



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

MAR 24 2011

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Mark E. Davidson
US Navy
BRAC PMO SE
4130 Faber Place Drive – Suite 202
North Charleston, SC 29405

Re: Naval Activity Puerto Rico (NAPR), formerly Naval Station Roosevelt Roads,
EPA I.D. Number PRD2170027203

- 1) SWMU 1 (Army Cremator Disposal Site) – Final Sampling and Analysis Plan for Debris Removal, dated March 10, 2011
- 2) SWMU 1 & 2 – Draft Final Corrective Action Objectives and Preliminary Delineation Investigation, dated December 16, 2010
- 3) SWMU 2 (Langley Drive Disposal Site) – Final Design Package for Interim Corrective Measures, dated January 5, 2011
- 4) SWMU 74 (Fuels Pipeline Site) - Final CMS Work Plan and Addendum A, Phase II Investigation Work Plan, dated March 4, 2011
- 5) SWMU 77 (Small Arms Range) - Draft Phase I RFI Report, dated October 27, 2010

Dear Mr. Davidson:

This letter is addressed to you as the Navy's designated project coordinator pursuant to the January 29, 2007 RCRA Administrative Order on Consent ("the Consent Order") between the United States Environmental Protection Agency (EPA) and the U.S. Navy (the Navy).

SWMU 1 – Final Sampling and Analysis Plan (SAP) for Debris Removal

EPA has completed its review of the above document, and the Navy's responses to EPA's comments transmitted with our letter of February 24, 2011. Both were submitted on behalf of the Navy by Tetra Tech's (Ms. Linda Klink) letter of March 10, 2011. EPA has determined that the Final SAP is acceptable, along with the responses to our previous comments.

In addition, Ms. Wilmarie Rivera of the Puerto Rico Environmental Quality Board (PREQB) has advised me by Email dated March 22, 2011 that PREQB's previous comments transmitted with their letter of January 14, 2011 to myself, have been adequately addressed in the March 10, 2011 Responses to Comments and the Final SAP.

Within 60 days of your receipt of this letter, please either commence implementation of the SAP, or submit an updated schedule for implementation.

SWMU 1 & 2 – Draft Corrective Action Objectives (CAO) and Preliminary Delineation Investigation

EPA has completed its review of the above document and the Navy's responses to EPA's comments dated October 14, 2010. Both were submitted on behalf of the Navy by Baker Environmental's (Mr. Mark Kimes') letter of December 16, 2010. As part of that review, EPA requested our consultant TechLaw Inc., to review the above document and the Navy's responses to EPA's comments. TechLaw's comments are given in the enclosed Technical Review (Enclosure # 1). Within 60 days of your receipt of this letter, please submit responses and any necessary revisions to the CAO acceptably addressing comments given in the enclosed technical review.

The Puerto Rico Environmental Quality Board (PREQB) has also submitted a comment with its letter of February 2, 2011 to myself. A copy of PREQB's letter is attached (Enclosure #2). Within 60 days of your receipt of this letter, please also submit a written response addressing PREQB's comment.

SWMU 2 – Final Design Package for Interim Corrective Measures (ICM)

EPA has completed its review of the above document and the Navy's responses to EPA's comments dated October 14, 2010. Both were submitted on behalf of the Navy by Right Way Environmental Contractors' (Mr. Pedro R. Tejada's) letter of January 5, 2011. As part of that review, EPA requested our consultant TechLaw Inc., to review the above document and the Navy's responses to EPA's comments. Based on those reviews, EPA has the following comments:

The Navy's responses adequately addressed the EPA comments. However, the Navy's responses to General Comment (GC) 2, GC 4, and Specific Comment (SC) 3, and SC 5 of our October 2010 comments, indicate that the Interim Corrective Measures (ICM) Work Plan for SWMU 2 provides specific detailed design plans (e.g., wetland delineation, erosion control structures, analytical methods). However, the Final Design Package for ICMs, dated January 5, 2011, does not contain such detailed site-specific design plans. In fact, Section 4.0 (Components of the Remedial Action) of the Final Basis of Design states that the Contractor has up to 60 days to prepare and submit the necessary pre-construction plans, including, among others, the Erosion and Sedimentation Control Plan, Sampling and Analysis Plan (SAP). Therefore, within 60 days

of your receipt of this letter, please submit an Addendum to the Final Design Package which includes acceptable site-specific plans for wetland delineation, erosion and sedimentation control, and the SAP.

In addition, since as discussed previously, the corrective action objectives (CAOs) proposed in the December 16, 2010 Draft Final Corrective Action Objectives for Terrestrial Avian Omnivores are only conditionally approved, if any revisions to those proposed CAOs are required based on the comments discussed previously, within 60 days of your receipt of this letter, please also submit any necessary revisions to the Final Draft Design Package for ICMs to include the revised CAOs.

The Puerto Rico Environmental Quality Board (PREQB) by letter dated March 3, 2011 to myself has indicated that the responses to its prior comments are adequate and that appropriate revisions were made to the Final Design Package.

EPA will conditionally approve the Final Design Package for Interim Corrective Measures, subject to the Navy submitting within 60 days of your receipt of this letter, an Addendum acceptably addressing the above comments, and an updated schedule, reflecting any necessary revisions to the schedule given in Appendix A of the Final Basis of Design.

Also, please note that Mr. Edwin E. Muniz of the U.S. Fish and Wildlife Service (FWS), by letter dated March 1, 2011 addressed to Mr. Pedro R. Tejada of Right Way Environmental has commented on the Final Design Package. Please address FWS' comments in the above requested Addendum, when submitted.

SWMU 74 - Final CMS Work Plan and Addendum A, Phase II Investigation Work Plan

EPA has completed its review of the above document and the Navy's responses to EPA's comments dated February 9, 2011. Both were submitted on behalf of the Navy by Baker Environmental's (Mr. Mark Kimes') letter of March 4, 2011. EPA finds these to be acceptable.

Within 30 days of your receipt of this letter, please commence implementation of the Phase II Investigations pursuant to the schedule given in Figure 9-1 of the Phase II Work Plan, or submit a revised schedule for implementation.

SWMU 77 - Draft Phase I RFI Report

EPA has completed its review of the Draft Phase I RFI Report (the report) and the Navy's responses to previous EPA comments (transmitted with EPA's letter of May 27, 2010) on the Phase I Work Plan. Both items were submitted on behalf of the Navy by Tetra Tech's (Ms. Linda Klink's) letter of October 27, 2010. As part of our review, EPA requested our consultant TechLaw Inc., to review the above document and the Navy's responses to EPA's comments on the Phase I Work Plan. TechLaw's comments are given in the enclosed Technical Review

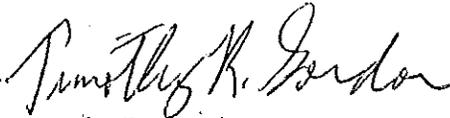
(Enclosure #3). Based on the reviews, EPA has determined that the Phase I RFI report is not fully acceptable. Within 75 days of your receipt of this letter, please submit revised responses and revisions to the Draft Phase 1 RFI Report, acceptably addressing the comments given in Enclosure #3.

