



COMMONWEALTH OF PUERTO RICO  
**Office of the Governor**  
**Environmental Quality Board**



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*ENVIRONMENTAL EMERGENCIES RESPONSE AREA*

December 21, 2010

Mr. Kevin Cloe, P.E.  
Remedial Project Manager  
Commander Atlantic Division  
Naval Facilities Engineering Command  
6506 Hampton Boulevard  
Norfolk, VA 23508-1278

**RE: Technical Review of the Draft Expanded Site Inspection Sampling and Analysis Plan,  
UXO 15, Former Vieques Naval Training Range, Vieques, Puerto Rico**

Dear Mr. Cloe:

The Puerto Rico Environmental Quality Board (PREQB) has conducted a technical review of the Draft Expanded Site Inspection Sampling and Analysis Plan, UXO 15, Former Vieques Naval Training Range (VNTR), Vieques, Puerto Rico, received on October 2010. Our comments are provided in the attachment.

If you have any questions or comments, please contact me at (787) 767-8181 x. 6129.

Cordially,

Wilmarie Rivera  
Federal Facilities Coordinator

cc: Daniel Rodriguez, EPA  
Richard Henry, FWS  
Brett Doerr, CH2M Hill  
Daniel Hood, Navy  
Christopher Penny, Navy

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**PREQB Technical Review**  
**Draft Expanded Site Inspection Sampling and Analysis Plan, UXO 15**  
**Former Vieques Naval Training Range, Vieques, Puerto Rico**  
**Dated October 2010**

**I. GENERAL COMMENTS**

1. PREQB recommends that all solid samples being analyzed for hexavalent chromium also be analyzed for pH and ORP. These two analyses (pH and ORP) are very important in determining the reducing nature of the sample and help to interpret the hexavalent chromium data especially when matrix spike recoveries are low. These data are typically plotted on the graph provided at the back of the associated preparation method (SW-846 3060A) to determine whether the sample is reducing in nature. Please revise the SAP and associated worksheets to include the ORP analysis of each soil/sediment sample.
2. It was noted during review of the SAP that the analysis of mercury is not included with the metals analyses of soil/sediment samples. Please clarify the rationale for excluding mercury from analysis.

**II. PAGE-SPECIFIC COMMENTS**

1. SAP Worksheet #3, Distribution List: Several project personnel listed on Worksheets #4 and 5 also need to be included on the SAP distribution list and therefore need to be added to this worksheet.
2. SAP Worksheet #5, Project Organizational Chart: Please change the phone extension of PREQB RPM, Wilmarie Rivera. The phone extension is 6129.
3. Worksheet #10: Please clarify if whether subsequent investigation indicates that the area was used as a firing point for rocket-related ordnance.
4. Worksheet #11: Please clarify the following statement: “Even though LODs may be greater than certain PALs, detection limits (DLs) may be closer to or less than PALs. When this occurs, and *if a constituent is detected in a sample at or at greater than the PAL, then it is reported, qualified as applicable.*” Why would a sample be qualified if detected above the PAL? Please clarify.
5. SAP Worksheet #15, Reference Limits and Evaluation Tables:
  - a. Worksheet #15-1: According to the worksheet, SW-846 method 6020 is being utilized only for thallium. Please clarify why this method is not being used for arsenic, chromium, and cobalt which will then allow the achievement of the EPA Residential Soil Regional Screening Levels (RSLs) for these metals.
  - b. Worksheet #15-1a: According to the worksheet, SW-846 method 6020 is being utilized only for thallium. Please clarify why this method is not being used for antimony, arsenic, cadmium, chromium, cobalt, selenium and silver which will

then allow the achievement of the ecological project action levels for these metals.

