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

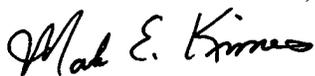
Re: Contract N62470-10-D-3000
IQC for A/E Services for Multi-Media
Environmental Compliance Engineering Support
Delivery Order (DO) JM01
U.S. Naval Activity Puerto Rico (NAPR)
EPA I.D. No. PR2170027203
Final Full RCRA Facility Investigation Work Plan for SWMU 71

Dear Mr. Everett:

Michael Baker Jr., Inc. (Baker), on behalf of the Navy, is pleased to provide you with one hard copy and one electronic copy provided on CD of the Final Full RCRA Facility Investigation Work Plan for SWMU 71. This report is being submitted in accordance with EPA comments dated August 24, 2010. The Navy 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/lp
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. Gloria Torro, PR EQB (1 hard copy and 1 CD)
Ms. Wilmarie Rivera, PR EQB (1 CD)
Ms. Bonnie Capito, NAVFAC Atlantic – Code EV42 (1 hard copy)
Mr. Felix Lopez, US F&WS (1CD)
Mr. Brenda Smith, TechLaw, Inc. (1 CD)

**NAVY RESPONSES TO EPA COMMENT LETTER DATED AUGUST 24, 2010
DRAFT FULL RCRA FACILITY INVESTIGATION WORK PLAN
SWMU 71 (FORMER QUARRY DISPOSAL SITE) DATED JUNE 11, 2010**

EPA COMMENTS

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

General Navy Response: The main objective of this Full RFI Work Plan is to delineate contaminants detected in the Phase I RFI and to define the likely source areas of contamination. Therefore, the objectives of the Draft Full RFI in Section 1.3 will be edited to delete the second bullet. The second bullet states that the Full RFI will further evaluate the potential for human health and ecological risks. Rather, further evaluation of the potential for human health and ecological risks will be conducted as part of the Corrective Measures Study (CMS) investigation. Additionally, statistical background analyses for inorganic chemicals exceeding one or more of the human health and/or ecological screening values will be conducted in conjunction with the risk assessments as part of the CMS. Therefore, Figure 4-1 – Statistical Analysis Process will be deleted, and Section 4.6.3 Background Screening values will be edited since statistical analysis will not be conducted during the Full RFI. Additionally, all references to conducting a human health/ecological risk assessment or statistical background analysis during this Full RFI will be deleted from the Work Plan. However, Preliminary Conceptual Models are provided for human health and ecological receptors. The human health and ecological screening values that are discussed within the Work Plan will be used as a tool to determine if a release has occurred, and to delineate and define the extent of contamination after the proposed sampling program is completed.

GENERAL COMMENTS

1. The Work Plan is lacking several elements required by EPA Requirements of Quality Assurance Project Plans (QA/R-5), dated March 2001. For example:

- *Laboratory specific information (e.g., laboratory specific standard operating procedures, reporting limits (RLs), quality control (QC) limits, and analytical calibration criteria) has not been provided.*
- *Specific procedures for data verification and validation have not been provided.*
- *There is no discussion of how precision, accuracy, representativeness, comparability and completeness and sensitivity (PARCCS) measures will be incorporated into a data quality assessment, or if an evaluation of significant trends and biases will be included as part of a data quality assessment.*
- *Examples of all forms and checklists to be used have not been provided (e.g., chain-of-custody forms, sample labels, audit checklists, data validation checklists).*
- *There is no discussion of corrective action procedures.*

Revise the Work Plan to provide the level of detail as discussed in QA/R-5.

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; 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

The analytical methods, analyte lists, detection limits, etc. may have changed to some degree since publication of the DCQAP. Consequently, the Full 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
- 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. Ecological screening values are presented on Tables 4-1 and 4-2. In addition, a table with Human Health Screening Values (Table 4-3) and NAPR Background 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 Full RFI Work Plan for SWMUs 71 is identical to the Phase I RFI structure and therefore meets the QA/R-5 QAPP requirements.

