



COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

ENCL. 1

Environmental Emergencies Response Area

March 31, 2008

Mr. Timothy R. Gordon
RCRA Programs Branch
Resource Conservation and Special Projects Section
U.S. Environmental Protection Agency
290 Broadway, 22nd. Floor
New York, NY 10007-1866

Re: Technical Evaluation of Navy Responses to Puerto Rico Environmental Quality Board Comments on the Draft Corrective Measure Study Final Report, SWMU 68, Naval Activity Puerto Rico, Ceiba, Puerto Rico

Dear Mr. Gordon:

The Puerto Rico Environmental Quality Board (PREQB) has reviewed the Navy's responses to PREQB comments on the Draft Corrective Measure Study Final Report, SWMU 68, Naval Activity Puerto Rico, EPA I.D. No. PR2170027203, dated October 28, 2008. The responses to comments are acceptable with the exception of two page-specific comments discussed in the attached document. The Hazardous Waste Permit Division along with the Federal Facilities Coordinator of the Puerto Rico Environmental Quality Board conducted this reviewed.

If you have any questions or comments about our review, please contact me at (787) 767-8181, extension 6141.

Cordially,

Wilmarie Rivera Otero
Federal Facilities Coordinator

**Technical Evaluation of Navy Responses to
Puerto Rico Environmental Quality Board Comments,
Draft Corrective Measures Study Final Report, SWMU 68,
Naval Activity Puerto Rico, Dated October 28, 2008**

Puerto Rico Environmental Quality Board's (PREQB) has conducted a review of the Navy's responses to PREQB's comments on the Draft Corrective Measures Study Report for Solid Waste Management Unit (SWMU) 68. The responses to PREQB's comments are acceptable with the exception of the responses to two page-specific comments, as discussed below. Note that the original comment and the Navy's response to comment are not italicized, and PREQB's evaluation of the response is presented in italics.

Page-Specific Comments

Comment 6, Page 3-5, Section 3.2.2, CAO Development for Ecological Receptors. Please expand the discussion to support the assumption that "Subsurface soil (greater than one foot below the ground surface) represents an incomplete exposure pathway for ecological receptors." This exposure assumption should be based on site-specific data that demonstrate a lack of potential habitat for soil invertebrates and burrowing animals, such as land crabs that are known to burrow much deeper than 2 feet bgs in Puerto Rico. If the biologically active zone extends from 0 to 2 feet bgs (e.g., land crab burrows), the ecological CAOs also should be applied to subsurface soils to the depth to which fauna are likely to burrow at the site.

Navy Response to Comment: A review of the soil analytical data presented with Appendix A (Phase II ECP analytical data) and Appendix B (November 2006 Phase I RFI field investigation) indicates that copper, lead and zinc are not present in subsurface soil at concentrations greater than CAOs. However, given that subsurface soil samples collected during previous investigations were taken from depths greater than 2.0 feet, the Draft Corrective Measures Study Final Report will be revised to indicate an excavation depth of 2 feet. The Navy does not believe that an excavation depth greater than 2 feet is necessary based on available analytical data. It is noted that land crabs have not been observed at SWMU 68 during previous field investigations.

Evaluation of Response to Comment: *The original comment sought scientific support for the presumed lack of a complete ecological exposure pathway for subsurface soils, not a discussion of excavation depths of exceedances of CAOs. Please clarify whether: (A) ecological CAOs were exceeded at depths greater than 2 feet bgs; and (B) the Navy considers the biologically active zone to extend down to a maximum depth of 2.0 feet bgs. If no CAOs were exceeded deeper than 2 feet bgs and soils exceeding CAOs will be excavated to depths of 2 feet bgs, then the comment is editorial, seeking justification for the presumed lack of an exposure pathway to bolster the ERA discussion. But if CAO exceedances occur deeper than 2 feet bgs, please support the presumed lack of a complete ecological exposure pathway for soils deeper than 2 feet bgs, by discussing whether: (A) there is there habitat suitable for the crabs or other wildlife that might burrow; (B) plants occur onsite that provide food for birds or other wildlife and are rooted deeper than two feet, thus providing a complete food chain exposure pathway to*

subsurface contaminants; and/or (C) contamination deeper than 2.0 feet could migrate to groundwater and subsequently be carried into nearby wetlands, where exposure would occur via surface water or sediments.

Comment 15, Appendix C, Table C-2. Please confirm that a dermal absorption fraction (ABS_d) of 0.03 (not 0.03%) and a gastrointestinal absorption factor (GIABS) of 1 were used in calculating dermal absorption associated with exposure to arsenic in soil. Please revise the footnote to accurately reflect the default ABS_d values used and indicate what GIABS value and toxicity criteria were used to calculate risk for arsenic in soil. Also, the EPA Regional Screening Level (RSL) table should be used as the reference for ABS and gastrointestinal absorption factors rather than EPA Region III. Note that it is the most up-to-date reference for toxicity criteria as well. Please revise the particulate emission factor to reflect the most recent EPA-recommended default value of 1.4E+09 m³/kg, as presented in the RSL table dated September 2008. Note that these changes are unlikely to alter the conclusions of the risk evaluation for arsenic; however, these changes should be implemented for accuracy and to ensure consistency with current EPA Region 2 policy.

Navy Response to Comment: The Draft Corrective Measures Study Final Report will be revised to include a table in Appendix C that includes all relevant toxicity factors used to calculate risk and hazard for arsenic exposures. Note that the toxicity values used in the preliminary evaluation were the most current values. Appendix C will also be revised to eliminate references to EPA Region III. However, the PEF used in the preliminary calculations will not be revised. The Preliminary Human Health Risk Calculations for Arsenic included in this Draft Corrective Measure Study Final Report were conducted as part of the EPA-approved Revised Final Phase I RCRA Facility Investigation Report for SWMU 68 (approved by the EPA in a letter dated August 11, 2008). It follows that all exposure parameters used calculations were approved at that time. However, as agreed upon in the January 9, 2009 conference call between the Navy, EPA and PREQB, EPA's current default PEF of 1.36E+09 m³/kg will be used in future human health risk assessments conducted at NAPR.

Evaluation of Response to Comment: For clarity, in addition to toxicity criteria, please include all exposure factors used to calculate cancer risks and noncancer hazards in the table to be added to Appendix C.