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November 24, 2010

U.S. Environmental Protection Agency - Region II  
290 Broadway – 22<sup>nd</sup> Floor  
New York, New York 10007-1866

Attn: Mr. Adolph Everett, P.E.  
Chief, RCRA Programs Branch

Re: Contract N62470-10-D-3000  
IQC for A/E Services for Multi-Media  
Environmental Compliance Engineering Support  
Delivery Order (DO) JM01  
U.S. Naval Activity Puerto Rico (NAPR)  
EPA I.D. No. PR2170027203  
Final Phase I RCRA Facility Investigation Work Plan for SWMU 80

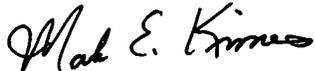
Dear Mr. Everett:

Michael Baker Jr., Inc. (Baker), on behalf of the Navy, is pleased to provide you with one hard copy of the replacement pages for the Draft Phase I RCRA Facility Investigation Work Plan for SWMU 80, Naval Activity Puerto Rico for your review and approval. These replacement pages make up the Final Phase I RCRA Facility Investigation Work Plan for SWMU 80. Directions for inserting the replacement pages into the Draft Phase I RCRA Facility Investigation Work Plan for SWMU 80 are provided for your use. Also included with the copy of the replacement pages is one electronic copy provided on CD of the Final Phase I RCRA Facility Investigation Work Plan for SWMU 80.

This document is being submitted in accordance with EPA comments dated October 7, 2010. The Navy's responses to these comments are attached for your review. Additional distribution has been made as indicated below.

If you have questions regarding this submittal, please contact Mr. Mark Davidson at (843) 743-2124.

Sincerely,  
**MICHAEL BAKER JR., INC.**



Mark E. Kimes, P.E.  
Activity Coordinator

MEK  
Attachments

cc: Ms. Debra Evans-Ripley, BRAC PMO SE (letter only)  
Mr. David Criswell, BRAC PMO SE (letter only)  
Mr. Mark E. Davidson, BRAC PMO SE (1 hard copy and 1 CD)  
Mr. Pedro Ruiz, NAPR (1 CD)  
Mr. Tim Gordon, US EPA Region II (1 hard copy and 1 CD)  
Mr. Carl Soderberg, US EPA Caribbean Office (1 hard copy and 1 CD)  
Ms. Bonnie Capito, NAVFAC Atlantic – Code EV42 (1 hard copy for Administrative Record)  
Ms. Gloria Toro, PREQB (1 hard copy and 1 CD)  
Ms. Wilmarie Rivera, PREQB (1 CD)  
Mr. Felix Lopez, US F&WS (1CD)  
Ms. Brenda Smith, TechLaw, Inc. (1 CD)

**NAVY RESPONSE TO EPA COMMENTS DATED OCTOBER 7, 2010 ON THE  
DRAFT PHASE I RCRA FACILITY INVESTIGATION WORK PLAN FOR  
SWMU 80 – DRAINAGE DITCH NEAR BUILDING 207 DATED AUGUST 17, 2010**

**EPA COMMENTS**

*(EPA comments are provided in italics, while the Navy responses are provided in regular print.)*

**General Navy Response:** The main objective of this Phase I RFI Work Plan is to perform multimedia sampling and analysis as the initial phase of the site characterization process to identify contaminant source areas and to characterize the extent of drainage ditch sediment contamination. Phase I sampling data is used to determine whether a Full RFI is needed or if the SWMU can proceed toward corrective action completion. If additional investigation is warranted, a Full RFI Work Plan will be prepared outlining the additional steps needed to further delineate the SWMU 80 limits of contamination, contaminant concentration and potential contaminant source(s). If RFI sampling results exceed screening levels the site will move to a CMS with an initial step being preparation of a CMS Work Plan. A HHRA and ERA will be conducted as part of the CMS.

**GENERAL COMMENTS**

**1. EPA General Comment 1:** *The Work Plan is lacking several elements required by EPA Requirements of Quality Assurance Project Plans (QAPP), dated March 2001 (QA/R-5). These elements are necessary to evaluate the proposed Work Plan:*

- *Laboratory specific information including standard operating procedures, method detection limits, reporting limits (RLs), quality control (QC) acceptance limits, analytical calibration procedures and acceptance criteria, and corrective actions should the calibration/QC criteria be exceeded must be provided for the currently proposed analytical methods. Ensure that laboratory RLs are provided alongside the screening values.*
- *Project specific completeness goals for both the field and laboratory have not been provided. In addition, the Work Plan does not indicate if any proposed samples are deemed critical to this investigation.*
- *There is no project specific discussion of how precision, accuracy, representativeness, comparability and completeness and sensitivity (PARCCS) measures will be incorporated into a data quality assessment (DQA), how completeness will be measured for this project, or if an evaluation of significant trends and biases will be included as part of a DQA.*

*Revise the Work Plan to provide this information.*

**Navy Response:** The Navy plans to implement this investigation at NAPR in accordance with the EPA approved Master Project Management Plan (PMP), Master Data Collection Quality Assurance Plan (DCQAP), Data Management Plan (DMP), and Master Health and Safety Plan (HASP) for NAPR (Baker, 1995. Final RCRA Facility Investigation Management Plans, Naval Station Roosevelt Roads, Ceiba, Puerto Rico. September 14, 1995. Coraopolis, Pennsylvania.) The EPA approved the

work plan on September 25, 1995. These Master Plans define acceptable data requirements and error levels associated with the field and analytical portions of this investigation. Therefore, to maintain consistency with past Navy work under the Consent Agreement, this work plan has been revised using the Navy’s EPA approved Master Plans for this facility.

In response to previous comments by the EPA on Phase I RFI Work Plans for SWMUs 62 and 71 (see the April 17, 2008 letter from Baker on behalf of the Navy to the EPA); the Navy provided an evaluation of the Master Project Plans (Baker, September 14, 1995) in relation to the QA/R-5 requirements (“EPA Requirements for Quality Assurance Project Plans.” EPA/240/B-01/003. [EPA, March 2001]). Table 1 of the April 17, 2008 letter provides a map between the DCQAP sections, the work plan content and the sections required by QA/R-5 and illustrates that although there are format and minor content differences, the DCQAP is generally consistent with and includes all of the main elements required by QA/R-5. For example, data validation is discussed in Section 10 of the DCQAP and PARCCS measures are discussed in Section 4 of the DCQAP; and forms and checklists are provided in the tables and appendices of the DCQAPP. Some additional examples of forms and checklists that may be found in the DCQAP are shown in the following table:

Item	Location in the DCQAP
System Audit Checklist	Table 12-1
Test Boring Record	Appendix B – SOP F101 – Borehole and Sample Logging
Typical Monitoring Well Construction Details and Test Boring and Well Construction Records	Appendix B – SOP F103 – Monitoring Well Installation
Chain of Custody Form	Appendix B – SOP F302 – Chain of Custody
Sample Label	Appendix B – SOP F302 – Chain of Custody
Data Validation Checklists	Appendix D – Data Validation Methodologies

There are a number of new forms that are integrated into the updated standard operating procedures included as Appendix C of the Phase I RFI Work Plan for SWMU 80. These forms include well installation log, groundwater sampling, and the instrument calibration record.

The analytical methods, analyte lists, detection limits, etc. may have changed to some degree since publication of the DCQAP. Consequently, the Phase I RFI Work Plans contain the following tables specifying the sampling and analytical program requirements so that data of sufficient quality for future risk management decisions is collected:

- Table 3-1 Summary of Sampling and Analytical Program – Environmental Samples
- Table 3-2 Summary of Sampling and Analytical Program – QA/QC Samples and IDW Samples
- Table 3-3 Method Performance Limits

The information provided in these tables has been reviewed against screening levels and have been determined to generally meet these levels. Table 3-3 has been revised to include preparation methods. Soil screening values are presented on Tables 4-1. Groundwater and surface water screening values are presented on Table 4-2. In addition, a table with sediment screening values (Table 4-3) and human health screening values (Table 4-4) were added for easy comparison to the analytical method detection limits. These quantitation limits have also been reviewed by an analytical laboratory to ensure that they can be met. In all cases, the quantitation limits are the lowest

achievable by the laboratory for the specified analytical method. These tables are then provided to the analytical laboratory subcontractor as part of their scope of work so that the laboratory is clearly aware of the analytical requirements of the project. Additionally, only laboratories capable of providing an acceptable Laboratory Quality Manual (LQM) will be selected for this project. The LQM will be provided on request (after selection of the analytical laboratory).