The Puerto Rico Environmental Quality Board (PREQB) has also submitted comments with its letter of December 14, 2010 to myself. A copy of PREQB's letter is attached (Enclosure #4).

Within 75 days of your receipt of this letter, please submit revised responses and revisions to the Draft Phase 1 RFI Report, acceptably addressing PREQB's comments.

If you have any questions, please telephone me at (212) 637- 4167.

Sincerely yours,



Timothy R. Gordon
Project Coordinator
Resource Conservation and Special Projects Section
RCRA Programs Branch

Enclosures (4)

cc: Ms. Wilmarie Rivera, P.R. Environmental Quality Board, w/encls. #1 & #3, only
Ms. Gloria Toro, P.R. Environmental Quality Board, w/encls. #1 & #3, only
Mr. Mark Kimes, Baker Environmental, w/encls.
Ms. Linda Klink, Tetra Tech, w/encls. #3 & #4 only
Ms. Cathy Dare, TechLaw Inc., w/o encls.
Mr. Felix Lopez, USF&WS, w/o. encls.

**EVALUATION OF THE DECEMBER 16, 2010
NAVY RESPONSE TO EPA COMMENTS DATED OCTOBER 14, 2010
ON THE DRAFT CORRECTIVE ACTION OBJECTIVES DEVELOPMENT FOR
TERRESTRIAL SWMU 1 (ARMY CREMATOR DISPOSAL SITE)
AND SWMU 2 (LANGLEY DRIVE DISPOSAL SITE)**

**NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO
EPA ID No. PR2170027203**

Submitted to:

**U.S. Environmental Protection Agency
Region 2
290 Broadway
New York, NY 10007-1866**

Submitted by:

**TechLaw, Inc.
205 West Wacker Drive
Suite 1622
Chicago, Illinois 60606**

EPA Task Order No.	002
Contract No.	EP-W-07-018
TechLaw TOM	Cathy Dare
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EPA TOPO	Timothy Gordon
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March 14, 2011

**EVALUATION OF THE DECEMBER 16, 2010
NAVY RESPONSE TO EPA COMMENTS DATED OCTOBER 14, 2010
ON THE DRAFT CORRECTIVE ACTION OBJECTIVES DEVELOPMENT FOR
TERRESTRIAL SWMU 1 (ARMY CREMATOR DISPOSAL SITE)
AND SWMU 2 (LANGLEY DRIVE DISPOSAL SITE)**

**NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO
EPA ID No. PR2170027203**

The following comments were generated based on an evaluation of the of the December 16, 2010 Navy Response to EPA Comments dated October 14, 2010 on the *Draft Final Corrective Action Objectives Development for Terrestrial Avian Omnivores and Preliminary Delineation Investigation, SWMU 1 (Army Cremator Disposal Site) and SWMU 2 (Langley Drive Disposal Site) [CAO]*, for Naval Activity Puerto Rico in Ceiba, Puerto Rico. TechLaw also reviewed the Draft Final CAO, dated December 16, 2010 for conformance to the responses. Only responses that did not address the comment are addressed below.

GENERAL COMMENTS

Evaluation of the Response to EPA General Comment 1: The response does not address the comment. While data validation reports have been included in Appendix I, the CAO does not provide a complete data usability assessment. The data usability report should discuss and compare overall precision, accuracy/bias, representativeness, comparability, completeness, and sensitivity for each matrix, analytical group, and concentration level and describe limitations on the use of project data if criteria for data quality indicators are not met. The data usability report should also discuss whether any trends or biases appear in the data. Revise the CAO to provide a data usability assessment separate from the data validation reports.

Evaluation of the Response to EPA General Comment 2: The response partially addresses comment. However, to verify whether samples were qualified appropriately it is recommended that complete validation reports are included as an attachment to the CAO on a CD.

Evaluation of the Response to EPA General Comment 3: The response partially addresses the comment. Post digestion spike (PDS) recoveries are not discussed in the data validation narratives. It cannot be verified where PDS recoveries were within acceptance criteria. See the evaluation of the response to EPA General Comment 2.

SPECIFIC COMMENTS

EPA Specific Comment 2: Tables 3-1 and 3-2 were revised to include the bioaccumulation factors (BAFs) used for deriving the corrective action objectives (CAOs) presented in Table 3-3.

However, the 95% upper confidence limit (UCL) of the mean BAFs provided in Table 3-1 (SWMU 1) do not correspond to the values shown in Appendix E (*95 Percent UCL of the Mean Soil-to-Earthworm Bioaccumulation Factors*), other than the value for mercury (see value discrepancies below).

Analyte	Table 3-1 BAF value	Appendix E BAF value
Cadmium	0.181	3.918
Copper	0.0827	0.181
Lead	3.918	0.0827
Mercury*	0.797	0.797
Tin	0.353	34.57
Zinc	34.57	0.353

*The mercury BAF in Table 3-1 is the value given in Appendix E

Resolve these discrepancies and report the correct BAFs in Table 3-1.

EPA Specific Comment 6: The cause for the incorrect numbering of Tables 4-4 and 4-5 was clarified in the Navy's response which explained that a table was inadvertently included and labeled 4-4 in the electronic version of the document, thereby throwing off the numbering for following tables. Table 4-4 was removed and the appropriate changes have been made to correctly number and reference Tables 4-4 (*Comparison of Corrective Action Objectives for SWMU 1 Surface Soil to Preliminary Delineation Investigation Analytical Results*), and Table 4-5 (*Comparison of Corrective Action Objectives for SWMU 2 Surface and Subsurface Soil to Preliminary Delineation Investigation Analytical Results*). Table 4-6 (*Comparison of Corrective Action Objectives for SWMU 2 Surface and Subsurface Soil to Preliminary Delineation Investigation Analytical Result*) still remains as part of the current CAO and is an exact copy of Table 4-5. Table 4-6 in the CAO should be removed.



COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board



ENVIRONMENTAL EMERGENCIES RESPONSE AREA

February 2, 2011

Timothy Gordon
US Environmental Protection Agency – Region II
290 Broadway – 22nd Floor
New York, New York 10007-1866

**Re: Review of Navy Responses to PREQB Comments on the Draft Corrective Action Objectives Development for Avian Terrestrial Omnivores and Preliminary Delineation Investigation for SWMU 1 - Army Cremator Disposal Site & SWMU 2 - Langley Drive Disposal Site
Naval Activity Puerto Rico
Ceiba, PR2170027203**

Dear Mr. Gordon:

The Federal Facility Coordinator (FFC) has finished the review of the above-mentioned document. All of the responses to comments are acceptable, noting that there is an outstanding issue on the use of method detection limits as the reported detection limit for nondetects.