- c. Worksheets #15-2 and 15-2a: Please remove the shading for the lower and upper control limits for the LCS recoveries of explosives as these were taken from the DOD QSM v. 4.1.
6. SAP Worksheet #17, Sampling Design and Rationale: Please include methods 6020 and 7196A for metals for each matrix listed on the table in this worksheet.
  7. Worksheet #18: Please consider listing the sample depth as 0-2” for consistency with Worksheet #17. A footnote clarifying that 0-6” samples will be collected if MEC is not identified in the debris pile may could be added for clarity.
  8. SAP Worksheet #19, Analytical SOP Requirements Table:
    - a. Sediment and Soil:
      - i. Please revise the table to show that the preservation requirement for headspace in the jar is applicable to perchlorate only.
      - ii. Please revise the holding time for hexavalent chromium to include 30 days until digestion and 24 hours from digestion to analysis. This is in accordance with Sections 6.3 and 6.4 of the laboratory’s SOP CA-625.
      - iii. Please revise the holding time for pH to “as soon as possible” in accordance with the laboratory’s SOP CA-709 and the SW-846 method.
    - b. Aqueous:
      - i. Please include a requirement for headspace in the jar for the perchlorate preservation requirements.
      - ii. Please remove the requirement for headspace in the jar from the preservation requirement for metals.
      - iii. Please revise the holding time for explosives to 7 days until extraction.
  9. SAP Worksheet #23, Analytical SOP References Table: The Date Last Revised for SOP WS-LC-0012 should be 7/23/10 per the SOP provided in Attachment B. Please revise accordingly.
  10. SAP Worksheet #24, Analytical Instrument Calibration Table:
    - a. ICP-AES: Please add the PQL standard requirements as described in Section 8.12 of SOP CA-608.
    - b. Spectrophotometer:
      - i. Please revise the frequency of the initial calibration to daily prior to sample analysis, as per Table 1 of SOP CA-625 (for DOD QSM projects).
      - ii. Please add the ICV as per Table 1 of SOP CA-625.
    - c. LC/MS/MS:
      - i. Please include the daily mass calibration requirements as per Section 10.3 of SOP WS-LC-0012.
      - ii. Please move the Initial and Continuing Calibration Blanks, Interference Check Standard and Internal Standards to Worksheet #28-2.

11. SAP Worksheet #28, Laboratory QC Samples Table:

- a. Worksheets #28-1 and 28-4: 6010B
  - i. Laboratory Control Sample: Please revise the Acceptance limits and Measurement Performance Criteria to refer to Worksheet #15-1 instead of 15-8.
  - ii. Matrix Spike Duplicate: Please revise the Acceptance limits and Measurement Performance Criteria to refer to Worksheet #15-1 instead of 15-8.
  - iii. Add the internal standard requirements as discussed in Section 7.10 of SOP CA-608.
- b. Worksheets #28-1 and 28-4: 6020: Please add the internal standard requirements as discussed in Section 8.5 and Table 2 of SOP CA-627.
- c. Worksheets #28-1 and 28-4: 7196A
  - i. The acceptance limits for the sample duplicate are listed as RPD  $\leq 30$ . However, Section 8.8 of SOP CA-625 states the criteria are RPD  $\leq 20$ . Please clarify.
  - ii. Please add the requirements for the Calibration Blanks as per Section 8.3 and Table 1 of SOP CA-625.
  - iii. Please revise the Measurement Performance Criteria for the Sample Duplicate and the Post-Digestion Matrix Spike to refer to Worksheet #15-1 instead of 15-8.
  - iv. The Corrective Action for the pre-digestion Matrix Spike does not agree with Table 1 of SOP CA-625 which states to rehomogenize, redigest and reanalyze the sample. Please clarify.
- d. Worksheets #28-2 and 28-5: 8330
  - i. Please add the requirements for surrogates.
  - ii. Please delete the reference to common contaminants in the method blank acceptance limits and measurement performance criteria since there are no common contaminants in the explosives analysis.
  - iii. Section 8.5 of SOP CA-402 states that one sample per batch must be subsampled in triplicate when analyzing samples compliant with the DOD QSM Version 4.1. Please add this requirement to the worksheet.
- e. Worksheets #28-2 and 28-5: 6850
  - i. The Corrective Action for Isotope Ratios is listed as "NA". Please add the corrective action listed in Section 9.11.3 of SOP WS-LC-0012.
  - ii. Please add the requirements for the Synthetic Matrix Check Samples as per Section 9.6.1 of SOP WS-LC-0012.
  - iii. Please add the requirements for the internal standards as per Section 9.10 of SOP WS-LC-0012.
  - iv. Please add the requirements for the LOD verification standard as per Section 10.12 of SOP WS-LC-0012.
  - v. Please revise the acceptance limits and measurement performance criteria for isotope ratios to the DOD acceptance criteria as per Section 9.11.3 of SOP WS-LC-0012.
- f. Worksheet #28-3: 9045C

- i. Please change the frequency for the Laboratory Replicate to one per batch or every 10 samples, as per Section 8.1 of SOP CA-709.
  - ii. Please add the requirements for the Laboratory Control Sample as per Section 8.2 of SOP CA-709.
12. SAP Worksheet #29, Project Documents and Records Table: Delete row 7 as it is not applicable to this investigation since groundwater sampling will not be performed.
13. SAP Worksheet #31, Planned Project Assessments Table: Stephen Brand was included on the worksheet as the Field Auditor. However, Stephen Brand is also listed as the Field Team Leader on Worksheet #4. Field audits need to be performed by someone independent from the field team.
14. Figure 5: Please remove the references to “Section 1 of this SI/ESI Report (October 2009)”.