This evaluation (presented in the April 17, 2008 letter), which was approved by EPA on May 13, 2008, indicated that the Phase I RFI Work Plan structure, with reference to the 1995 Master Project Plans and inclusion of project-specific tables summarizing the sampling and analysis program for environmental and QA/QC samples and method performance limits, and other factors as discussed in the April 17, 2008 letter, when taken together provide the information and guidance necessary for the project team to generate good quality data and to use that data for developing risk management based recommendations and decisions. The structure of the Phase I RFI Work Plan for SWMU 80 is in accordance with the QA/R-5 QAPP requirements.

- 2. EPA General Comment 2:** *A data quality objective (DQO) section should be provided in the Work Plan. The DQO section should clearly define the problem and the environmental questions that should be answered for the current investigation. Project decision “If..., then...” statements should be developed, linking data results with possible actions. The DQOs should also identify the type, quantity, and quality of data needed to answer the study questions. The following information should be added to the Work Plan so that complete DQOs are presented:*

- *Provide project decision conditions (“If..., then...” statements) for each matrix and/or decision area.*
- *Provide the rationale for the proposed number of samples for each area of interest, matrix, and interval. In addition, provide the rationale for the proposed type of sample (e.g., grab samples vs. composite samples as well as random samples vs. judgmental samples). The rationale should provide sufficient detail to explain why each of these will address the environmental questions being asked.*

*Revise the Work Plan to include this information.*

**Navy Response:** Although the seven-step DQO process was not applied rigorously, elements essential to the process (with the exception of statistically determining the number of samples) have been considered in the development of the sampling design. Because the investigation is designed to determine if impacts have occurred to soil, sediment, groundwater or surface water at the site, the sample locations have been selected to reflect the most likely impacted areas based on site history and professional judgment. All samples are grab samples with locations biased towards meeting the project objective of determining the presence of contamination. Detailed sampling rationale, including the number and location of samples from each media, specific rationale for each sample, sampling procedures, and associated laboratory analyses is provided in Section 3 of the SWMU 80 Phase I RFI Work Plan.

Project decision conditions include comparing analytical data to human health-, ecological-, and background-based screening values. Exceedances of human health and/or ecological screening values and background screening values will result in a recommendation of additional sampling locations under the Full RFI Work Plan to further delineate the site. Human health and ecological risk assessments will not be conducted as part of the Phase I RFI or Full RFI. The Full RFI Work

Plan will be developed with input from Phase I RFI data, our human health and ecological risk assessors to assure that the investigation will provide the data that is needed for future risk management decisions. The human health and ecological risk assessors review the sampling (number, frequency, location and collection methods) and analytical programs (analytical methods, parameter lists, detection limits) and compare applicable screening values to method performance limits to maximize the usability of the resultant data. The decision criteria for this project (comparison of environmental media analytical results to screening criteria), will be discussed extensively in Sections 4.6.1, 4.6.2 and 4.6.3 of the Full RFI Work Plan. Additional data quality criteria is provided in Section 4.1.1.2 (data quality levels) and Section 14.3 (data completeness and other criteria) of the approved final DCQAP. Based on the above, no revisions to the text of the Phase I RFI Work Plan for SWMU 80 are required.

- 3. EPA General Comment 3:** *Inorganic background levels have not been provided in the Work Plan. Since inorganic data will be compared to background levels, the Work Plan should be revised to present this information. Revise the Work Plan to provide applicable inorganic background levels or reference where they can be found.*

**Navy Response:** The Navy offers the following points of clarification relative to this comment. RFI analytical data will not be statistically compared to background soil and groundwater data sets (background data sets for surface soil, subsurface soil, and groundwater are presented within the [Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico](#) [Baker, 2010]). Instead, the RFI analytical data will be compared to upper limit of the mean (ULM) background concentrations derived from the background data sets presented within the above referenced document. The data sets presented within the background report, ULM background concentrations, as well as the ecological and human health screening values will be compared to the RFI analytical data to determine if the proposed sampling effort delineated the extent of soil contamination detected during the Phase I RFI. It is noted that the background data sets presented within the Background Report have been approved by the EPA and are not populated with analytical data for samples collected from areas of contamination.

- 4. EPA General Comment 4:** *The Work Plan does not specify that exceedances of human health and/or ecological risk-based screening criteria warrant the need for a Human Health Risk Assessment (HHRA) and/or Ecological Risk Assessment (ERA) if complete exposure pathways exist. Clarify that detected concentrations of chemicals will be compared to generic human health and/or ecological risk-based screening criteria as part of the RCRA Facility Investigation (RFI), and that if exceedances exist, a HHRA and/or ERA will be conducted as part of the Corrective Measures Study (CMS) Work Plan, unless sufficient justification is provided to demonstrate that a HHRA and/or ERA is not warranted.*

**Navy Response:** The need for a HHRA and ERA will be identified by the Phase I RFI, which will determine if impacts to the environment have occurred at SWMU 80 based on the presence or absence of chemical concentrations in soil greater than human health/ecological screening values and background screening values. The proposed sampling program for the Phase I RFI will attempt to delineate the extent of contamination detected at SWMU 80 during previous sampling events by comparing analytical data to human health-, ecological-, and background-based screening values. Exceedances of human health and/or ecological screening values and background screening values will result in the site moving to a Full RFI or CMS and preparation of a Full RFI or CMS Work Plan. A HHRA and ERA will be conducted as part of the CMS. The CMS work plan will present the

specific methodology that will be employed for conducting the human health and ecological risk assessments. The first paragraph of Section 4.7 will be revised as follows:

Information from the physical and analytical results (nature and extent of contamination) will be synthesized into conclusions regarding site conditions. Recommendations will be made from these conclusions as to whether a Full RFI is needed to further delineate contamination or whether a Corrective Measures Study (CMS) is needed or the SWMU can proceed toward corrective action complete. If the conclusions from the Phase I RFI indicate exceedances of human health and/or ecological screening values and background screening values, then a Full RFI will be completed. The Full RFI report will recommend moving the SWMU to a CMS with the preparation of a Draft CMS Work Plan. A HHRA and ERA will be conducted as part of the CMS and the CMS Work Plan will present the specific methodology that will be employed for conducting these assessments, if required.