The Puerto Rico Environmental Quality Boards (PREQB) position on that issue have been previously stated. Also we are including a comment in this regard every time we found the issue during a document review. Nevertheless, we will recognize EPA's lead in RCRA Sites and will defer to its position once resolved.

If you have any additional comments or questions please feel free to contact Gloria M. Toro Agrait at (767) 787-8181 extension 3586 or myself at extension 6129.

Cordially,

Wilmarie Rivera
Federal Facilities Coordinator
Environmental Emergencies Response Area

cc. Gloria M. Toro Agrait, Environmental Permits Officer

**EVALUATION OF THE OCTOBER 2010
DRAFT PHASE I RFI REPORT FOR SWMU 77 (SMALL ARMS RANGE) AND
THE OCTOBER 27, 2010 NAVY RESPONSE TO REGULATORY
FOLLOW-UP COMMENTS LETTER DATED MAY 27, 2010
ON THE ASSOCIATED SWMU 77 PHASE I RFI
SAMPLING AND ANALYSIS PLAN**

**NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO
EPA ID No. PR2170027203**

Submitted to:

**U.S. Environmental Protection Agency
Region 2
290 Broadway
New York, NY 10007-1866**

Submitted by:

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EPA Task Order No.	002
Contract No.	EP-W-07-018
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March 7, 2011
EVALUATION OF THE OCTOBER 27, 2010
NAVY RESPONSE TO REGULATORY FOLLOW-UP
COMMENTS LETTER DATED MAY 27, 2010
ON THE ASSOCIATED SWMU 77 PHASE I RFI
SAMPLING AND ANALYSIS PLAN

NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO
EPA ID No. PR2170027203

The following comments are based on the review of the October 27, 2010 Response to Regulatory Follow-Up Comments Letter dated May 27, 2010 on the Associated SWMU 77 Phase 1 Sampling and Analysis Plan (SAP) that was submitted with the October 2010 Draft Phase I RFI Report for SWMU 77 (RFI Report). Only evaluations of responses deemed not adequate are addressed below. It should be noted that the comments presented below request revisions to the RFI Report since the sampling and analysis proposed in the SAP have already been completed and are summarized in the Report.

GENERAL COMMENT

Evaluation of the Response to EPA General Comment 6: The response partially addresses the comment. While it appears that the acceptance criteria from the Department of Defense (DoD) Quality Systems Manual (QSM) for post digest spikes (PDS) was used, the RFI Report does not discuss whether a PDS was necessary (i.e., if matrix spike/matrix spike duplicates [MS/MSDs] did not meet acceptance criteria), and if so, what the PDS results and recoveries were. Revise the RFI Report to clarify if a PDS was analyzed, and if so, provide a brief discussion of the PDS results in the RFI Report.

SPECIFIC COMMENT

Evaluation of the Response to EPA Specific Comment 13: The response addresses the comment; however, it appears that duplicate results were averaged or rejected when one result was below the project action limit (PAL) and one result was above the PAL. For example, the results for copper from samples 77OB-SS001-G00.5 (128 milligrams/kilogram [mg/kg]) and 77OB-SS001-G00.5-D (12,500 mg/kg) were averaged even though one result is above the PAL of 168 mg/kg. Further, because of the large difference in concentrations between parent and duplicate samples, these results were rejected. Since the greater duplicate concentration is the only copper concentration above the PAL, and this location has the only results above PALs for arsenic, copper, and zinc at the Potential Open Burn/Open Detonation (OB/OD) Subarea, it appears that both results, or the greater result, should be considered in the RFI Report. In particular, it should be noted that a limited amount of samples were collected during the Phase I

RFI. Additionally, the completeness goal of 95 percent was also not achieved at this area. Therefore, a conservative approach should be taken such that arsenic, lead, copper, and zinc be considered for further investigation at this area during the Full RFI. Additionally, future sampling and analysis plans should not propose averaging results for field duplicates, and should consider the greater of the two results to be conservative. Revise the RFI Report to indicate that arsenic, copper, lead, and zinc be carried through to the Full RFI at the Potential OB/OD Subarea.

**EVALUATION OF THE OCTOBER 2010
DRAFT PHASE I RFI REPORT FOR SWMU 77 (SMALL ARMS RANGE)**

**NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO
EPA ID No. PR2170027203**

The following comments are based on a review of the October 2010 *Draft Phase I RCRA Facility Investigation Report for SWMU 77- Small Arms Range*, for Naval Activity Puerto Rico in Ceiba, Puerto Rico (hereinafter referred to as the RFI Report).

GENERAL COMMENTS

1. The human health screening level risk assessment (SLRA) is fundamentally undermined by the chemicals of potential concern (COPC) selection process which includes consideration of site-specific background levels as Project Action Limits (PALs). Based on this approach, areas are pre-screened from further scrutiny based on an evaluation of potential harm that considers only a subset of the relevant constituents. Examples of this approach are provided below, but every instance where this process was employed has not been detailed throughout the assessment of the risk evaluation.

Metals have not been screened for human health risk in certain subareas, even though concentrations of metals in soil exceed U.S. EPA Regional Screening Levels (RSLs) for residential land use. For example, Section 4.5 indicates that metals were not included in the risk screening for the Rifle Range Subarea because high metals contamination was encountered elsewhere and decision making is "straightforward." However, it is unclear what decisions were made. Revise the RFI Report to clarify why metals were not included in the human health risk screening.

Further, the Human Health Screening-Level Hazard/Risk Assessment sections indicate that chemicals detected with one concentration exceeding the RSL will be selected as COPCs, and that COPCs will be further evaluated in a human health risk assessment. However, it is unclear why metals were often not identified as COPCs, when concentrations often exceeded RSLs. For example, at the Detonation Area Near Concrete Pad Subarea, arsenic (2.44 milligrams/kilogram [mg/kg]) exceeded the RSL of 0.39 mg/kg, but was not identified as a COPC. Additionally, at the Potential Munitions Trench Subarea, arsenic (1.53 mg/kg) was detected above the RSL, but the text indicates that no COPCs are present at the site because the PALs were not exceeded. It is unclear why RSLs were not used for screening in this case. Revise the RFI Report to clarify why arsenic was not included as a COPC.