2. The data quality objectives (DQOs) presented in the Work Plan are not sufficiently detailed. For example, decision rules and boundaries of the study have not been defined. In addition, the rationale for the number, type, and location of the samples is not sufficiently explained. The level of information contained in the seven-step DQO process described in EPA's Guidance on Systematic Planning Using the Data Quality Objectives Process (QA/G-4), dated February 2006, should be provided. Revise the Work Plan to provide more detailed DQOs.

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 the extent of impacts that have occurred to soil 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 extent 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 3.1.

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 that the site 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. Although human health and ecological risk assessments will not be conducted during the Full RFI, the Full RFI Work Plan was developed with input from 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), is discussed extensively in Sections 4.6.1, 4.6.2 and 4.6.3 of the Full RFI Work Plan. Additional data quality criteria are 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 Full RFI Work Plan for SWMU 71 are required.

3. Section 3.1 indicates that surface soil samples will not be collected in the Lower Area of SWMU 71 since "the areas surrounding the Commissary Building and parking lot are assumed to be disturbed to a depth of about one foot bgs because of construction activities, thus surface soil is unrepresentative of surface soil and the SWMU that may have had a release from SWMU

activities.” However, it is not clear how the assumption that soils are disturbed was determined and whether the extent of these disturbed soils encompassed all proposed sampling locations. In addition, no information was provided to establish that these disturbed soils are not impacted from SWMU activities. Revise the Work Plan to provide further details explaining why surface soils in the Lower Area of SWMU 71 will not be collected and analyzed.

Navy Response: The issue of surface soil sampling in the lower area of SWMU 71 was evaluated during preparation of the Phase I Work Plan and is documented in the approved Revised Final Phase I Work Plan for SWMU 71 (Baker, 2008). Surface soil in the lower area is not considered representative of SWMU releases to the surface and therefore will not be sampled.

4. *The Work Plan does not provide an adequate rationale for the proposed soil sampling depths. For example, Section 3.1 often indicates that contamination was detected above screening criteria from 7 to 9 feet (ft) below ground surface (bgs); however, no soil samples at greater depths (e.g., 9 to 11 ft bgs) have been proposed to vertically delineate contamination. Further, the text often proposes sampling at the 1 to 3 ft bgs interval, without a clear rationale for the selection of this sampling interval, especially given prior statements regarding historical soil disturbance associated with construction activities. Revise the Work Plan to provide sufficient rationale for selection of soil sampling depths, and to clarify why vertical delineation of contamination has not been proposed.*

Navy Response: Section 3.1 provides specific rationale for the soil sampling program. The 1 to 3 foot bgs interval is sampled for use in future ecological risk evaluations because it is considered a biologically active zone. Additionally, please refer to Navy response to PREQB comments No. 6a through 6c for revisions to the soil sampling program. Appropriate revisions will be included in Section 3.1.

5. *The Work Plan does not provide adequate details on monitoring well installation. For example, Section 4.1 indicates that a minimum of only 6 inches of bentonite would be used for very shallow wells; however, it is unclear why limiting the amount of bentonite would be necessary, since the anticipated depth of boring refusal is 16 to 29 feet bgs. Similarly, Section 4.1 indicates that the thickness of sand above the well screen may be reduced. Revise the Work Plan to provide additional well installation details and provide anticipated depth of water information to support any limitations on sand or bentonite usage.*

Navy Response: The second paragraph of Section 3.2 Monitoring Well Installation provides specific well construction requirements. Included in this discussion are minimum tolerances for the thickness of sand and bentonite in the event that shallow or perched groundwater is encountered. No revisions to the text of the Full RFI Work Plan for SWMU 71 are required.

6. *Appendix D discusses EPA Region II’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 and discuss how its use would be appropriate for both wells installed at depths of up to 30 feet as well as for very shallow wells.*

Navy Response: The Work Plan will be revised to state that a bladder pump will be used during groundwater sampling and that it is appropriate for both shallow wells and wells installed up to 30 feet.

7. Although discussed in Section 4.6 of the Work Plan, human health screening values (i.e., Regional Screening Levels (RSLs), federal drinking water maximum contaminant limits (MCLs)) and background screening values have not been presented in the Work Plan. Only ecological screening levels were presented. Verification that the laboratory reporting limits will be able to meet screening level values cannot be performed without a presentation of all of the screening values to be used. Revise the Work Plan to provide all screening criteria to allow for comparison to analytical results. Ensure that laboratory reporting limits (RLs) are also provided alongside the screening values.