- 5. EPA General Comment 5:** *The Work Plan indicates that “background screening values” will be used to evaluate analytical results relating to both human and ecological receptors. Consistent with EPA guidance and following agreements with the Navy, inorganics that exceed human health risk-based screening criteria cannot be eliminated from the quantification of SWMU-specific risk and hazard regardless of background concentrations. Specifically, the EPA raised this issue in a comment letter dated January 23, 2009, on the Draft Final CMS for Solid Waste Management Unit (SWMU) 68. The Navy responses to the EPA comment letter, dated June 12, 2009, stated that chemicals detected above risk-based screening criteria will be retained as Chemicals of Potential Concern (COPCs) and assessed under total baseline conditions. The Navy’s responses further stated that those chemicals at or below background levels (non-site related) will be discussed as part of the risk characterization and then exit the risk assessment process. This approach is consistent with U.S. Navy Human Health Risk Assessment Guidance (available at <http://www-nmcphc.med.navy.mil/downloads/ep/Chapters%201-12.pdf>). Note that this approach appears to be acceptable based on EPA’s approval letter dated August 6, 2009, for the Final CMS for SWMU 68.*

*Ensure that the Work Plan (e.g., first paragraph of Section 4.6.2, Human Health Screening Values, and Section 4.6.3, Background Screening Values) is revised to reflect these previous agreements to maintain consistency among all HHRAs performed at Naval Activity Puerto Rico (NAPR) SWMUs and demonstrate compliance with EPA-recommended risk assessment methodologies. Specifically, Section 4.6.3 should indicate that the background screening conducted as part of the RFI will not eliminate chemicals from consideration in the HHRA, should a HHRA be warranted by the site-specific data evaluation and screening process. It should be noted that HHRAs conducted for NAPR SWMUs should quantify SWMU-specific risk and hazard for any and/or all inorganic compounds that exceed residential or industrial health-based screening criteria. Further, the uncertainty analysis, presented as part of the risk characterization, should include a refinement of risk. This refined risk evaluation should present a breakdown of the total SWMU-specific risk as site-related risk and background risk. This will provide the basis for exiting such inorganic COPCs from the HHRA process (i.e., show that such inorganic COPCs should exit at the end of Tier 2, Baseline HHRA, and not continue to the Tier 3 process, risk assessment for selection of remedial alternatives).*

*With respect to ERAs, the Navy’s approach is generally consistent with EPA guidance because inorganic compounds are not excluded based on background in Step 2 (Tier 1) of the Navy’s ERA process, and Step 3.a (Tier 2) does include a refinement of risk based on statistical background comparisons (much like the refinement of risk conducted as part of the HHRA uncertainty analysis).*

**Navy Response:** The Navy offers the following points of clarification relative to this comment. The RFI analytical data will not be statistically compared to background analytical data as part of the RFI. Instead, RFI analytical data will be compared to the background-screening values (i.e., ULM background concentrations) presented within the Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico [Baker, 2010]), as well as human health and ecological screening values, to define the extent of contamination that was detected by the Phase I RFI. Exceedances of human health and/or ecological screening values and background screening values will result in the site moving to a Full RFI with the preparation of a Full RFI Work Plan or directly to a CMS with the preparation of a Draft CMS Work Plan; a HHRA and ERA will be conducted as part of the CMS as detailed in the CMS Work Plan

Inorganic concentrations below background levels will be eliminated from further consideration as site-related contaminants in the Phase I RFI. However, this does not eliminate them from the quantification of risk in the event an HHRA is warranted. Rather, in HHRAs conducted for NAPR all chemicals detected above risk-based screening criteria, regardless of whether those chemicals are at or below background, are retained as COPCs and evaluated quantitatively as part of the total baseline HHRA. In addition, a refinement of total site (where the term “site” refers to the SWMU under evaluation) risk addressing the contribution of background to risk (i.e., risks from those chemicals at or below background levels [non-site related]) would be included as part of the uncertainty analysis and risk characterization. Those chemicals whose SWMU-specific concentrations and associated risk/hazard are attributable to background would then exit the risk assessment process, which is consistent with *U.S. Navy Human Health Risk Assessment Guidance*.

6. **EPA General Comment 6:** *MCLs are not solely risk-based. Groundwater exceedances of risk-based screening criteria warrant an HHRA unless land use controls and/or institutional controls are in place at SWMU 80 to prevent consumption of groundwater (e.g., restrictions on residential development). Further, if a HHRA is warranted and conducted as part of the CMS, groundwater COPCs should be selected based on comparison of analytical results to the applicable Tap Water Regional Screening Level (RSL) and not the MCL. Revise the Draft RFI Work Plan to update Section 4.6.2, Human Health Screening Values, and update Section 4.6.2.2, Federal Drinking Water MCLs, or provide adequate justification for not doing so.*

**Navy Response:** MCLs will be used only as one of the screening tools in the Phase I RFI. As indicated in Section 4.6.2, USEPA Regional Tap Water SLs and inorganic background levels also will be used for groundwater screening in the Phase I RFI for SWMU 80. It is acknowledged in Section 4.6.2.2 that MCLs are not solely risk-based. Note that it is not the objective of the Phase I RFI to evaluate the potential for human health risks. Further evaluation of the potential for human health risks will be conducted as part of a CMS investigation. In HHRAs conducted for NAPR, only risk-based screening criteria are used in the COPC selection process. As such, MCLs are not used to identify groundwater COPCs. No revisions to the text of the Phase I RFI Work Plan for SWMU 80 are required.

7. **EPA General Comment 7:** *Ensure that contract-required quantitation limits (QLs) are low enough to meet human health and ecological screening criteria. Revise the Work Plan to show that QLs will be low enough to meet data quality standards for risk assessment purposes. The requested revision can be easily addressed by updating tables to compare the QLs to applicable human health and ecological screening values.*

**Navy Response:** The human health screening values (Regional Screening Levels and MCLs) are provided in Table 4-4 and ecological screening values are provided in Tables 4-1 to 4-3. The information provided in Table 3-3 has been reviewed against project-specific screening levels and has been determined to generally meet these levels. The quantitation limits have also been reviewed by an analytical laboratory to ensure that they can be met. In all cases, the quantitation limits are the lowest achievable by the laboratory for the specified analytical method. The project-specific screening values are then provided to the analytical laboratory subcontractor as part of their scope of work so that the laboratory is clearly aware of the analytical requirements of the project.

- 8. EPA General Comment 8:** *The Work Plan does not specify that exceedances of ecological risk-based screening criteria warrant the need for an ERA if complete exposure pathways exist. Clarify that detected concentrations of chemicals will be compared to generic ecological risk-based screening criteria only as part of the RFI, and that an ERA will be conducted as part of the CMS Work Plan if exceedances exist, unless sufficient justification is provided to demonstrate that an ERA is not warranted.*

**Navy Response:** As discussed in previous Navy responses, the Phase I RFI will not include a HHRA and ERA. These evaluations will be presented as part of the CMS. Exceedances of human health and/or ecological screening values and background screening values will result in the site moving to a Full RFI or directly to a CMS with the preparation of a Draft CMS Work Plan. Specific methodology that will be used to conduct the HHRA and ERA will be presented in the CMS Work Plan. As such, the Navy does not believe it is necessary to present this information within the Phase I or Full RFI Work Plan. However, to support the proposed Phase I RFI sampling program, preliminary screening values for human and ecological receptors are provided in Section 4.6.1 and 4.6.2.

- 9. EPA General Comment 9:** *The Work Plan does not discuss potential ecological receptors that could be exposed to contaminants in soil, sediment, or groundwater at SWMU 80. Revise the Work Plan to specify that biota at or hydrologically downgradient from SWMU 80 will be discussed in the subsequent RFI Report.*

**Navy Response:** Sections 2.1.1 and 2.1.2 provide a discussion of the ecological receptors (biota and habitats) that may occur at SWMU 80 and down gradient from SWMU 80. As previous investigations have not documented the specific habitats and biota at SWMU 80, the discussion will rely primarily on literature-based information for Puerto Rico and NAPR. As part of the Phase I RFI field investigation, specific vegetation and biota (if any) observed at SWMU 80 will be documented.

- 10. EPA General Comment 10:** *Many of the previously analyzed surface soil and sediment samples from SWMU 80 contained bioaccumulative COPCs, as defined by the U.S. Environmental Protection Agency (USEPA) in Table 4.2 of Bioaccumulation testing and interpretation for the purpose of sediment quality assessment - status and needs, dated February 2000 (EPA/823/R-00/001). These COPCs include benzo(a)pyrene, 4,4'-DDE, 4,4'-DDT, and heptachlor. The Work Plan outlines plans to compare concentrations detected in future samples to risk-based ecological screening levels. It does not address the potential for bioaccumulation which may impact upper trophic level receptors through food chain uptake. In order to be protective, revise the Work Plan to state that bioaccumulative COPCs (as defined in USEPA, 2000) will be automatically retained for an independent food chain assessment.*

**Navy Response:** Refer to the General Navy Response. A HHRA and ERA will be conducted as part of the CMS, if needed. The CMS work plan will present the specific methodology that will be employed for conducting the human health and ecological risk assessments.