Any environmental constituent detected above the most relevant health-based screening criterion needs to be identified as a site COPC and documented in the SLRA for the purposes of the public record and to ensure these constituents are tracked appropriately through the

process (e.g., SLRA → baseline HHRA → Corrective Measures Study, etc.). The risk assessment process is meant to result in a stand-alone document, presenting an analysis of potential contact with all constituents present at levels indicative of the potential to elicit environmental harm. Risk management decisions or the imposition of institutional or land use controls early on in the risk assessment process undermine the baseline assessment and should not be considered in an effort to truncate the scope of the risk assessment. Likewise, the SLRA should not consider screening in comparison to site-specific background levels (in this case, PALs), except to identify this dataset as appropriate for consideration as a component of a residual risk analysis within the context of the forthcoming baseline HHRA, wherein total risk may be segregated into its components of site-related and non-anthropogenic (i.e., background) risk, for the purposes of supporting defensible risk management decisions. Constituents which are anthropogenic in nature are inappropriate for consideration as “background” constituents, excepting site-specific instances of non-point sources unrelated to site operations (e.g., polynuclear aromatic hydrocarbons representing products of incomplete combustion from automobile exhaust or other non-point source combustion inputs). The concept of nitroglycerin screening as a background constituent, as presented in Section 4.5.1, is inappropriate for the purposes of site management decision-making. Revise the RFI Report to ensure that all constituents detected above health-based screening criteria are identified as site COPCs and are documented in the SLRA.

2. During the RFI, the only 40-millimeter practice grenade model that was found as projectiles and munitions debris on the range was the M781. The projectiles (grenades) associated with this cartridge do not contain explosives and are considered inert from an explosives safety viewpoint. However, the RFI did not specifically state that this is the only model of 40-millimeter practice grenade fired on the range. As some other types of 40-millimeter practice grenades contain high explosives and can cause serious injury to individuals that may encounter them in an unexploded condition, this potential should be carefully evaluated during the further investigations conducted on the range. Ensure that this is done and that the results state that no model of practice grenade projectile that contains high explosives was employed on the range.
3. Sections 4.0 – 8.0 of the RFI Report follow the same structure and organization, from Site Background to Recommendations. Section 9.0, SWMU 77- Former Pistol Range Subarea, does not contain an Ecological Screening-Level Hazard/Risk Assessment section or Human Health Screening Level Hazard/Risk Assessment, nor does it explain why these sections are omitted. Also, subsection 9.4, Phase 1 RFI Data Collection Results, is directly followed by subsection 9.6 Conclusions, without a subsection 9.5. Revise the RFI Report to add an Ecological and Human Health Screening Level Hazard/Risk Assessment subsection to Section 9.0 or explain why this information is not provided. The numbering in Section 9.0 also will need to be amended.

4. The text states (e.g., Section 5.6 on p. 5-13 or Section 7.6 on p. 7-9): “Upon further examination, the {contaminant} PAL exceedance was based on human health criteria and is not an ecological concern/issue”. It is unclear how the exceedance of a PAL which represents a human health criterion is automatically protective of ecological receptors. Clarify this connection and amend the text accordingly.
5. The source of the PALs shown in the frequency of detection tables for each subarea are not referenced, nor are they explained anywhere in the text. Explain the process used to select the PALs for each contaminant and footnote the sources of the PALs in the target tables.
6. The RFI Report presents only one PAL for each contaminant but uses it to evaluate both human health and ecological risk. A separate set of ecological PALs need to be presented and used for evaluating ecological risk. The U.S. Environmental Protection Agency’s Ecological Soil Screening Levels (EcoSSLs) are available as a source of ecological PALs for the soil samples. Include the EcoSSLs in the RFI Report and use them to screen for ecological risk.
7. The basis for the RSLs that are not the values currently listed in the November 2010 RSL Summary Table is unclear. It is appropriate to utilize secondary effect RSLs, as detailed in one of the RSL supporting intercalc tables, but it would be helpful to the reader to note that the secondary RSLs result from calculating risk or hazard-based ratios and accounting for multiple possible effects. Revise the RFI Report to clarify which RSL values are used in the Risk Evaluation calculations.
8. The text correctly identifies the adjustment to $1/10^{\text{th}}$ of a noncarcinogenic RSL for use in initial COPC screening to account for the possible additive effects associated with multiple noncarcinogenic constituents affecting the same target organ or eliciting related effects. However, the hazard ratio example calculations in the text appear to present this adjustment in the form of a value equivalent to 10 times the noncarcinogenic RSL. Revise this approach and correct this apparent discrepancy. In addition, when presenting the simplistic RSL to EPC-based risk ratio approach, it is suggested that the following format be used:

Carcinogenic risk associated with constituent i:

$$\text{Risk}_i @ 10^{-6} = (\text{EPC}_i/\text{RSL}_i)*1\text{E-}06$$

Noncarcinogenic hazard associated with constituent y:

$$\text{HQ}_y = \text{EPC}/(\text{RSL}_y/10)$$

The current format in the text is not transparently clear due to the inclusion of variables and mathematical actions denoted by the same indicator.

9. The use of composite samples in the context of the risk assessment is problematic. Composite samples may be useful as generic presence/absence indicators or for use in field screening, but are inappropriate for use within a risk assessment as the basis for quantitative assessment. For areas under investigation, nature and extent definition should result in a statistically-viable dataset to underpin the follow-on risk evaluation. In instances where a statistically-viable dataset does not result from the supporting investigation, risk assessment must be predicted on the maximum detected concentration. Discrete environmental samples are fundamental to the risk assessment process. Decisions necessarily predicated on the use of composite samples should be flagged as data gaps and addressed appropriately in any forthcoming documentation to support corrective action. Revise the RFI Report to address the issue of using composite samples for risk evaluation.
10. The text indicates that the hazard index does not exceed one; however, individual calculated hazard quotients are often listed as slightly greater than one. For example, the hazard quotient calculated for nitroglycerin at the Pistol Range Subarea is listed as 1.3. It is assumed that such decisions were predicated on rounding of the hazard index to one significant figure before conclusions were made. Revise the RFI Report to clarify the rounding of hazard quotient values. Additionally, it should be noted that for any area where metals were not screened in comparison to health-based benchmarks, decisions about the presence/absence of COPC risk or hazard totals not being above the relevant points of departure (i.e., 1E-06, 1) are flawed and should be revisited, inclusive of all constituents detected above the most relevant health based standards.
11. The approach to the selection of COPCs, as outlined, is predicated on at least one detection in excess of an RSL. This assumes that all analyses were associated with appropriate sensitivity levels. Where appropriate, the SLRA (and any forthcoming iteration of the baseline risk assessment [BLRA]) should discuss treatment of non-detect results, ensuring that sample-specific sample quantitation limits (SQLs) are all sufficiently sensitive in comparison to the most relevant health-based screening concentrations. SQLs are specifically identified for use in this comparison as opposed to method or instrument detection limits. Any constituents with SQLs insufficiently sensitive for screening purposes must be identified as preliminary COPCs, pending a review of historical operations and known site COPCs, before they can be removed from future consideration and scrutiny. Revise the RFI Report to address the sensitivity levels of the constituents.
12. Section 2.0, Data Validation Outputs, of Appendix H.1, Data Quality Review, references a technical memorandum that presented the data qualification; however, this technical memorandum has not been included. Without this information, the data validation cannot be verified. Revise the RFI Report to include the referenced technical memorandum and/or data validation reports (DVRs). Ensure that the technical memorandum and/or DVRs specify the items evaluated during data validation, as well as the qualifiers assigned based on exceedances of acceptance criteria.