Navy Response: The human health screening values (Regional Screening Levels and MCLs) and NAPR background screening values, will be provided in the work plan as new tables (i.e., Tables 4-3 and 4-4, respectively).

8. It is unclear if the background screening values are calculated from results that include areas of contamination. In order to represent true background, on-site concentrations that are statistically elevated (e.g., due to contamination) should be removed from the background calculations. Revise the Work Plan to clarify if contaminated areas are included in the calculation of background screening levels.

Navy Response: The Navy offers the following points of clarification relative to this comment. As discussed in the Navy's general response to EPA comments, Full 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 Full 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 discussed in Sections 4.6.1 and 4.6.2, respectively, will be compared to the Full 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.

9. The Work Plan references outdated SW-846 analytical methods (e.g., 6020, 6010B, 8270C); newer versions of the methods (6020A, 6010C, 8270D) are available. Revise the Work Plan to reference the most updated analytical methods. Alternatively, revise the Work Plan to indicate that the QC procedures and criteria discussed in the current versions of these methods will be used.

Navy Response: Table 3-3 of the Work Plan will be revised to reflect updated SW-846 analytical methods.

10. Table 4-1 indicates that a statistical process will be used to evaluate the data generated during this effort. However, it appears that sample locations will be judgmental and not randomly chosen. Therefore, statistical analysis of the data is not appropriate. Revise the Work Plan to clarify this apparent discrepancy.

Navy Response: Refer to the General Navy Response. Table 4-1 provides the ecological soil screening values. Figure 4-1 in the Draft Work Plan illustrates the statistical analysis process. As

indicated in the General Navy Response, Figure 4-1 will be deleted from the Final version of the work plan.

11. 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 exceedances of risk-based screening criteria warrant a HHRA and/or ERA. In addition, provide any other decision criteria that will be used to prompt a HHRA or ERA.

Navy Response: As discussed in the Navy's general response to EPA comments, Section 1.3 of the Draft Full RFI Work Plan has been revised to eliminate further evaluation of the potential for human health and ecological risk as a stated objective. The need for a HHRA and ERA was identified by the Phase I RFI, which concluded that impacts to the environment have occurred at SWMU 71 based on the presence of chemical concentrations in soil greater than human health/ecological screening values and background screening values. The proposed sampling program for the Full RFI will attempt to delineate the extent of contamination detected at the SWMU during the Phase I RFI 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 CMS and preparation of a 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 Corrective Measures Study (CMS) is needed or the SWMU can proceed toward corrective action complete. If the conclusions from the Full RFI indicate exceedances of human health and/or ecological screening values and background screening values, then 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.

12. 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 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 Correctives Measure Study 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 have been accepted based upon EPA's approval letter dated August 6, 2009 on the Final Correctives Measure Study for SWMU 68 (Baker, 2009b).

Ensure that the Work Plan is revised to reflect these previous agreements to maintain consistency among all HHRA's performed at Naval Activity Puerto Rico (NAPR) SWMUs and demonstrate

compliance with EPA-recommended risk assessment methodologies. HHRA's conducted for NAPR SWMUs should quantify 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 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 ecological risk assessments, 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. As discussed in the Navy's general response to USEPA comments, as well as the Navy response to General Comment No. 11, the Full RFI analytical data will not be statistically compared to background analytical data as part of the Full RFI. Instead, Full 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 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 Full RFI. However, this does not eliminate them from the quantification of risk in the event an HHRA is warranted. Rather, in HHRA's 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*.

13. The Work Plan does not discuss the potential biota at SWMU 71 that could be exposed to contaminants in soil or groundwater. Revise the Work Plan to specify that biota at or hydrologically downgradient from SWMU 71 will be discussed in the subsequent RFI Report.