- 11. EPA General Comment 11:** *Appendix A discusses EPA Region 2’s low-flow sampling procedures but does not indicate the type of pump to be used during groundwater sampling. Revise the Work Plan to specify the type of pump that will be used during groundwater sampling.*

**Navy Response:** Section 3.3 has been revised to include the following:

Low-flow sampling will be achieved using a portable positive displacement bladder pump with an adjustable low-flow rate pump controller.

## SPECIFIC COMMENTS

- 1. EPA Specific Comment 1: Section 3.1, Soil Sampling and Analysis Program, Page 3-2:** *The text indicates that two subsurface soil samples collected from greater than one foot below ground surface (bgs) to just above groundwater will be selected for laboratory analysis. It is unclear what parameters (e.g., elevated photoionization detector readings, staining/odor, interval just above the water table, etc.) will be used to select the two intervals to be sampled. Revise the Work Plan to clarify what parameters will be used in selection of samples for laboratory analysis.*

**Navy Response:** The text of Section 3.1 has been revised to include:

The exact depth of subsurface soil samples will be determined in the field based on PID measurements, visual or olfactory signs of contamination or at the discretion of the field geologist.

- 2. EPA Specific Comment 2: Section 3.1, Soil Sampling and Analysis Program, Page 3-2:** *The text indicates that a boring log will be maintained during soil boring installation “indicating, among other things, lithology, water occurrence, photoionization detector (PID) measurements and other observations.” The text should be revised to clarify what information is required for the boring log and include a specific list of items that will be presented in the boring log. Revise the Work Plan to provide this information.*

**Navy Response:** Section 3.1 has been revised to state:

A boring log will be maintained indicating lithology, water occurrence, photoionization detector (PID) measurements and other observations. All pertinent sampling information such as soil description (e.g., color and texture), sample number and location, presence or absence of soil discoloration, actual depth determined in field, and the time of sample collection will also be recorded in the field logbook.

- 3. EPA Specific Comment 3: Section 3.2, Monitoring Well Installation, Page 3-3:** *The text states that the wells will be developed until the discharged water runs relatively clear of fine-grained materials. The text further indicates that typical limits placed on well development may include any one or a combination of the following: clarity of water based on visual determination; a maximum time period; a maximum borehole volume; stability of pH, specific conductance, and temperature*

*measurement; and, clarity based on turbidity measurements. Since the clarity of the water is a qualitative measure that could be subjective based on the person making the observations, ensure that this is not the only limit used in well development. Revise the Work Plan to indicate that at least one of the other limits will be placed on well development in conjunction with visual observation of water clarity, should it be used.*

**Navy Response:** Section 3.2 third bullet item states that one of the limits placed on well development, in addition to a visual inspection of clarity, is a maximum borehole volume (typically three to five borehole volumes plus the amount of any water added during the drilling or installation process). No revisions to the text of the Phase I RFI Work Plan for SWMU 80 are required.

4. **EPA Specific Comment 4: Section 3.3, Groundwater Sampling and Analysis Program, Page 3-4:** *According to this section, groundwater will be sampled using a low-flow sampling technique if the wells exhibit sufficient yield, otherwise samples will be grabbed from the existing well volume. It is unclear how the samples will be collected under the latter circumstance. Revise the Work Plan to provide more detail as to how samples will be collected should the wells lack sufficient yield. Note that if insufficient volume is available to perform low-flow sampling, the well should be purged dry and allowed to recharge prior to grab sampling.*

**Navy Response:** The following text has been added to Section 3.3: “If during well development or pre-sample purging the well presents as having insufficient yield for low-flow sampling the well shall be purged dry and allowed to recharge prior to collection of grab samples”.

5. **EPA Specific Comment 5: Section 3.4 Sediment Sampling and Analysis Program, Page 3-4 to 3-5:** *The Work Plan indicates that sediment samples will be collected from zero to four inches below ground surface (bgs). Sediment samples should be collected from zero to six inches bgs in order to represent the most complete exposures for sediment-dwelling ecological receptors. Revise this section to indicate that the preferred depth range for sediment sampling (i.e., zero to six inches bgs) will be used, or to provide an explanation for the use of the proposed sampling depth of zero to four inches bgs.*

**Navy Response:** During previous sampling events sediments were not present below 4 inches bgs therefore depth of sediment sampling was limited by the thickness of the sediment deposition. To maintain consistent data comparison with previous sediment sampling data 0-4 inch sampling depth will be maintained. Section 3.4 contains the correct depth interval for proposed sediment sampling. Table 3-1 has been corrected to indicate depth of sediment samples will be 0-4 inches.

6. **EPA Specific Comment 6: Section 3.4, Sediment Sampling and Analysis Program, Page 3-5:** *The text indicates that sediment samples will be obtained from zero to four inches bgs; however, Table 3-1 indicates that sediment samples will be obtained from zero to six inches bgs. Revise the Work Plan to address this discrepancy. Note that in order to represent the most relevant exposures for sediment-dwelling ecological receptors, sediment samples should be collected from zero to six inches bgs.*

**Navy Response:** During previous sampling events sediments were not present below 4 inches bgs therefore depth of sediment sampling was limited by the thickness of the sediment deposition. To maintain consistent data comparison with previous sediment sampling data 0-4 inch sampling depth will be maintained. Section 3.4 contains the correct depth interval for proposed sediment sampling. Table 3-1 has been corrected to indicate depth of sediment samples will be 0-4 inches.

- 7. EPA Specific Comment 7: Section 3.5, Surface Water Sampling and Analysis Program, Page 3-5:** *This section indicates that samples will be obtained by filling sample bottles directly with surface water. While this may be acceptable, it should be noted that sample bottles should not be directly filled if they are pre-preserved. Revise the Work Plan to clarify if sample bottles will be pre-preserved, and if so, how the samples will be collected.*

**Navy Response:** Surface water sampling techniques have been added to Section 3.5 which includes sampling with pre-preserved containers.

- 8. EPA Specific Comment 8: Section 3.6.2, Equipment Rinsates, Page 3-6:** *This section indicates that the equipment rinsate samples will be collected from macro core liners for soils and from the Teflon-lined polyethylene tubing for groundwater. The liners and tubing are usually not decontaminated in the field; therefore, it is recommended that the equipment rinsates be collected from equipment that has been decontaminated (e.g., groundwater pump) to ensure no cross-contamination has occurred. Revise the Work Plan to indicate that equipment rinsates will be collected from equipment requiring decontamination and identify all potential equipment.*

**Navy Response:** Section 3.6.2 Equipment Rinsates and Table 3-2 will be revised to include that an equipment rinsate will be also collected from the bladder pump used for groundwater sampling.

- 9. EPA Specific Comment 9: Section 3.8.1, Delineation of Wetland Boundaries, Page 3-7:** *This section states that during the Phase I RFI, the wetland boundary at SWMU 80 will be field-delineated in accordance with the U.S. Army Corps of Engineers guidance. Due to the sensitivity of wetland habitats, and potential impacts to ecological receptors therein, additional information is needed in this section. Revise the Work Plan to describe the data to be collected during the delineation process (e.g., soil characteristics, soil saturation, description of vegetation present) and to indicate how the information will be used to evaluate potential risks to ecological receptors.*

**Navy Response:** Appendix C Data Form of U. S. Army Corps of Engineers Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Caribbean Islands Region (Environmental Laboratory, 2009) has provision for recording the type of vegetation, soil and hydrology present. The data gathered during the wetland delineation in combination with soil sampling analytical results will be used to present the potential risks to ecological receptors in the CMS, if needed.

