such as commercial/utility worker, for which the risk-based cleanup levels are consistently lower than for the construction worker populations.

However, if adequate documentation supports the selection of risk-based cleanup concentrations protective of construction workers, then institutional controls must be implemented to ensure the protection of other current receptors and potential future receptor populations.

Response: Because of the nature of sediment contamination at SWMU 13, the CMS proposes to remove all sediments from the concrete lined drainage ditch, regardless of the proposed clean up goal. The CMS also presents cleanup goals for the most likely current use scenario, the construction worker. Additional rationale for the selection of this receptor/land use scenario will be provided in the final CMS report. The final CMS will also describe the residual risk for other property use scenarios and potential receptors such as commercial/industrial workers to demonstrate that clean up goals established for the construction worker produce residual risks within generally acceptable risk ranges. Institutional controls will be established for any land use producing residual risks above those considered to be generally acceptable.

A distinction between potential ARARs and risk-based clean up goals will be established in the revised CMS report. The clean up goal for PCBs was obtained from the final PCB disposal rule (i.e., the mega-rule) which was identified as an ARAR. Within the mega-rule, there is no consideration of potential receptors, only the occupancy (high vs. low) of the property. Occupancy will be discussed in the revised CMS report. Property use restrictions or engineering controls (i.e., capping, and fencing) providing adequate protectiveness will also be discussed specific to the selection of the low occupancy PCB clean up goal as described in the final disposal rule.

SPECIFIC COMMENTS

Section 3.2.2 SWMU 46/AOC C, page 3-3

Comment No. 1: Page 4. As discussed in Section 2.2.2.2, pages 2-5 and 2-6 of the CMS, benzo(a)anthracene was detected in soil at SWMU 46/AOC C at concentrations above residential risk-based concentrations (RBCs). However, in Section 3.2.2, page 3-3, benzo(a)anthracene appears to have been eliminated from further consideration. Please provide supporting rationale for the elimination of this constituent or include it for evaluation as a COC.

Response: Agreed. Benzo(a)anthracene will be re-evaluated in the final CMS report. Rationale for benzo(a)anthracene inclusion or elimination will be added to Section 3.2.2.

Section 3.4.2 Human Health Risk-Based Cleanup Levels, page 3-5

Comment No. 2: Page 4. This section presents the methodology used to calculate site specific risk-based cleanup levels, but fails to discuss the oral toxicity criteria and adjusted toxicity criteria used in the CMS calculations. Section 3.4.2 of the CMS should be modified as follows:

- a) Modify the text to indicate that the chronic oral toxicity criteria used in the CMS were obtained from the most recent version of USEPA's Integrated Risk Information System (IRIS) database.
- b) Modify the text to indicate that oral toxicity criteria were adjusted for use in assessing the dermal route of exposure. Discuss the methodology used to adjust the oral toxicity criteria, including the selection of an absolute oral absorption factor for each chemical, and use of this factor to increase the chemical's oral cancer slope factor or to decrease the chemical's oral reference dose.

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Chemical-specific absolute oral absorption factors may be obtained from the Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profile documents. In cases where chemical-specific factors are not available, a default factor of one (1.0) is typically used in risk-assessments. Modify the text, tables, and all risk-based cleanup level calculations to reflect the use of the following absolute oral absorption factors in the CMS, or provide references and rationale to support the use of alternative factors. (Also see Specific Comment 3 regarding the evaluation of PAHs via the dermal route of exposure.)

COC; Absolute Oral Absorption Factor; Source

Benzo(a)pyrene; Not Applicable
Benzo(a)fluoranthene; Not Applicable
a-Chlordane; 0.8; ATSDR, 1991
gamma-Chlordane; 0.8; ATSDR, 1991
DDD; 0.7; ATSDR, 1994
DDE; 0.7; ATSDR, 1994
DDT; 0.7; ATSDR, 1994
Dieldrin; 1.0; ATSDR, 1991
Indeno(1,2,3-cd)pyrene; Not Applicable
PCB-1260; 1.0; ATSDR, 1995

Response: Agreed. Most recent, published toxicity information obtained from IRIS and ATSDR oral absorption factors will be used in the final CMS report in accordance with comments 2.a) and 2.b). In cases where chemical-specific oral absorption factors are not available, a default factor of 1.0 will be used. A table containing exposure parameters, toxicity information and oral absorption factors will also be added to the final CMS report to facilitate regulatory review.