Navy Response: The Work Plan will be revised to include two new subsections (Sections 2.1.1 and 2.1.2), which will provide a discussion of the habitats and biota that may occur at SWMU 71 and surrounding areas. As previous investigations have not documented the specific habitats and biota at SWMU 71, the discussion will rely primarily on literature-based information for Puerto

Rico and NAPR. As part of the Full RFI field investigation, specific vegetation and biota (if any) observed at SWMU 71 will be documented.

14. The Work Plan does not summarize the approach and methodology to be used in any subsequent HHRA and/or ERA, should they be warranted. For completeness, the Work Plan should, at a minimum:

- *Provide a Conceptual Site Model (CSM) for human and ecological receptors (i.e., show sources, potentially complete exposure pathways, and receptors).*
- *Provide a brief discussion of exposure assumptions.*
- *Clarify how COPCs will be identified.*
- *Clarify how non-detected compounds will be evaluated.*
- *Summarize standard EPA and/or Navy risk assessment approaches (as appropriate).*
- *Reference risk assessment guidance documents.*

Revise the Work Plan to include additional details regarding how human health and ecological risk will be quantitatively evaluated, if warranted by the analytical data screening.

Navy Response: As discussed in previous Navy responses, the Full 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 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 Full RFI Work Plan. However, to support the proposed Full RFI sampling program, preliminary conceptual models for human and ecological receptors have been developed and presented within a new subsection to Section 2.0 (i.e., Section 2.3). The preliminary conceptual models outline potential sources of contaminants, transport pathways, exposure media, potential exposure routes, and receptor groups.

15. MCLs will be used to screen groundwater data; however, 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 71 to prevent consumption of groundwater (e.g., residential development). Further, if a HHRA is warranted, note that groundwater COPCs should be selected based on the applicable Tap Water RSL and not the MCL.

Navy Response: MCLs will be used only as one of the screening tools in the Full 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 Full RFI for SWMU 71. 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 Full 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 Full RFI Work Plan for SWMU 71 are required.

16. The Work Plan indicates that “background screening values” will be used to evaluate analytical results relating to both human and ecological receptors. For the purposes of risk assessment, inorganic compounds above risk-based criteria should not be eliminated on the basis

of background, even though statistical comparisons to background may be included to better understand site-related contamination. With respect to the HHRA, all inorganic compounds above risk-based screening levels should be evaluated quantitatively in the HHRA. Then, as part of the uncertainty analysis, the Navy may present a refinement of the total risk and hazard by providing a breakdown of risks attributable to site-related contamination and risks attributable to background levels.

Regarding the ERA, ecological risks are evaluated much the same way (i.e., Step 2 of the Navy ecological risk assessment guidance does not eliminate inorganic compounds based on background but presents the calculation of hazard and the hazard estimates for all identified COPCs, whereas Step 3a presents a refinement of hazard). Clarify these approaches in the Work Plan.

Navy Response: As discussed in the Navy's general response to EPA comments, Full 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). With regard to the use of background concentrations in HHRAs, please see the Navy response to EPA General Comment No. 12.

17. 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 based on tables that compare the QLs to applicable human health and ecological screening values.

Navy Response: The human health screening values (Regional Screening Levels and MCLs) and NAPR background screening values will be provided in the work plan as new tables (i.e., Tables 4-3 and 4-4, respectively). The ecological screening values are currently reflected in Tables 4-1 and 4-2. 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.

SPECIFIC COMMENTS

1. Section 2.2.1, Phase II ECP Investigation, Pages 2-2 and 2-3: The last paragraph on page 2-2 indicates that several compounds in surface soil, subsurface soil, and groundwater exceeded risk-based concentrations including two Polynuclear Aromatic Hydrocarbons (PAHs) in subsurface soil (benzo[a]pyrene and dibenzo[a,h]anthracene) and one PAH in groundwater (naphthalene). The first sentence at the top of page 2-3 states, "None of the concentrations of these compounds exceeded the established background concentrations at NAPR at that time." This statement is misleading as background concentrations for organics (e.g., PAHs) do not exist. Revise Section 2.2.1 to resolve this discrepancy.

Navy Response: The first sentence at the top of page 2-3 will be revised as follows, "It should also be noted that none of the concentrations of the metals exceeded the established background concentrations for NAPR at that time."