- 10. EPA Specific Comment 10: Section 3.8.1, Field Verification of Wetland Boundary Delineation, Page 3-7:** *This section indicates wetland delineation will be performed at the site; however, the purpose, timing and any potential effect of the wetland delineation on sampling locations was not included. For example, several proposed soil samples appear to be located in the wetland area, as depicted on Figure 3-1, Proposed Soil and Groundwater Sample Locations. It is unclear whether these sample locations may contain sediment. Revise the Work Plan to include the timing of the wetland delineation and any potential adjustments to sample locations or media based on the wetland delineation.*

**Navy Response:** The wetland delineation shall be performed prior to start of sampling activities. Due to proximity of wetland to Building 207 and potential impact on wetland the proposed soil sample locations within the wetland are required to characterize the site and will be relocated based on results of wetland delineation.

**11. EPA Specific Comment 11: Section 3.8.4, Investigation Derived Waste Management, Page 3-8:**

*It is unclear if investigation derived waste (IDW) will be combined from multiple borings into one 55-gallon drum or if each boring will have its own drum. Also, it was unclear how the procedure for potentially replacing the soil cuttings into the borings would be implemented if the soil cuttings are combined from multiple borings into one 55-gallon drum. Revise the Work Plan to clarify IDW management procedures.*

**Navy Response:** The soil cuttings associated with subsurface soil sampling will be placed back into the location where the cuttings were collected immediately after the subsurface soil samples are collected unless contamination is indicated, as determined by the field manager. If contamination is indicated, the soil cuttings associated with that soil boring will be stored temporarily in a 55-gallon drum. All the soil cuttings for soil borings that show evidence of contamination will be placed in the same drum with proper label on the drums exterior. A composite sample will be collected and submitted for laboratory analysis. There will not be one drum for each soil boring. The text in Section 3.8.4 has been edited to clarify the IDW procedures.

**12. EPA Specific Comment 12: Section 3.8.4, Investigation Derived Waste Management, Page 3-8:**

*More detailed IDW sampling procedures should be provided. The Work Plan should indicate how each aliquot of IDW will be collected for soil, and how these aliquots will be combined for the composite sample. Revise the Work Plan to provide this information.*

**Navy Response:** Section 3.8.4 will be revised to include the following information:

A composite soil sample will be compiled from individual discrete (grab) samples of equal volume collected from each of the 55-gallon drums of containerized IDW soil. Each individual discrete soil sample will be placed into a decontaminated stainless-steel bowl (or other appropriate container) and thoroughly homogenized prior to filling the appropriate laboratory provided sample containers. However, the IDW grab sample for VOC analysis will be collected directly from soil exhibiting the highest potential impact based on visual and olfactory observations and screening results obtained during the investigation. The soil samples will be analyzed for toxicity characteristic leaching procedure (TCLP) metals, TCLP organics (VOCs, SVOCs and pesticides) and reactivity, corrosivity, and ignitibility (RCI) as shown in Table 3-2, using methods presented in Table 3-3.

The IDW composite water samples will be collected similar to the soil composite sample with the exception that the individual discrete (grab) samples of equal volume collected from each of the 55-gallon drums of containerized IDW water will be placed directly into the appropriate laboratory provided sample containers. The water samples will be analyzed for Appendix IX VOCs, SVOCs, pesticides and metals and RCI as shown in Table 3-2, using methods presented in Table 3-3.

**13. EPA Specific Comment 13: Section 4.0, Reporting, Pages 4-1 through 4-9:** *This section does not indicate that a DQA will be included in the final report. Revise this section to specify that a DQA will be part of the final report, and specify what will be included in the DQA (e.g., an evaluation of PARCCS, significant trends and biases, comparing data to DQOs to ensure questions were addressed, etc.).*

**Navy Response:** The following statement will be added to Section 4.7:

All data from the laboratory will be certified by a Puerto Rican Chemist and laboratory data will be validated to ensure data usability. Only usable data will be included in the evaluation and the conclusions and recommendations sections of the report. Data validation reports will be included as an appendix to the Phase I RFI report and will discuss:

- Overall Evaluation of the Data
- Potential Usability Issues
- Data Completeness
- Technical Holding Times
- Initial and Continuing Calibrations
- Method and QC Blanks
- Laboratory Control Samples
- Matrix Spikes
- Quantitation and Data Qualifications

**14. EPA Specific Comment 14: Section 4.6.1.2, Surface Water Screening Values, Page 4-3:** *The third sentence in the first paragraph of Section 4.6.1.2 should be revised to refer to “surface water screening values” instead of “groundwater screening values,” as this section pertains to surface water.*

**Navy Response:** The word “groundwater” has been replaced with “surface water” in the referenced section.

**15. EPA Specific Comment 15: Section 4.6.1.2, Surface Water Screening Values, Page 4-3:** *This section lists the references used to identify ecological risk based screening values for surface water. The list does not include the surface water screening benchmarks published by the Puerto Rico Environmental Quality Board (PREQB) in Puerto Rico Water Quality Standards Regulation, as amended March 2003. Revise the Work Plan to take the PREQB surface water screening benchmarks into account.*

**Navy Response:** Section 4.6.1.2 will be revised to indicate that Puerto Rico Water Quality Standards for aquatic life will be used as the preferential screening benchmark source for groundwater. Based on the likely discharge point for SWMU 80 groundwater and the classifications for coastal and estuarine water contained in Rule 1302.1 of the Puerto Rico Water Quality Standards Regulation, Water Quality Standards for Class SB coastal and estuarine waters will be used. As indicated in Section 4.6.2.1, literature-based freshwater screening benchmarks were used as groundwater screening values for those chemicals lacking a marine and estuarine screening benchmark. Therefore, this section also will be revised to indicate that Puerto Rico Water Quality Standards for Class SD surface water will be used as the preferential screening benchmark source for those chemicals lacking a marine and estuarine value. Water Quality Standards for Class SD surface waters will be used based on the classifications for surface waters contained in Rule 1302.2. Finally, Table 4-2 will be revised as necessary to reflect the use of Puerto Rico Water Quality Standards as preferential screening benchmarks for SWMU 80 groundwater.

**16. EPA Specific Comment 16: Section 4.6.1.4 Sediment Screening Values, Page 4-7:** *The Work Plan states that equilibrium partitioning-based (EqP-based) screening values were developed or*

identified from the literature for those organic chemicals lacking sediment freshwater and marine/estuarine toxicological benchmarks. In calculating the EqP-based values, a default fraction of organic carbon ( $f_{oc}$ ) of 0.01 (one percent total organic carbon) was used. The Work Plan indicates that these EqP-based screening values will be “. . . revised to reflect the minimum  $f_{oc}$  measured in sediment samples collected from the drainage ditch system adjacent to and downgradient from SWMU 80.” While the use of site-specific data is acceptable, the  $f_{oc}$  value used must be adequately representative of the sediment in the drainage ditches. In order to delineate the extent of sediment contamination, sediment samples should be collected in depositional areas of the ditches, where the highest COPC concentrations would be expected. However, the  $f_{oc}$  values obtained from depositional areas may be biased higher than if samples were collected randomly from all areas of the ditches. This bias could result in less conservative EqP-based screening values. At this point in the ecological risk screening process, conservative assumptions should be made in order to be adequately protective. If site-specific  $f_{oc}$  data will be used to calculate EqP-based screening values, care must be taken to ensure that the  $f_{oc}$  data used in the calculation provides a conservative (i.e., low-end of the range) estimate of organic content in the ditch sediment. Otherwise, the default  $f_{oc}$  value of 0.01 should be used. Revise the Work Plan to address this issue.

**Navy Response:** The sediment screening values used were for comparison only, as the initial phase of the site characterization process. This comment has been noted. The ERA, conducted as part of the CMS, will quantify the correct ecological screening values. Since an ERA is not part of the RFI, no revisions have been made to the document.

