COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD

ENVIROMENTAL EMERGENCIES RESPONSE AREA

May 17, 2010

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

Re: Technical Review Response to Comments
Final Phase I RFI Sampling and Analysis Plan
SWMU 77 – Small Arms Range
Naval Activity Puerto Rico
Ceiba, Puerto Rico
PR2170027203

Dear Mr. Gordon:

The Federal Facility Coordinator of the Puerto Rico Environmental Quality Board has finished the review of the above-mentioned document.

Enclosed please find PREQB's comments on the revision of the document. If you have any additional comment or question please feel free to contact myself at 787-767-8181 extension 6141.

Cordially,

Wilmarie Rivera
Federal Facilities Coordinator
Environmental Emergencies Response Area

cc: Gloria M. Toro Agrait, Environmental Permits Officer

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PREQB's Technical Review of the Comment Response Letter and Final Phase 1 RFI Sampling and Analysis Plan for SWMU 77– Small Arms Range, Naval Activity Puerto Rico, Ceiba, Puerto Rico PR2170027203

Worksheet 12

PREQB Comment 1. Page 57. As per Section 2.6.2 of the UFP QAPP guidelines, please complete one Worksheet #12 for each matrix and each parameter for a total of two worksheets, one for metals in soil and one for explosives/propellant in soil. If this is performed, some of the issues listed below will most likely be eliminated: *Please change the frequency of the equipment blank to one per analysis per type of equipment (not per lab).*

Response: Not provided by the Navy

Evaluation of Response: Please address PREQB Comment 1.

PREQB Comment 1e. The measurement performance criteria for the laboratory duplicates does not agree with the laboratory SOPs provided in Appendix D. For metals analysis, the criteria listed in the SOP is RPD ≤20 if results are >5x the quantitation limit (QL) or ± the QL if results are ≤5x the QL. Revise the worksheet accordingly.

Response: This is an instance where the laboratory measurement performance criteria correctly differ from the measurement performance criteria that is applied for data usability. The worksheet will not be revised and the project specific measurement performance criteria listed in Worksheet #12 will not be revised.

Evaluation of Response: The response indicates that the listed measurement performance criteria differed from the laboratory criteria because this is the criteria that would be used for assessing data usability. However, it is still unclear why the criteria being used to assess usability of results based on the laboratory duplicate results is less stringent than both the laboratory criteria and the EPA Region 2 data validation criteria. The criteria listed should, at a minimum, reflect the criteria used in the data validation guidelines cited on Worksheet #36.

PREQB Comment 1g. Per Section 2.6.2 of the UFP QAPP guidelines, this worksheet should also include measurement performance criteria for laboratory QC analyses including surrogates, LCS, serial dilutions, interference checks, method blanks, etc. Please include a note on Worksheet #12 to refer to Worksheet #28 for the measurement performance criteria of these laboratory QC analyses.

Response: Agree. A footnote will be added to Worksheet #12 to refer the reader to Worksheet #28 for this information.

Evaluation of Response: The response is acceptable but the actual footnote provided on the revised Worksheet was incorrect and should be revised as follows: Refer to Worksheet 28 for the measurement performance criteria for other laboratory QC analyses.

Worksheet 15

PREQB Comment 2. The MDL of each explosive analyte is 0.1 mg/kg. Typically, MDLs vary between compounds and are almost never exactly the same for each analyte in a group. Please clarify if these are actual laboratory MDLs.

Response: As indicated above, statistical MDLs are not generally reported. They are used to validate the reported detection limits provided on the forms.

Evaluation of Response: Please clarify whether or not the reported MDLs for each explosive compound in Worksheet #15 are from actual MDL studies performed by the laboratory.

PREQB Comment 3. The QLs provided for antimony (0.75 mg/kg) and arsenic (0.5 mg/kg) are much lower than QLs typically observed using SW-846 method 6010B. The QLs which were provided are more likely if SW-846 method 6020A (ICP-MS) was used. In addition, typical SW-846 method 6010B QLs for these two metals will exceed the listed background values and therefore may not be able to achieve the project objectives. Please clarify the actual QLs for these two metals based on the concentrations of these metals in the QL check standard and if the actual QLs exceed the background values, consider the use of SW-846 method 6020A for analysis in order to achieve the project objectives.

Response: The QL provided for arsenic is based on an alternative digestion using 2g sample and brought to a final volume of 100 ml. The QL provided for antimony is 3.00 mg/kg for SW-846 method 6010B.

Evaluation of Response: The response indicates that an alternate digestion procedure will be used for arsenic. Please address the following:

a. Please clarify if this alternate digestion procedure will be used for all metals or just arsenic. If it will be used for all metals, adjust the QLs accordingly for all metals.

b. Please explain how the need for this alternate digestion procedure will be communicated to the laboratory.

c. Please note that the footnote provided on the revised Worksheet #15 states that the final volume of the digestate will be 1000 mL instead of 100 mL, as indicated in this response.

d. Please explain why the QLs provided for all metals are significantly lower than the QLs provided by Empirical Laboratory in Table I of SOP-105.

Worksheet 17

PREQB Comment 5a. Section 17.2.1, Page 75: Correlation of XRF Data with Fixed-Base Laboratory Samples for Lead

a. This section states that if the correlation coefficient between XRF and fixed-based laboratory data are ≥0.65, this will be considered adequate to translate XRF results to their equivalent laboratory lead concentrations with confidence. However, per SW-846 method 6200, the correlation coefficient for the results should be ≥ 0.7 for the XRF data to be considered screening level data and if the correlation coefficient is ≥0.9 and inferential statistics indicate the XRF data and the confirmatory data are statistically equivalent at a 99 percent confidence level, the data could potentially meet definitive level data criteria. Based upon these method requirements, please clarify why a correlation coefficient objective of ≥0.65 is being used for this program.