2. Section 2.2.2, Phase I RFI, Page 2-3: This section states that various compounds “were detected above regional and/or industrial Screening Levels...” Revise Section 2.2.2 to clarify if residential screening levels were exceeded.

Navy Response: Section 2.2.2 will be revised to state that various compounds “were detected above residential and/or industrial Screening Levels...”

3. Section 2.2.2, Phase I RFI, Page 2-3: This section indicates that groundwater from 71SB04 was not analyzed for pesticides, total petroleum hydrocarbons (TPH) diesel range organics (DRO), or metals due to low groundwater volume. However, no discussion regarding these potential data gaps has been provided. In addition, additional groundwater sampling near 71SB04 was not included in this Work Plan. Revise the Work Plan to discuss how these data gaps will be addressed.

Navy Response: Groundwater samples were not collected from 71SB05 and only limited parameters were able to be collected from 71SB04 during the Phase I investigation. The soil in this area consists of a very tight, low yielding clay. These wells are scheduled to be resampled for analysis of total and dissolved metals as part of the Full RFI, although it is not known whether there will be sufficient water for these analyses. If there is a sufficient volume of water in wells 71SB04 and 71SB05 to allow for sample collection, then a groundwater sample will be collected from 71SB05 for VOCs, LLPAs, pesticides, TPH DRO, and TPH GRO (in addition to the scheduled total and dissolved metals) following the procedures outlined in the Phase I RFI Work Plan. Similarly, if there is a sufficient volume of water in 71SB04 to allow for sample collection, then a groundwater sample will be collected for pesticides and TPH DRO (in addition to the scheduled total and dissolved metals) following the procedures outlined in the Phase I RFI Work Plan. The contingency to collect volumes for these additional parameters will be noted in Table 3-1.

4. Section 2.2.2, Phase I RFI, Page 2-3: The summary of samples in this section indicates that groundwater samples were collected from 71SB04, 71SB06, and 71SB08, but does not discuss groundwater samples from 71SB05. However, Figure 3-2 indicates that groundwater samples were collected at 71SB05. Revise the Work Plan to address this apparent discrepancy.

Navy Response: No groundwater sample was collected from 71SB05 because of low yield. The following will be added to the end of the third bullet of Section 2.2.2 Phase I RFI:

“No groundwater sample was collected from 71SB05 because of low yield.”

5. Section 3.1, Soil Sampling and Analysis Program, Page 3-2: The first item on this page indicates that one soil boring (71SB31) will be advanced south of Phase I RFI sample location 71SB11 to delineate cobalt contamination detected in subsurface soil (7.0 to 9.0 ft bgs). Based on Figure 3-2, it is unclear why one soil boring is sufficient to delineate cobalt contamination as it appears that no data exist north, east, or west of boring 71SB11. Revise the Work Plan to clarify the sampling approach in the vicinity of Phase I RFI sample location 71SB11.

Navy Response: The location of 71SB11 is such that sampling to the north and east is not feasible because of the presence of the Commissary Building. 71SB31 will be installed southeast of 71SB11. As described in the fifth bullet item under the “Lower Area” heading, 71SB44 will

be installed to determine the potential source of vanadium detected in Phase I RFI groundwater samples. 71SB44 will be installed to the southwest and will also delineate the detected cobalt.

6. Section 3.1, Soil Sampling and Analysis Program, Page 3-2: The second item on this page indicates that arsenic and cobalt exceeded screening criteria in subsurface soil (at 7 to 9 ft bgs) from Phase I RFI sample location 71SB04, but the text indicates that the proposed samples in the vicinity of this boring will be collected from 1 to 3 ft bgs and from 7 to 9 ft bgs (or from an alternate interval) based on the discretion of the field geologist. Since the metals contamination was located from 7 to 9 ft bgs, it is unclear why an alternate interval would be appropriate. Revise the Work Plan to provide clarification regarding this matter.

Navy Response: The phrase “or from an alternate interval” is included to cover the contingency that a sample cannot be collected from the specified interval (i.e., because of refusal, low sample recovery, etc.). No revisions to the text of the Full RFI Work Plan for SWMU 71 are required.