- 17. EPA Specific Comment 17: Section 4.7, Conclusions and Recommendations, Page 4-9:** *This section states that information from the nature and extent of contamination will be synthesized into conclusions regarding site conditions; however, this section does not describe how data usability will impact the conclusions and recommendations. Revise the section to address this issue.*

**Navy Response:** All data from the laboratory will be certified by a Puerto Rican Chemist and laboratory data will be validated to ensure data usability. Only usable data will be included in the evaluation and the conclusions and recommendations sections of the report. A data validation report will be included as an appendix to this report and will discuss the data usability.

- 18. EPA Specific Comment 18: Section 6.1, Project Team Responsibilities, Page 6-1:** *This section does not provide the responsibilities of all the project team members (e.g., laboratory chemist, data validator, etc.). Revise the section to provide a list of all the members of the project as well as their responsibilities.*

**Navy Response:** The project team personnel primarily responsible for the project are listed in Section 6.1. The Work Plan was prepared with the understanding that an as yet undetermined third party would be responsible for laboratory analysis, data validation, etc. Since these are variable depending on the bidding process, the Navy disagrees with adding this information into the work plan since it is undetermined until the project bidding is completed.

- 19. EPA Specific Comment 19: Table 3-1, Summary of Sampling and Analytical Program – Environmental Samples, Pages 1-2:** *This table indicates that field duplicate samples will be distinguished using a “D” at the end of the sample nomenclature. However, it is recommended that all field duplicate samples be submitted to the laboratory as blind duplicates. Revise the Work Plan to remove the “D” from field duplicate sample nomenclature.*

**Navy Response:** To maintain consistency with the standards established for data reporting and GIS management throughout the corrective action program, the sample designations will not be modified. No revisions to the Phase I RFI Work Plan for SWMU 80 are required.

- 20. EPA Specific Comment 20: Table 3-2, Summary of Sampling and Analytical Program – QA/QC and IDW Samples, Page 1:** *The analyses listed for IDW samples do not include semivolatile organic compounds (SVOCs) or pesticides. However, the environmental samples for this investigation will be analyzed for these constituents since elevated concentrations have been detected for some compounds on the site. Further, Section 3.8.4 indicates that the soil and water IDW samples will be analyzed for TCLP VOC and TCLP metals. However, this table does not include TCLP analysis for aqueous IDW samples. Revise the Work Plan to clarify why IDW samples will not also be analyzed for SVOCs and pesticides. Further, revise this table to indicate aqueous IDW samples will be analyzed for TCLP metals and TCLP VOCs.*

**Navy Response:** Table 3-2 will be revised to indicate that the aqueous IDW samples will be analyzed for Appendix IX VOCs, SVOCs, pesticides and metals, and reactivity, corrosivity and ignitability. Solid IDW samples will be analyzed for TCLP organics (including VOCs, SVOCs and pesticides), TCLP metals, and reactivity, corrosivity and ignitability. Section 3.8.4 of the text also will be revised accordingly.

- 21. EPA Specific Comment 21: Table 3-3, Method Performance Limits:** *This table contains several analytes that have reporting limits (RLs) which exceed ecological screening levels (e.g., PAHs including anthracene, benzo(a)anthracene, benzo(a)pyrene; metals including copper, nickel, and silver; and a majority of the organochlorine pesticides). The Work Plan does not specify how analytes with RLs which exceed screening levels will be evaluated or qualified. This is particularly important since the soil/sediment RLs in Table 3-3 are based on wet weight results, and they will be elevated when corrected for dry weight. In addition, it is unclear if the laboratory chosen will be able to meet the RLs presented in the table. Revise the Work Plan to present the laboratory-specific RLs, indicate which analytes have screening levels below the RLs, and clarify how results will be evaluated and/or qualified if screening levels are below the RL.*

**Navy Response:** The Navy is aware that some of the reporting limits exceed the ecological groundwater screening levels. The analytical laboratory chosen for analyzing data will provide the lowest reporting limits possible. It is noted that the ERA, conducted as part of the CMS, will quantify risks for non-detected chemicals. Non-detected chemicals with maximum reporting limits greater than ecological screening values will be identified as ecological COPCs in Step 2 of the screening-level ERA (SERA) and undergo additional evaluation in Step 3a of the baseline ecological risk assessment (BERA).

- 22. EPA Specific Comment 22: Table 4-1, Soil Screening Values for Plants and Invertebrates:** *The title of this table is inaccurate and misleading. The ecological screening values contained in the table are not limited to those for plants and invertebrates, and the ecological receptors present at SWMU 80 are not known to be limited to plants and invertebrates. A more appropriate title for the table would be “Ecological Soil Screening Values.” Revise the Work Plan to address this issue.*

**Navy Response:** The title of Table 4-1 has been revised to read “Ecological Soil Screening Values”.

- 23. EPA Specific Comment 23: Table 4-4, Human Health Screening Values, Pages 1-8:** *The screening levels (SLs) presented in this table are not always consistent with the EPA Regional*

*Screening Levels (RSLs) cited. For example, several inorganic compounds appear to have been converted incorrectly from scientific formula nomenclature to a numeric format. The residential RSL listed on page 7 of this table for cadmium is listed as 7 mg/kg, but the RSL should be listed as 70 mg/kg. Further, some values appear to be rounded (e.g., the industrial RSL for arsenic is listed as 2 mg/kg, but it should be 1.6 mg/kg). It should be noted that many other examples exist. Revise the Work Plan to address these discrepancies and to ensure that all of the values presented in this table are consistent with the published EPA SLs.*

**Navy Response:** The screening level values in Table 4-4 for inorganic compounds have been corrected.

## **PREQB COMMENTS**

*(PREQB comments are provided in italics, while the Navy responses are provided in regular print.)*

### **General Comments:**

- 1. PREQB General Comment 1:** *Please clarify why a project-specific Sampling and Analysis Plan (SAP) was not prepared in accordance with the Uniform Federal Policy for Quality Assurance Project Plans (March 2005). Submittal of a SAP in this format will allow the reviewers to ensure that all laboratory and field requirements necessary to achieve data quality objectives for this site will be met.*

**Navy Response:** Refer to the Navy Response to EPA General Comments 1 and 2.

- 2. PREQB General Comment 2:** *Please consider the collection of co-located sediment and surface water samples as opposed to the separate samples that are currently proposed. The data derived from co-located samples collected during the same deployment will aid in the understanding of site conditions.*

**Navy Response:** The three proposed sediment sample locations presented on Figure 3-2 were chosen to fill data gaps in the previous 2008 and 2009 sediment sampling events. The proposed surface water sample locations (80SD01 through 80SD06) will be collected in the same locations as the previous sediment samples (56ASD01, 56ASD02, 56ASD05, 56ASD06, 56ASD07, 56ASD10).

### **Page-Specific Comments:**

- 1. PREQB Specific Comment 1:** *Page 1-2, Section 1.2: text refers to Figure 1-3 for a site layout. During the sediment sampling activities on 2009, the field personnel noticed that the provided layout of the drainage ditch was different from the actual field configuration. This fact caused deviation from the sampling plan. Please clarify if the field data gathered during the sampling effort was employed to correct the layout of the drainage ditch at Figure 1-3.*

**Navy Response:** Figure 1-3 of Phase I RFI SWMU 80 is the most accurate representation of known field conditions based on historic mapping and field investigation.

**2. PREQB Specific Comment 2:** Page 2-2, Section 2.2.2:

- a. *Please provide information on possible source(s) for the pesticides identified in environmental samples at SWMU 80.*

**Navy Response:** The purpose of performing the Phase I RFI is to determine presence or absence of contaminants and the need for further characterization of SWMU 80. The current sampling data is not sufficient to determine a possible source for pesticide contamination.