13. It is unclear why samples were qualified "NJ" in the data tables in Appendix G.1, Validated Analytical Results for Soil. For example, in Table G-3, Summary of Analytical Results for Surface Soil, the results for HMX and RDX for sample 77OB-SS005-G00.5 were qualified in this manner. The RFI Report does not discuss the reason for this qualification and the qualifier has not been defined. Revise the RFI Report to discuss this qualification and provide the definition for "NJ".
14. The data tables in Appendix G.1, Validated Analytical Results for Soil, provide the method detection limits (MDLs). However, the laboratory reporting limits (RLs) should be provided to demonstrate that the laboratory's RLs met the PALs. Revise the tables in Appendix G.1 to provide the corresponding laboratory RLs.

SPECIFIC COMMENTS

1. **Section 3.6, Correlation Between X-Ray Fluorescence and Fixed-Base Laboratory, Page 3-24:** This section indicates that the Pearson Correlation and R-squared values were calculated for the x-ray fluorescence (XRF) and fixed base laboratory results. However, the Pearson Correlation calculations do not appear to have been provided. Revise the RFI Report to provide this information.
2. **Section 4.5.3, Risk Characterization, Page 4-15:** It is unclear what value (soil concentration) was used in the calculations of hazard quotient and cancer risk after the maximum nitroglycerin concentration (a composite of 10 subsamples) from the 200-yard firing line was removed. Additionally, it is unclear why this data point was removed from the assessment. There is no discussion of outliers or options for the targeted removal action (both options for residual risk analysis more appropriately assessed within the context of an uncertainty analysis, than the Risk Characterization). Revise the RFI Report to clarify what values were used in these calculations, and to indicate why this calculation is necessary.
3. **Section 5.6 Ecological Screening-Level Hazard/Risk Assessment, Page 5-13.** It is stated that the maximum arsenic level at the Potential OB/OD subarea exceeded a human health-based PAL and was not an ecological concern. The maximum arsenic level (3.41mg/kg) exceeded site background levels (2.65 mg/kg) and should be considered a potential ecological concern at the Potential OB/OD subarea. This correction should be made to Section 5.6 of the RFI Report.
4. **Section 6.5, Human Health Screening-Level Hazard/Risk Assessment, Page 6-9:** This section indicates that no PALs were exceeded, so no COPCs were selected for the site; however, arsenic exceeds the RSL. It is unclear why this exceedance has not been evaluated. Revise the RFI Report to clarify why no constituents at the Potential Munitions Trench Subarea were screened for human health risk.

5. **Section 7.9 Recommendations for Detonation Area Near Concrete Pad, Page 7-10.** The recommendation of No Further Action (NFA) at the detonation subarea near the concrete pad is premature because it is based on only two soil samples. Even though the subarea is a small area and the samples were collected from targeted locations with anticipated high contaminant levels, a sample size of two is inadequate to evaluate the extent of contamination at a location. Also, the lead levels in both samples exceed the PAL. Further sampling is needed to verify that the lead contamination is confined to the two sampled areas. Amend this section to recommend further characterization and delineation of the lead exceedances.
6. **Section 8.5.3, Risk Characterization, Page 8-8:** This section indicates that cancer risk for nitroglycerin at the Pistol Range Subarea is within the target risk range of 1×10^{-4} to 1×10^{-6} ; however the calculated cancer risk is listed as 3×10^{-7} . Revise the RFI Report to correct this discrepancy.
7. **Appendix H.1, Section 3.1, Completeness, Page H-4:** This section describes the completeness deficiencies for sample collection for the Rifle Range Subarea and the Potential OB/OD Subarea, but does not discuss the completeness deficiencies for the Former Pistol Range Subarea. Table H.2, Sample Collection Completeness Evaluation, indicates that the completeness goal of 95 percent was not met for samples from the Eastern Berm Area for XRF (33 percent) and select metals (arsenic, copper, lead, antimony, and zinc) (25 percent). Revise this section to discuss the completeness deficiencies at the Eastern Berm Area of the Former Pistol Range Subarea.
8. **Appendix H.1, Section 3.2, Sensitivity, Page H-5:** This section does not discuss two explosives analytes that were not detected but have MDLs greater than the PALs. The analytes 1,3-dinitrobenzene and 2,6-dinitrotoluene have an MDL of 0.1 mg/kg and PALs of 0.079 mg/kg and 0.0328 mg/kg, respectively. Additionally, these analytes have not been included in the Sensitivity Table (Table H.4). Revise Appendix H.1 to discuss the sensitivity of 1,3-dinitrobenzene and 2,6-dinitrotoluene and update Table H.4 to include these two analytes.
9. **Appendix H.1, Section 3.3, Laboratory Accuracy, Page H-6:** The text indicates that several Matrix Spike/Matrix Spike Duplicates (MS/MSDs) indicated on the chain of custody were not analyzed for metals by the lab, and as a result, only thirteen percent of the proposed MS/MSDs were analyzed. However, the first paragraph on this page indicates that MS analyses were performed at a frequency of one per 20 associated samples. The first paragraph should be updated to clarify this discrepancy. Further, Appendix H.1 should discuss why a lower number of MS/MSD analyses is sufficient to meet the project data quality objectives (DQOs). Revise Appendix H.1 to address these concerns.

10. **Appendix H.1, Section 3.3, Laboratory Accuracy, Page H-6:** The text indicates that the MS/MSD samples were only spiked for arsenic and zinc. However, antimony, lead, and copper are also COPCs at SWMU 77 and it is unclear why the MS/MSD samples were not also spiked for these compounds. Revise Appendix H.1 to indicate why MS/MSD samples were not spiked for antimony, lead, and copper, and discuss any impact this may have on data usability.
11. **Appendix H.1, Section 3.6, Representativeness, Page H-8:** This section indicates that data collected were representative of the actual site conditions; however, the precision of field duplicate samples at two subareas had large Relative Percent Difference (RPD) values. It is unclear why the difference in concentrations of copper and zinc in the duplicate samples was so large. Revise Appendix H.1 to discuss the representativeness of samples with respect to the field duplicate imprecision.

MINOR COMMENTS

1. **Volume 1, Acronyms and Abbreviations, pages (unnumbered):** The acronyms "MPPEH" and "UXOSO" are incorrectly defined. MPPEH is correctly defined as "material potentially presenting an explosive hazard." UXOSO is correctly defined as "Unexploded Ordnance Safety Officer." Revise the RFI Report to make these changes in the cited section.
2. **Volume 1, Table 4-1, Items Discovered During Detector-Aided Surface Surveys, page (unnumbered):** Items number 4 and 5 in the table are misidentified as "40 MM M871 Practice Grenades." The correct identification is "40MM M781 Practice grenades." Also, the footnotes define the acronym "MDAS" incorrectly. The correct definition is "material documented as safe." Revise the RFI Report to make this correction.
3. **Volume 2, Appendix B-2, Former Pistol Range Subarea, Photograph #-2:** This photograph is labeled "Stray bullet." Revise the RFI Report to correct the label to read "Two cartridge cases."



COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

PUERTO RICO
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ENCL. #4

ENVIRONMENTAL EMERGENCIES RESPONSE AREA

December 14, 2010

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

**RE: TECHNICAL REVIEW DRAFT PHASE I
RCRA FACILITY INVESTIGATION REPORT
SWMU 77 – SMALL ARMS RANGE
NAVAL ACTIVITY PUERTO RICO (NAPR)
CEIBA, PR PR2170027203**

Dear Mr. Gordon:

The Hazardous Wastes Permits Division (HWPD) and the Federal Facility Coordinator has finished the review of the above-mentioned document.

Enclosed please find PREQB's comments issued as part of the technical review. If you have any additional comment or question please feel free to contact Gloria M. Toro Agrait at (787) 767-8181 extension 3586 or myself at extension 6141.

Cordially,

Wilmarie Rivera
Federal Facilities Coordinator
Environmental Emergencies Response Area

cc: Gloria M. Toro Agrait, EQB Hazardous Waste Permits Division

Technical Review of the Draft Phase 1 RCRA Facility Investigation Report
SWMU 77– Small Arms Range
Naval Activity Puerto Rico, Ceiba, Puerto Rico
October 2010

GENERAL COMMENTS

1. Surface soil sample results for all sites need to be screened using EPA's migration to groundwater soil screening levels to evaluate the potential for contaminants to migrate to groundwater. This screening will aid in determining whether additional investigation is warranted for this potential exposure medium for all sites, including those recommended for no further action based on the screening against the higher of risk-based human health or ecological screening criteria or background concentrations.
2. Please show human and ecological receptors on the graphical conceptual site models (CSMs) for all subareas. Currently, only sources and transport pathways are shown.
3. Please clarify the following statement, "...There are currently no specific plans to develop SWMU 77 pending outcome of the subject Phase 1 RFI and future Full RFI..." It appears from this statement that the results of the investigation, including risk assessments done as part of the Full RFI, will determine future land uses. However, undeveloped land is typically evaluated for all potential exposure scenarios in a baseline risk assessment, especially if a development plan is not available. Note that the potential exists for SWMU 77 to be developed as an ecotourism area with a hotel. Please discuss this as a potential future land use in Sections 2.2.4, 4.1.5, 5.1.5, 6.1.5, 7.1.5, and 8.1.5.
4. Please provide a separate appendix that contains the Data Validation Reports.

PAGE-SPECIFIC COMMENTS

1. Page 2-4, Section 2.3.2: Please clarify what is meant by "no significant surface water features are present at SWMU 77..." Please clarify what surface water features are not considered significant and which types are considered significant.
2. Page 3-3, Section 3.2.6: This section states, "If non-site personnel or non-essential non-UXO personnel entered the exclusion zone at a site, all MEC operations ceased until the exclusion zone was re-established." EQB notes that we requested revision of this procedure to address EQB personnel entering the EZ in our December 2009 comments on the project QAPP (Comment 5):
"Section 17.1.2 requires operations to cease when non-site personnel or non-essential non-UXO personnel enter an exclusion zone. This is not in accordance with Navy policy (see NAVSEA OP 5, Section 14-7-5) which

allows “authorized visitors” to enter the EZ when specific requirements are met. Please revise this section to describe the requirements for EQB personnel and EQB representatives to enter the EZ as authorized visitors while the MEC investigation is being performed.”

EQB notes again that OP 5 allows “authorized visitors” to enter the EZ if specific requirements are met. Please revise the statement to read: “No authorized visitors requested access to the EZ. Therefore, MEC operations ceased if non-essential personnel entered the EZ.”

3. Page 3-19, Section 3.4.8, Paragraph 1: Please clarify the information in this section to include that the drum of IDW that is currently being stored at SWMU 77 will be properly disposed of during the full RFI per the UFP-SAP.
4. Page 3-20, Section 3.5.2: The text states that the National Functional Guidelines were used to qualify data. However, according to the March 2010 SAP for this program as well as the Data Usability Assessment in Appendix H, Region 2 data validation SOPs were used. Please clarify and revise accordingly.
5. Page 4-2, Section 4.1.3: Please discuss Navy use prior to 2007. Although specific records do not exist for Navy use prior to 2007, please discuss what is known about Navy use of this range from the 1940s to 2007 and related MC training, storage and usage.
6. Page 4-3, Section 4.1.4: Please revise the first sentence, as the sentence refers to areas where MC may be present, not sources of MC.
7. Page 4-9, Section 4.4.1:
 - a. Please provide a summary discussion of the correlation calculations that were done to estimate FBL data from XRF data. Appendix I present correlation graphs with equations but do not present a discussion of what was done to convert XRF data to estimated FBL data. For clarity, please present a discussion either in this section or in Appendix I, in which case a reference needs to be included wherever the report states that XRF data were used to predict FBL concentration. This comment also applies to Section 8.4.1.
 - b. Please clarify whether the maximum XRF sample concentration, 40,529 mg/kg, was only excluded from the dataset used for correlation analysis.
8. Pages 4-10 to 4-11, Section 4.4.2:
 - a. The text states that six samples from the face of the wooded embankment exhibited zinc concentrations that exceeded the project action level (PAL) by several orders of magnitude. However, all zinc results with the exception of one (77RR-SS052) were within the same order of magnitude as the PAL. Please revise the text accordingly.
 - b. The text states that all arsenic exceedances from the face of the wooden embankment were less than one order of magnitude above the PAL. However, three samples (77RR-SS052, 77RR-SS055, and 77RR-SS056) exhibited results