Comment No. 3: Page 5. As discussed in Section 3.4.2, page 3-6, risk-based cleanup levels for all selected contaminants are calculated based on the incidental ingestion and dermal absorption routes of exposure. According to USEPA's Risk Assessment Guidance for Superfund (RAGS), Volume I, 1989, it is not appropriate to quantitatively evaluate carcinogenic PAHs via the dermal route of exposure since select carcinogenic PAHs act locally (e.g., induce skin tumors), are metabolized in the subcutaneous skin layer, and are not systematically absorbed. Recalculate the risk-based cleanup levels for the carcinogenic PAHs (i.e., benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene) using only the incidental ingestion route of exposure.

Response: Agreed. Only incidental or accidental ingestion routes of exposure will be evaluated for the carcinogenic PAHs to establish clean up goals for the final CMS report.

Comment No. 4: Page 5. Modify Table 3-2, in Section 3.4.2, to show that a soil ingestion rate of 50 mg/day was used to calculate the risk-based cleanup levels for commercial/utility workers. Table 3-2 currently shows an incorrect soil ingestion rate of 100 mg/day, while the correct ingestion rate of 50 mg/day was used in the CMS calculations in Appendix A for this receptor.

Response: Agreed. The correct ingestion rate - 50 mg/d, will be used in the final CMS for the commercial/utility worker. Table 3-2 and calculations in Appendix A will be corrected accordingly.

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Appendix A, Cleanup Level Calculations

Comment No. 5: Page 5. On the cleanup level calculation spreadsheets in Appendix A, b-chlordane is incorrectly listed as a COC at SWMU 13. According to Section 2.2.2.1, page 2-4, the appropriate COC is gamma-chlordane. Modify the tables in Appendix A accordingly.

Response: Agreed. The correct chlordanes isomer (i.e., gamma-chlordane) will be used consistently in the final CMS report – Appendix A.

Comment No. 6: Page 6. An incorrect oral slope factor of $1.6E+00$ (mg/kg-day)⁻¹ was used to calculate risk-based cleanup goals for dieldrin at SWMU 13. According to the USEPA's IRIS database, the correct oral slope factor for dieldrin is $1.6E+1$ (mg/kg-day)⁻¹. Recalculate the proposed cleanup levels for dieldrin accordingly.

Response: Agreed. The correct dieldrin oral slope factor ($1.6E+1$) will be used to calculate the cleanup goal for SWMU #13.

Comment No. 7: Page 6. For the Military Residential Child receptor, an incorrect averaging time for noncarcinogenics (ATnc) of 2,190 days was used to calculate the risk-based cleanup levels. Based on an exposure duration of four years, multiplied by 365 days per year, the correct ATnc for this receptor is 1,460 days. Recalculate the proposed cleanup levels for the Military Residential Child using the appropriate ATnc.

Response: The Navy will evaluate the future potential residential use of each SWMU and AOC assuming the typical military tour of duty at NSSR (4 years). All other potential exposure parameters will be adapted from USEPA's standard exposure assumptions for potential residential exposure to both children and adults. As a result, the exposure duration (ED) for noncarcinogens for the future military residents will be 1,460 days.

Comment No. 8: Page 6. For the Military Residential Adult receptor, an incorrect ATnc of 8,760 days was used to calculate the risk-based cleanup levels. Based on an exposure duration of four years, multiplied by 365 days per year, the correct ATnc for this receptor is 1,460 days. Recalculate the proposed cleanup levels for the Military Residential Adult using the appropriate ATnc.

Response: Please see the response to comment 7., above.

Please do not hesitate to call either myself at (412) 269-2009 or Mr. Christopher T. Penny, the Navy Technical Representative at (757) 322-4815 if you have any questions or desire further clarification of any of the points discussed in this letter or attachment.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Mark E. Kimes, P.E.
Activity Coordinator

MEK/CMC/lp

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