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# United States Department of the Interior



## FISH & WILDLIFE SERVICE

### Boqueron Field Office

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FFR 2 2005

Mr. Jeff Harlow  
Remedial Project Manager  
**Installation Restoration Section**  
Environmental Programs Branch  
Atlantic Division (LANFDIV) Code EV22JH  
Naval Facilities Engineering Command  
6506 Hampton Blvd  
Norfolk, VA 23508

Re: Environmental Remedial Investigation  
Work Plan. **Solid Waste Management Unit**  
4. SWMU 4. Vieques

Dear Mr. Harlow:

We have reviewed the above referenced document dated June 2004 and have the following **comments**. This site is located in the western part of Vieques and is already part of a munitions and explosives of concern (MEC) investigation.

1. Executive Summary. According to the executive summary, the investigation is proposing that 40 soil samples, 15 groundwater samples, 6 surface water samples and 6 sediment samples be collected and analyzed. However, the number of samples mentioned in the executive summary and the Tables in Section 4 are different. Does the executive summary assume that you are including the limited sampling that has already been done? The Fish and Wildlife Service favors the number of samples indicated in the executive summary.
2. Section 2.2.2 Site Specific Hydrology and Geology. The site at SWMU 4 is located on a small ridge. Most of the Open Burn/Open Detonation (OB/OD) pits are located on the top or high slopes of this ridge. To the west-northwest, the site drains mainly into Laguna Boca Quebrada, an estuarine lagoon that is associated with the Kiani Lagoon complex. To the south-southwest, the area drains into the Caribbean Sea, and to the extreme southeast, the area drains into an ephemeral stream that is part of the Monte Pirata Drainage. In order to better visualize how SWMU 4 lies within the topography, we recommend that the grids shown in Figures 2-3 to 2-11, be overlaid with the aerial photo in Figure 2-2. This would

provide a better perspective of where the OB/OD pits and MEC were located and their relationship to Laguna Boca Quebrada and the stream.

Section 2.3.1 Ecological Survey. No endangered or threatened species were observed at the site in surveys done in 3000: however, most of the surveys concentrated on the then defined SWMU 4. The site has grown considerably since the original surveys. The Ecological Survey did not include the mangrove wetlands or lagoon. An ecological survey of these wetland areas should be done and include a survey for the threatened Cóbana negra *Stahlia monsperma*, a medium sized tree usually associated with mangroves and lagoons. In addition, if any work is to be carried out in the beach areas of SWMU 4, sea turtle protocols such as those currently being designed for eastern Vieques MEC work should be instituted.

4. Section 3.1. Human Health and Ecological Protection Based Screening Criteria.
  - a. One of the Service's main concerns is the possible impacts that SWMU 4 had on Laguna Boca Quebrada. This is an estuarine lagoon with very little connection and thus, contaminants transported to the lagoon accumulate within the lagoon sediments.
  - b. Soil samples should be screened against EPA Ecological Soil Screening Levels.
  - c. Sediment samples from Laguna Boca Quebrada should be screened using NOAA's sediment criteria for estuarine areas, and the Navy should consider using Suter et al 1996 Toxicological Benchmarks for Screening Potential Contaminants of Concern for effects on Aquatic Biota and Jones et al 1997 Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Sediment Associated Biota.
  - d. Surface water and Sediments values and criteria should be separate..
5. Section 3.2 Conceptual Site Model. This does not accurately describe the site. Surface water runoff to the northwest is to Laguna Boca Quebrada, the estuarine lagoon previously mentioned. The natural hydrological connection to the sea was altered by the Navy years ago. The current opening, which allows tidal connection to the sea, tends to become blocked with sand for long periods. To the south, surface water drains into an ephemeral stream. This stream flows during periods of heavy rainfall and breaches a sand berm that separates it from the sea. During periods of low or no flow, a small estuarine area forms behind the sand berm.
6. Figure 3-1 Conceptual Site Model. This figure is confusing. The north arrow seems to be pointing towards Monte Pirata, which is to the west. Surface water is

shown only in the quebrada; however, surface water also flows from the OB/OD site to the lagoons and to the sea.

7. Figure 3-2 Exposure Pathways. This figure does not include all relevant ecological receptors. Root uptake by plants should be included as a receptor for exposure from surface water and sediment. Root uptake by plants should be included as a receptor for exposure in sub surface soil as well. Maintenance workers (biologists) should be included as receptors for exposure from surface water and sediments.
8. Section 4.3.4 Soil Sampling and Analysis:
  - a. Surface soil samples are to be taken from 0-6 inches. We recommend that surface soil samples be taken at a greater depth since MEC was found at deeper soil depths. We feel strongly that this needs to be discussed among all parties.
  - b. Four soil borings are planned for the northwest section of the site where the site drains into the lagoon. This will not be sufficient to characterize the extent and magnitude of contamination in the wetlands.
  - c. One soil boring is planned for the ephemeral stream to the southwest of the site. This will not be sufficient to characterize the extent and magnitude of contamination.
  - d. There are no soil borings proposed south of the stream, even though this is still part of SWMU 4. If the intent of this sampling is to determine the extent and magnitude of contamination, several soil borings should be taken in grids south of the stream.
9. Section 4.3.6 Sediment Sampling and Analysis. Since Laguna Boca Quebrada (not Laguna Arenas as stated in the section) is a depositional area, sampling sediments deeper than 0-6 inches should be considered.
10. Section 5.3 Ecological Risk Assessment Approach. Since a limited biological sampling was already done in the immediate area, that data should be included as part of the risk assessment.
11. Section 5.3.1.1 Screening Level Problem Formulation Complete Exposure Pathways. The paragraph on Complete Exposure Pathways states that ecological habitats are minimal in most portions of the Former Naval Ammunition Storage Detachment (NASD). While this may be true for the former NASD building complex that was transferred to the Municipality of Vieques, it is not true for the rest of the former NASD. The vast Kiani Lagoon wetland complex and Monte Pirata are excellent habitats, not to mention the forested areas and quebradas in

the rest of the former NASD. The reference to the former NASD being minimal habitat should be removed from this paragraph.

12. Section 5.3.1.2 Screening-Level Ecological Effects Evaluations. **Surface Water. Surface water in Laguna Boca Quebrada is estuarine, and estuarine water quality criteria should be used.** Puerto Rico water quality standards have an estuarine component. EPA's National Recommended Water Quality Standards have estuarine standards for some parameters and tends to lump both marine and estuarine into the saltwater category for others. Freshwater criteria should never be used for any of the mangrove lagoons on Vieques or in the small estuaries at the mouth of streams.
13. Section 5.3.2.1 Screening Level Exposure Estimates. **Receptors should include land crabs and fiddler crabs (aquatic invertebrates) and herons, specifically night herons and snowy egrets.**

Thank you for the opportunity to comment on this project, if you have any questions please contact Felix Lopez of my staff at 787 851-7297 x 226.

Sincerely yours,



Edwin E. Muñiz  
Field Supervisor

fh1  
cc:  
EPA, Vieques  
NMFS, Lajas  
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