- for arsenic that were over one order of magnitude above the PAL. Please revise the text accordingly.
- c. The text states that six samples from the constructed earthen berm exhibited zinc concentrations that exceeded the PAL by up to two orders of magnitude. However, only two samples (77RR-SS003 and 77RR-SS016) exhibited zinc concentrations that exceeded the PAL by one order of magnitude. The remaining zinc concentrations were within the same order of magnitude as the PAL. Please revise the text accordingly.
 - d. The text states that several of the copper exceedances from the constructed earthen berm were two orders of magnitude above the PAL. However only two samples (77RR-SS003 and 77RR-SS016) exhibited copper concentrations that were close to two orders of magnitude above the PAL. Please revise the text accordingly.
9. Page 4-11, Section 4.4.3: Please include a discussion of the XRF data usability, since it is being included in the risk screening. This comment applies to Section 8.4.3 also.
 10. Page 4-12, Section 4.5:
 - a. Please revise the title of this section and the first sentence to indicate that a human health risk screening is being conducted only for organics detected at the Firing Line. Please also revise the titles of Tables 4-7 to 4-9 to reflect this information. This comment also applies to Section 8.5 and Tables 8-4 and 8-5.
 11. Page 4-12, Section 4.5.1: Please address Data Collection and Evaluation in this section in addition to selection of COPCs. Please discuss what data was used in the risk screening (discrete and/or composite, depth and whether data across all firing ranges was combined into one data set and why).
 12. Page 4-14, Section 4.5.3:
 - a. Please clarify "RSL or 10X RSL" in the equations presented on this page. It appears that the 10X should be applied to the adjusted RSL, in which case a different acronym should be defined and used for adjusted RSL. This comment applies to all 5 subarea sections.
 - b. Please revise the following sentence, as the evaluation only includes one chemical: "...Total hazard indices (i.e., the sum of HQs for all COPCs) also exceeded one." This comment applies to Sections 5.5.3 and 8.5.3.
 13. Page 4-16, Section 4.5.3: Please clarify in the text why sample ID 77RSS037-C00.05 was removed from the risk evaluation.
 14. Page 4-16, Section 4.6: Please add a discussion that describes Figure 4-8, including the rationale for selecting the exposure scenarios and receptors presented and the basis for the assumed complete and incomplete exposure pathways.
 15. Page 4-17, Section 4.9: Please clarify the recommendations for MEC. The first sentence says that "A Full RFI is recommended for the Rifle Range Subarea." The

next paragraph then says "... information gathered during the Phase 1 RFI is adequate to recommend the path forward for the wooded embankment without the need for additional MEC/MPPEH investigation during a Full RFI." These two statements appear to conflict because the first says that full RFI is recommended and the second says that it is not needed.

16. Page 5-2, Section 5.1.2, Phase 1 RFI UFP-SAP:
 - a. Please clarify the relationship between sites RR9, RR10 and RR11 and the OB/OD area.
 - b. This section references "RR9". Please show this location on the figures in Section 5.1.1.
 - c. Paragraph 2: Please change the word "activate" in the second sentence to "activities".
17. Page 5-9, Section 5.4.1: Please clarify the following statement as it appears text is missing: "...Lead was detected in all six samples; however, only two samples had concentrations that exceeded the PAL and of the same magnitude..." Note that Table 5-3 shows that lead exceeded the PAL in samples SS-01, SS-04 and SS-05 (three samples).
18. Page 5-14, Section 5.8: Please add a discussion that describes Figure 5-9, including the rationale for selecting the exposure scenarios and receptors presented and the basis for the assumed complete, potentially complete and incomplete exposure pathways.
19. Page 6-7, Section 6.3.3, Soil Sample Results and Table 1-1: Please clarify that, as presented in the UFP-SAP, the additional non-MC analyses would be conducted only if there were no surface MEC or subsurface anomalies detected in the Potential Munitions Trench Subarea. As there were anomalies detected, the analyses focused on select metals, propellants and explosives.
20. Page 7-10, Section 7.9: Please discuss the potential for migration of nitroglycerin and other COPCs to subsurface soil and groundwater.
21. Page 8-2, Section 8.1.4: A subsurface investigation is recommended for this subarea to evaluate the potential for MC to have impacted subsurface soil. Therefore, please revise this section to indicate that contaminants may have impacted subsurface soil and groundwater (as shown in the CSM for this site).
22. Page 9-3, Section 9.3.3.1:
 - a. Per Section 17.3.3 of the March 2010 SAP, ten confirmation samples will be spatially distributed similar to the collection of the XRF screening samples (4 from the Eastern berm, 2 from the Southern berm, 2 from the Western berm, and 2 from the Northern berm) and submitted to the fixed-base laboratory and analyzed for lead and the other select metals. Per the text and Table 9-1, only one

- sample was submitted to the fixed base laboratory from the Eastern earthen berm. Please explain why this occurred under Section 9.3.2 (Work Plan Deviations).
- b. Paragraph 2 states that one of the initial XRF samples with a concentration greater than 200 ppm was located in the southern portion of the study area. However, as per Table 9-1, this should be revised to the eastern portion of the study area.
23. Page 9-5, Section 9.4.2, Paragraph 3: The text states that copper exceeded the PAL at three locations at up to approximately two orders of magnitude. However, based on results provided in Table 9-3, copper exceeded the PAL by one order of magnitude.
24. Table 4-2:
- Please add a column for lead under Fixed Base Lab Analysis and include the FBL lead result consistent with the presentation of the lead concentration for each XRF sample.
 - Please complete Note 2.
25. Tables 4-3 to 4-6: Please clarify what type of information is being presented in the rows for analytes "LEAD", "LEAD-CALC" and "LEAD." Note that two rows show data for lead, but each row presents different data. In addition, clarify what type of data is being presented for "Lead-CALC."
26. Table 4-7: Minor typographical error – please correct spelling of "determining" in Footnote 1.
27. Table 4-9: The total HI is shown as 1; however, the total cardiovascular HI is shown as 2. Since only one COPC was identified, the total HI and target organ or system HI should be the same. Please clarify.
28. Table 5-1: The table shows a sample depth of 1-1.5 feet for the subsurface soil sample, 77OB-SB001. However, as per the sample log sheet in Appendix F and the chain-of-custody in Appendix G, this should be 1-2 feet. Please clarify and revise accordingly.
29. Table 10-1:
- Please consider describing the CSM for each subarea rather than presenting all subareas in one CSM for clarity.
 - Information Needs, Maximum Probability Penetration Depth:
 - This section says MEC is suspected only at the surface at the Rifle Range Subarea. However, MEC is expected to be located in the subsurface in the berm because surface MEC and subsurface anomalies were located there. Please clarify.
 - This section says that MEC is expected in the surface at the Concrete Pad when this site has been recommended for no further action indicating that MEC is not expected at the site. Please clarify.
 - This section says that geophysical results confirmed subsurface anomalies only at the OB/OD Subarea and Potential Munitions Trench Subarea when

more than fifty subsurface anomalies were also confirmed at the Rifle Range Subarea (an analog detector-aided survey was conducted over 100% of the berm). Please clarify.