Response: Under the UFP-SAP, the project team is afforded the latitude to select quality measures considered to be satisfactory to the team. A correlation coefficient of 0.65 has been used with success on multiple past projects and was adopted for this project. It is generally held that obtaining several inexpensive and less precise measurements is preferred to a few highly precise measurements because the additional spatial coverage obtained with the less precise measurements provides a better site characterization than just a few measurements, regardless of the precision or accuracy of those few measurements; therefore, the EPA guidance on XRF data nd relaxed the 0.7 correlation coefficient for this reason.

The following text will be added to the end of the Correlation of XRF Data with Fixed Based Laboratory Samples for Lead section: *"The magnitude of r, the correlation coefficient describes the strength of a linear relationship. If all pairs of data (xi, yi) were to lie exactly on a straight line then the correlation coefficient would be 1. A value of r close to zero implies that a linear association is weak. Therefore, a correlation coefficient greater than 0.65 would indicate a linear relationship exists between the [two] variables. With a linear relationship established the XRF data could be used to determine the laboratory concentrations with the use of a regression analysis."*

b. This section states that the XRF data may be used in evaluations of potential human health risk from exposure to contaminants in soil. However, based on the SW-846 method correlation issues noted above, the XRF data with a correlation coefficient of ≥0.65 is most likely not of adequate accuracy to be used for human health risk purposes. If data are

to be used for human health risk purposes, much tighter QC criteria must be used including a much higher correlation coefficient (≥0.9) and it is highly recommended that site-specific calibration standards be used for each area where XRF analyses are being performed.

Response: Refer to response to Worksheet #17 Comment 5a, above and Worksheet #15, Comment 5.

Evaluation of Response to Comments 5a and 5b: Although a lower correlation coefficient may be appropriate for obtaining data to determine whether an RI should be conducted, the Navy proposes to use XRF data for risk assessment purposes. Therefore, based on this data quality objective, a higher correlation coefficient is requested for data to be used for risk assessment purposes. Also, please clarify the following proposed text (last sentence) "*With a linear relationship established the XRF data could be used to determine the laboratory concentrations with the use of a regression analysis.*" Only laboratory analyzed samples provide laboratory concentrations.

Worksheet 20

PREQB Comment 1b: Page 90. Revise the Worksheet to include laboratory duplicates to cover metals analysis as MSD analyses will most likely not be performed with the metals analyses.

Response: As shown on Worksheet #12, laboratory duplicate samples will be analyzed for all analytical groups, including metals, in order to evaluate precision. Additinally, MS and MDS samples will be collected in the field and analyzed for all analytical groups as a measure of accuracy, bias and precision.

Evaluation of Response: The response indicates that laboratory duplicates will be performed for all parameters as shown on Worksheet #12. However, based on previous comments, Worksheet #12 was revised to show that laboratory duplicates are only performed for metals analyses. The response also indicates that MSD samples will be collected for all parameters. However, as per Worksheet #28 and per the laboratory's SOP, MSD samples are not being collected for metals analyses. Please revise Worksheet #20 accordingly to eliminate MSD samples for metals analyses or revise Worksheet #28 to include MSD samples for metals analyses.

Worksheet 22

PREQB Comment 1f. Pages 93 and 94, XRF. Per the SOP 08 provided in Appendix C, clarify that the acceptance criteria for the calibration verification is 20 % difference or less and not 20% recovery.

Response: The acceptance criteria for the calibration verification will be 20% difference of less; this will be revised and clarified in SOP 08. The reference to Percent Recovery will be formatted with a strikethrough and Percent Difference will be added in italics to SOP 08.

Evaluation of Response: The response is acceptable. However, please update the Worksheet to clarify that the criteria are referring to percent difference.

Worksheet 28

PREQB Comment 1b: Pages 103-105, Metals. Please add requirements for matrix spike, laboratory duplicate, and serial dilution analyses.

Response: These items will be added.

Evaluation of Response: The response is acceptable. However, please clarify why the Worksheet includes percent recovery criteria for the duplicate sample. If the recovery criteria are referring to potential MSD samples, it is also unclear why these criteria are different than those listed for the MS sample. Please clarify.

PREQB Comment 2a. Pages 106-107, Explosives and nitroglycerine. Please change the surrogate compound to 1,2-dinitrobenzene.

Response: The typo will be corrected.

Evaluation of Response: The response is acceptable. However, please note that this typographical error was corrected on the last column of the Worksheet but not in column #2.

PREQB Comment 2c. Pages 106-107, Explosives and nitroglycerine. MS: Please include specific acceptance criteria (50-140% per the SOP in Appendix D) and provide accurate corrective action procedure (post-digestion spikes are not applicable to the explosives analysis).

Response: The requested changes will be made.

Evaluation of Response: The response is acceptable. However, please clarify why recovery criteria of 50-140% are listed for all compounds except for "poor performers" which now have a recovery criteria of 60%. It is unclear how or why "poor performers" would have a higher recovery than the other compounds. In addition, as requested in comment #2d, please clarify which of the compounds are considered "poor performers."

PREQB Comment 2d. Pages 106-107, Explosives and nitroglycerine. Please add requirements for MSD analyses. Clarify what compounds are considered poor performers since the SOP in Appendix D allows higher RPDs for poor performers.

Response: The requested changes will be made.

Evaluation of Response: Please address the request to clarify which compounds are considered "poor performers."