- b. *When presenting the information on the constituents detected above screening levels in the samples, please distinguish between what is detected in original samples versus duplicates. As an example, in paragraph 2, please indicate that benzo(a)pyrene was detected at concentrations above the residential screening levels in one surface soil sample and its duplicate sample as opposed to indicating that it was detected in two separate surface soil samples at elevated concentrations.*

**Navy Response:** Section 2.2.2 has been corrected to eliminate duplicates from being counted as separate samples.

- c. *The text states that lead was detected at concentrations that exceed its ecological soil screening value and background value at two of the four surface soil samples collected in the vicinity of Building 207 in June 2007. However, Figure 2-2 only indicates that lead exceeded these values in one of the four samples (as well as that locations' duplicate sample). Please clarify this discrepancy and revise the text or Figure 2-2 as appropriate.*

**Navy Response:** Results of the June 2009 sampling event reported on Figure 2-2 indicate only one surface soil sample location 56ASS04 exceeded ecological screening value and base wide background value for lead. The duplicate at this location only exceeded the ecological screening value. Section 2.2.2 has been corrected to state, "Lead was detected in one surface soil sample at concentrations greater than the ecological soil screening value and background value and in its duplicate sample only exceeded the ecological soil screening value".

- d. *The presence of the orange precipitate in the drainage ditch occurs from approximately 30 feet upstream of sediment sample location 56A-SD01 to the culvert immediately downgradient of this sample location. Please depict the location of this culvert on Figure 2-2. In addition, please provide a description of this culvert including possible function of the culvert as it would appear to be located within a forested wetland and not associated with any existing road.*

**Navy Response:** The estimated location of the culvert has been added to Figure 2-2. During the Phase I RFI the location of the culvert will be survey located.

**3. PREQB Specific Comment 3:** Page 3-1, Section 3.1, Paragraph 2: *The text states that soil borings 80SB07 through 80SB12 will be placed northwest of Building 207. However, as per Figure 3-1, only soil borings 80SB07 and 80SB08 are northwest of Building 207. Soil borings 80SB09 and 80SB10 are north of Building 207 and soil borings 80SB11 and 80SB12 are northeast of Building 207. Revise the text accordingly.*

**Navy Response:** The locations of the soil borings have been corrected in Section 3.1.

**4. PREQB Specific Comment 4:** Page 3-2, Section 3.1:

- a. *Please add detail on the criteria that will be used to select the subsurface soil sample intervals.*

**Navy Response:** Refer to the Navy Response to EPA Specific Comment 1.

- b. *Please include details on how soil samples for VOCs will be collected and clarify whether samples will be collected in a coring device (i.e., TerraCores) or whether field preservation will be used.*

**Navy Response:** Section 3.1 has been revised to indicate that soil sample acquisition procedures for VOC analysis are located in the Final RCRA Facility Investigation Management Plans (Baker 1995)

**5. PREQB Specific Comment 5:** Page 3-3, Section 3.2, Paragraph 2: *Please state the proposed length of screen to be used in constructing the monitoring wells at this site.*

**Navy Response:** The following has been included in Section 3.2, Paragraph 2:

A maximum 10 foot screen length will be installed on all monitoring wells unless the total depth of boring does not allow for required overlying sand pack and bentonite seal. If that is the case the well screen length shall be reduced to a minimum five foot. The installed screen length will be recorded in the soil boring log.

**6. PREQB Specific Comment 6:** Page 3-4, Section 3.3: *Please include the time period between well development and groundwater sampling. As per the Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers, Office of Solid Waste and Emergency Response, EPA 542-S-02-001, May 2002, the time for a well to re-stabilize after development is dependent on site-specific geology and should be specified in the site sampling plan.*

**Navy Response:** Based on knowledge of the site geology a minimum of 24 hours is required between well development and sampling. Section 3.3 has been revised to specify no sampling for a minimum of 24 hours after well development.

**7. PREQB Specific Comment 7:** Page 3-5, Section 3.4:

- a. *Please include details on how sediment samples for VOCs will be collected and clarify whether samples will be collected in a coring device (i.e., TerraCores) or whether field preservation will be used.*

**Navy Response:** Section 3.4 has been revised to indicate that sediment sample acquisition procedures are located in the Final RCRA Facility Investigation Management Plans (Baker 1995)

- b. *Sediment samples are proposed to be collected from the surface to four inches. It was also noted that the previous sediment samples collected in 2008 and 2009 were also collected from the surface to four inches. Generally, sediment samples are collected to a depth of six inches unless site-specific characteristics or objectives require a shallower or deeper sampling depth. Please provide the site-specific rationale for collecting sediments to a depth on only four inches at*

SWMU 80. Note that Table 3-1 states that the depth of sediment samples will be 0-6 inches below ground surface. Please revise for consistency.

**Navy Response:** As noted by this comment, the previous sediment samples collected in 2008 and 2009 were from a depth interval of 0 to 4 inches bgs. The same depth interval was proposed for this investigation to provide data comparability across the 2008, 2009 and this proposed investigation. Table 3-1 has been corrected to indicate depth of sediment samples will be 0 to 4 inches.

- c. *The proposed sediment sample location 80SD03 is located further downstream from Rabaul Street than previous sediment samples collected from the ditch in 2009. A small tributary appears to be present between sediment sample 56A-SD10 and the proposed location of 80SD03. Please provide the rationale for not collecting a sample from this tributary to the ditch as it may contribute to constituents detected at the proposed sample location 80SD03.*

**Navy Response:** If analytical results of sediment samples indicate an increase in contaminant concentrations in downstream sample data compared to sample data upstream of the unnamed tributary, the tributary will be sampled for COC during the subsequent Full RFI.

8. **PREQB Specific Comment 8:** *Page 3-5, Section 3.5: Please include details on how surface water samples will be filtered for dissolved metals in the field.*

**Navy Response:** Section 3.5 has been revised to include procedure for field filtration of surface water sample.

9. **PREQB Specific Comment 9:** *Pages 3-4 to 3-6, Sections 3.4 and 3.5: Please indicate in the work plan that surface water samples will be collected prior to any sediment sampling (this minimizes the potential disturbance of the standing water and therefore, the potential for collection of entrained sediment). Also, it should be noted that the surface water sampling will be conducted from downstream to upstream locations to prevent disturbance of the downstream sampling locations prior to sampling. Also, please clarify in the text that care will be taken when filling preserved bottles with surface water to make sure that preservative will not be lost.*

**Navy Response:** Section 3.5 has been revised to include surface water sampling techniques including the items addressed in this comment.

10. **PREQB Specific Comment 10:** *Page 3-8, Section 3.8.4: This section discussed how the investigation derived waste will be managed and sampled during the field activities. Please incorporate to the section how the purge water will be managed.*

**Navy Response:** “Well development and purge water” has been included in Section 3.8.4, Paragraph one (first sentence).

11. **PREQB Specific Comment 11:** *Page 3-8, Section 3.8.4, Paragraph 2: This section indicates that aqueous IDW samples will be analyzed for TCLP VOCs and TCLP metals; however, Table 3-2 states that these samples will be analyzed for total VOCs and total metals. Please clarify and revise accordingly.*

**Navy Response:** Refer to the Navy Response to EPA Specific Comment 20.

- 12. PREQB Specific Comment 12:** *Page 4-3, Section 4.6.1.2: Surface water screening values are proposed for evaluating constituents detected in surface water samples at the site. Please include the aquatic life criteria presented in the Puerto Rico Water Quality Standards (March 2010) as the preferential screening benchmark source. This would include the following metals (expressed as total recoverable concentrations): cadmium, copper, lead, nickel, selenium, silver and zinc. Specific criteria based on the protection of aquatic life are also presented for various pesticides. Please revise Table 4-2 accordingly citing this source and revising the screening values where appropriate.*

**Navy Response:** Section 4.6.1.2 will be revised to indicate that Puerto Rico Water Quality Standards for aquatic life will be used as the preferential screening benchmark source for groundwater. Based on the likely discharge point for SWMU 80 groundwater and the classifications for coastal and estuarine water contained in Rule 1302.1 of the Puerto Rico Water Quality Standards Regulation, Water Quality Standards for Class SB coastal and estuarine waters will be used. As indicated in Section 4.6.2.1, literature-based freshwater screening benchmarks were used as groundwater screening values for those chemicals lacking a marine and estuarine screening benchmark. Therefore, this section also will be revised to indicate that Puerto Rico Water Quality Standards for Class SD surface water will be used as the preferential screening benchmark source for those chemicals lacking a marine and estuarine value. Water Quality Standards for Class SD surface waters will be used based on the classifications for surface waters contained in Rule 1302.2. Finally, Table 4-2 will be revised as necessary to reflect the use of Puerto Rico Water Quality Standards as preferential screening benchmarks for SWMU 80 groundwater.