30. Exposure Pathway Analysis Figures 4-8, 5-9, 6-9, 7-9, 8-4 and 9-4:
- a. Please clarify why there are current receptors (other than trespassers) if the site is not being used. It appears that all receptors are potential future receptors. Please clarify.
 - b. Please add commercial/industrial and outdoor workers and recreational receptors as future receptors for all subarea Exposure Pathway Analysis figures unless it can be shown that a particular receptor group is not likely for a particular site.
 - c. Please revise future residential (and commercial/industrial worker) exposure to groundwater to "potentially complete," as groundwater is classified as potable per Puerto Rico's Water Quality Standards pending additional information on the hydrogeology of the area, including an assessment of the potential for leaching of contaminants to groundwater, to determine the potential for groundwater impacts and to determine if groundwater is saline due to saltwater intrusion.
 - d. Future commercial/industrial workers and outdoor workers may be potentially exposed to groundwater.
 - e. Outdoor workers may be exposed to soil to 2 feet below grade during landscaping activities; recreational receptors may be exposed to surface soil; and commercial/industrial workers may be exposed to surface soil and associated indoor dust.
 - f. Runoff and erosion are identified as transport mechanisms. Please clarify why there are no complete or potentially complete exposure pathways to soil impacted by runoff/erosion, whether there are any insignificant surface water features or depositional or drainage areas present with each subarea..
31. Figures 5-10 and 6-9: Since it is possible that there is MEC in the surface it is possible that there will be exposure of receptors to MEC on the surface through transportation of MEC by erosion. The surface receptors (handle/tread underfoot) should show potentially complete pathways. Also, why is there an "intrusive" activity for surface MEC? Intrusion implies exposure to subsurface MEC through intrusive activities. Deleting the surface intrusive activity and showing potential exposure for "handle/tread underfoot" for surface MEC is recommended.
32. Figure 7-2: Please identify the locations of where assumed kick-out debris was observed, as this will aid in determining the extent of potential impacts from the past detonation.
33. Figure 9-1: Sample 77FPSB028 is located in the western berm area on the figure. However, the sample log provided in Appendix F states that this is in the northern berm area. Please clarify and revise accordingly.

Appendix F, MC Field Documentation

1. Please include the XRF log sheets (an example of which is provided in the SOP section of the UFP-SAP) as additional documentation in this Appendix.

Appendix G, Validated Analytical Results

2. Nondetect results for antimony, arsenic, explosives, and nitroglycerine were reported down to the method detection limit (MDL) instead of the quantitation limit. Typically, the MDL is a statistically derived value that is not accurately verified by the laboratory analysis. The quantitation limits are accurately verified by laboratory analyses of standards at the unadjusted quantitation limit. The quantitation limits (not MDLs) should be used for the evaluation of the data when comparing results to the PALs due to the higher accuracy of these numbers. Revise the listed tables to reflect the reporting of nondetect results down to the quantitation limit instead of the MDL.

Appendix H, Munitions Constituents Data Usability Assessment

1. Page H-5, Section 3.2: Sensitivity was evaluated by comparing the MDLs to the PALs. However, as per Worksheet #15 (page 68) of the March 2010 SAP, a comparison of the laboratory's quantitation limits to the PALs needs to be performed in order to determine potential limitations on the data. Please revise the text and the associated Table H.4 to address this.
2. Page H-6, Section 3.3: The text states that the laboratory failed to analyze samples marked on the chain-of-custody forms for MS/MSD analyses of metals. This is a significant deficiency in the QA program and also strongly impairs the ability of performing a proper data usability assessment. Unlike organic analyses which use surrogate spikes in each sample, metals analyses have no means of monitoring matrix effects in the samples. Without this information, there is no way to assess the potential matrix effects and biases on the final results. As most of the sites are being recommended for full RFIs, this issue can be addressed during the next rounds of sampling. However, please provide a more detailed discussion on the lack of this information during these investigations in this usability assessment.

Appendix I, XRF/XBL Correlation Statistical Analysis

1. Please present the statistical analysis that was conducted that shows the highest XRF sample concentration was an outlier.
2. Please present the XRF/Lab data pairs used to determine correlation coefficients.
3. Please present the correlation analysis for the dataset representing all data with the exception of the outlying point, including the presentation of a figure similar to Figure 1.
4. Please provide the justification for selecting 400 mg/kg as the concentration at which the dataset is split into two groups – one representing data below 400 mg/kg and one

representing data above 400 mg/kg. Note that the equations used to predict laboratory concentrations from XRF data do not converge at 400 mg/kg, resulting in vastly different predicted lab concentrations for XRF near 400 mg/kg. The equations from Figures 2 and 3 in Appendix I would predict lab concentrations of 672 mg/kg and 1988 mg/kg for XRF concentrations of 399.9 mg/kg and 400.1 mg/kg respectively. Please address this issue as part of the justification and discuss the predicted laboratory results for XRF data immediately below and above 400 mg/kg.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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P.O. Box 491
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MAR 01 2011

Mr. Pedro R. Tejada
Right Way Environmental Contractors
HC 72 Box 3744
Naranjito, PR 00719

Re: PR 2170027203, Final Design Package
for SWMU 2, Naval Activity, Ceiba, PR

Dear Mr. Tejada:

This is in reply to the above referenced document. Our comments are provided in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (16 U.S.C. 1531 et seq. as amended). We have assigned FWS # 72037-049 for future reference.

The document presents interim corrective measures, soil sampling and removal of surface and sub surface contaminated soils. Based on the information presented in the document we have the following comments and recommendations:

- 1) The mangrove wetlands in the former Roosevelt Roads Naval Station are federally designated Critical Habitat for the endangered yellow-shouldered blackbird *Agelaius xanthomus*. The proposed actions would be beneficial to the blackbird, if restoration of the impacted habitat is carried out. This would avoid adverse modification of the critical habitat.
- 2) Wetlands should be properly delineated to avoid impacts to mangrove trees. Unless the mangrove trees are growing through fill or trash previously placed in wetlands.
- 3) We agree with the Environmental Protection Criteria of not cutting mangrove trees larger than 3 inches in diameter and not cutting trees at the trunk.
- 4) We agree with the statement that wetland vegetation impacted will be replaced as soon as work is completed. Wetland restoration needs to be accomplished with appropriate soil elevations and hydrology to avoid invasive upland species. Any wetland restoration plan should be submitted to our office for comments.

- 5) We are concerned with the statement made in Section 32 92 19, Part 3.4, Restoration: "Due to the difficulty in acquiring and planting no species of mangrove trees will be selected for restoration." Planting mangroves is quite simple and has been employed throughout the world as a viable restoration method. Since continued work may be required in SWMU2 and other mangrove areas in the former Naval Base, we recommend that the Navy or its contractors begin working with DNER or local plant suppliers to start growing black, white and button wood mangroves. Red mangroves have another planting methodology known as the Riley Encasement method. We believe that once the areas are restored to surrounding elevations they should be planted with the appropriate mangrove vegetation. Any mangrove vegetation impacted by the action should be replaced as well.

Thank you for the opportunity to comment on this action, if you have any questions please contact Felix Lopez of my staff at 787 851-7297 x 210.

Sincerely yours,


Edwin E. Muniz
Field Supervisor

fhl

cc:

EPA, San Juan

EQB, Gloria Toro, San Juan

DNER, San Juan

Tim Gordon, EPA, RCRA Programs Branch, New York

Mark Davidson, BRAC PMO, Charleston