- 13. PREQB Specific Comment 13:** *Page 4-5, Section 4.6.1.2: Water hardness from a stream present within the general region of the site is proposed to represent water hardness for the surface water samples collected from the drainage ditch. Although acceptable to initially develop surface water screening values, site-specific water hardness should be used in determining the site-specific screening values for metals that are hardness-dependent. It is unclear why water hardness is not analyzed directly from the drainage ditch for each of the proposed surface water samples. This parameter is relatively inexpensive to analyze and is more appropriately collected from the ditch itself rather than rely on a regional value that may not reflect site conditions. Please consider adding water hardness to the list of parameters to be analyzed at each surface water sample location.*

**Navy Response:** The development of screening values for hardness dependent metals using EPA accepted standardized values is preferred to using a small data set from a single round of water hardness data collected at the site. No revisions to the text of the Phase I RFI Work Plan for SWMU 80 are required.

- 14. PREQB Specific Comment 14:** *Page 4-8, Section 4.6.2 and 4.6.2.2: Please include PREQB's Water Quality Standards Regulation (March 2010) as applicable criteria for groundwater.*

**Navy Response:** PREQB's Water Quality Standards Regulations, March 2010 was inserted into first sentence of Section 4.6.2.2.

- 15. PREQB Specific Comment 15:** *Page 4-9, Section 4.6.3: Comparison of site data with background inorganic data is proposed. Please identify the methods/software that will be used to conduct this comparison.*

**Navy Response:** As discussed in the Navy's previous response to EPA comments, Phase I RFI

analytical data will not be statistically compared to the background data sets presented within the Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds (Baker, 2010). Background analyses for inorganic chemicals exceeding one of more or the human health and ecological screening values will be conducted in conjunction with the risk assessments as part of the CMS.

- 16. PREQB Specific Comment 16:** *Table 3-2: Please consider adding dissolved metals analysis to the equipment blank sample 80ER03 in order to determine if there is any potential contamination arising from the filtering process.*

**Navy Response:** Dissolved metals analysis has been added to equipment blank sample 80ER03 on Table 3-2.

- 17. PREQB Specific Comment 17:** *Table 3-3:*

- a. *To facilitate review and to demonstrate achievement of data quality objectives, please include the project action limits presented in Tables 4-1 through 4-4 on Table 3-3.*

**Navy Response:** The intent of separate tables (Tables 4-1 through 4-4) to present soil, surface water, sediment and human health screening values was to promote clarity and easy accessibility of the data something that would be sacrificed if action limit values for all media were presented on a single table. Project action limits for all sampling media will not be included on Table 3-3. No revisions to the Tables included in Phase I RFI Work Plan for SWMU 80 are required.

- b. *Please revise the method description for the VOC and SVOC analyses to GC/MS instead of GS/MS.*

**Navy Response:** Analysis method for VOC and SVOC has been corrected to read GC/MS on Table 3-3.

- c. *Please revise the method description for the pesticide analysis to GC/ECD instead of GC/MS.*

**Navy Response:** Analysis method for pesticide has been corrected to read GC/ECD on Table 3-3.

- d. *The QLs listed for metals in aqueous samples appear very high and more appropriate for analysis via 6010C instead of 6020A. Please verify these QLs with the laboratory and/or please consider procuring a laboratory that is capable of reporting lower QLs. Most of the listed QLs appear to be high by about one order of magnitude compared to QLs typically reported by method 6020A. It is important to note that many of the aqueous metals QLs exceed the risk screening levels (ecological groundwater screening levels presented in Table 4-2 as well as the May 2010 EPA Regional Screening Levels [RSLs]) and therefore lower QLs are really needed in order to achieve project objectives. Specific exceedances of risk screening levels are as follows:*

- i. *Antimony QL (20) > EPA Tap water RSL (1.5)*
- ii. *Arsenic QL (10) > EPA Tap water RSL (0.045)*
- iii. *Cadmium QL (5) > EPA Tap Water RSL (1.8)*
- iv. *Chromium QL (10) > EPA Tap Water RSL (0.043)*
- v. *Cobalt QL (10) > EPA Tap Water RSL (1.1)*

- vi. Vanadium QL (10) > EPA Tap Water RSL (0.26)
- vii. Copper QL (20) > ecological groundwater screening levels (3.73)
- viii. Nickel QL (4) > ecological groundwater screening levels (8.28)
- ix. Silver QL (10) > ecological groundwater screening levels (0.23)

**Navy Response:** The Navy conducted a comparison of quantitation limits from different laboratories and found that the quantitation limits for Method 6020A provide lower reporting limits than Method 6010C. The Navy is aware that many of the reporting limits exceed the ecological groundwater screening levels presented in Table 4-2 as well as the May 2010 Regional Screening Levels.

- e. Please revise the preparation method for TCLP VOC analysis to 1311/5030A instead of 1311/3010A.

**Navy Response:** Preparation method for TCLP VOC has been corrected to 1311/5030A.

- f. Please revise the method description for TCLP VOC analysis to GC/MS instead of ICP.

**Navy Response:** Analysis method for TCLP VOC has been corrected to GC/MS.

- g. Please revise the method description for TCLP mercury analysis to CVAA instead of ICP.

**Navy Response:** Analysis method for TCLP mercury has been corrected to CVAA.

- h. The quantitation limits provided for TCLP VOCs and TCLP metals are in units of mg/kg. Please revise these to reflect mg/L.

**Navy Response:** The units for TCLP VOC and TCLP metals QLs have been corrected to mg/L.

- i. The preparation method listed for TOC analysis is 1000. Please clarify to what method this is referring.

**Navy Response:** There is no preparation method for TOC analysis method 9060. Table 3-3 has been corrected to indicate preparation method is not determined (ND).

**18. PREQB Specific Comment 18:** *Table 4-1: The title of this table (Soil Screening Values for Plants and Invertebrates) is misleading as soil screening values are also presented for other ecological receptors (e.g., avian herbivores, insectivores, etc.). It is suggested that the title just reflect Soil Screening Values.*

**Navy Response:** The title of Table 4-1 has been revised to read “Ecological Soil Screening Values”.

**19. PREQB Specific Comment 19:** *Table 4-2: Please revise the value and reference for acrolein to the USEPA, 2009 reference.*

**Navy Response:** Value for surface water screening value for acrolein on Table 4-2 has been corrected to read 3.0 ug/L.

**20. PREQB Specific Comment 20:** *Figure 3-1: It would be helpful to include information on potential discharge points associated with Building 207, such as doorways, sewer pipes, and floor drains, piping and any outfalls to aid in determining the appropriate location for surface and subsurface soil samples, the purpose of which is to determine if contamination associated with historic activities as Building 207 is responsible for contamination identified in the drainage ditches.*

**Navy Response:** The purpose of performing the Phase I RFI is to collect current site data used to characterize impacts to the environment and determining the need for further delineation of SWMU 80. Phase I RFI results are used to determine if a Full RFI is required to obtain additional site characterization data and determine possible sources of contamination. The selection of sample locations based on assumptions about Building 207 historic operation and possible discharge points is not a sound scientific method. No revisions to Figure 3-1 of the Phase I RFI Work Plan for SWMU 80 are required.