7. Section 3.1, Soil Sampling and Analysis Program, Page 3-3: The text indicates that a boring log will be maintained during soil boring installation “indicating, among other things, lithology, water occurrence, PID measurements and other observations.” The text should be revised to clarify what information is required in the boring log. Revise the Work Plan to provide this information.

Navy Response: Section 3.1 will be revised to state that a boring log will be maintained as specified in the [Final RCRA Facility Investigation Management Plans, Naval Station Roosevelt Roads, Ceiba, Puerto Rico \(Baker, 1995\)](#).

8. Section 3.2, Monitoring Well Installation, Page 3-5: The text states, “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, “Clarity of water based on visual determination.” Since the clarity of the water is a qualitative measure that could be subjective based on the person making observations, it is suggested that three to five borehole volumes be removed to ensure proper development, at a minimum. Revise the Work Plan to require the removal of at least three to five borehole volumes during well development.

Navy Response: Section 3.2, page 3-5, 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 Full RFI Work Plan for SWMU 71 are required.

9. Section 3.4, Quality Assurance/Quality Control Samples, Page 3-6: This section states the Final RCRA Facility Investigation Management Plans (Management Plans), dated 1995, will be used as guidance for the current sampling and analysis plan. However, the quality control acceptance criteria in the Management Plans are based on outdated or no longer existing SW-846 methods. Revise the Work Plan to provide updated analytical methods and QC acceptance criteria.

Navy Response: Updated SW-846 analytical methods will be provided in the Work Plan on Table 3-3. The QC acceptance criteria are part of the data validation process which will be performed as part of the Full RFI Investigation. The validator performs the validation in accordance with the most recent SW-846 methods used by the laboratory and the Region II

Standard Operating Procedures for the validation of Organic and Inorganic data; this includes updated QC acceptance criteria.

10. Section 3.4.2, 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 suggested 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.

Navy Response: Section 3.4.2 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.

11. Section 3.5.5, Investigation Derived Waste Management, Page 3-8: It is not clear if investigation derived waste (IDW) will be combined from multiple wells into one 55-gallon drum or if each well will have its own drum. In addition, it is not clear 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 (there will not be one drum for each soil boring) and a composite sample will be collected and submitted for laboratory analysis. The text in Section 3.5.5 will be edited to clarify the IDW procedures.

12. Section 3.5.5, 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 water, and how these aliquots will be combined for the composite sample. Revise the Work Plan to provide this information.

Navy Response: Section 3.5.5 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, 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 metals and RCI as shown in Table 3-2, using methods presented in Table 3-3.

13. Section 3.5.9, Chain-of-Custody, Page 3-9: This section states that chain-of-custody procedures will be followed. However, these procedures have not been provided in the Work Plan. Revise this section to provide the chain-of-custody procedures to be followed.

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 29, 1995. The procedures for the chain-of-custody forms are in the PMP, a reference to this document will be added to the chain-of-custody text in Section 3.3.7.

14. Section 4.0, Reporting, Pages 4-1 through 4-7: This section does not indicate that a data quality assessment will be included in the final report. Revise this section to specify that a data quality assessment will be part of the final report, and specify what will be included in the data quality assessment (e.g., an evaluation of PARCCS, significant trends and biases, comparing data to DQOs to ensure questions were addressed, etc).

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. Data validation reports will be included as an appendix to the Full 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

15. Section 4.7, Conclusions and Recommendations, Page 4-7: This section states that data obtained during the field effort will be incorporated into the web based Geographic Information System (GIS) currently residing on the NAPR project team web site. However, it is unclear how the data will be incorporated into the database, or if the database is compared to the hard copy data to ensure its accuracy. In addition,, it is unclear if validation qualifiers will be entered into the database to ensure qualifications are considered when using the database (i.e., especially if data are rejected during validation). Revise the Work Plan to discuss how data is incorporated into the database, how the accuracy of the database is ensured, and to specify that validation qualifiers are entered in the database.

Navy Response: The text in Section 4.7 will be revised to clarify that validated data with the validation qualifiers are checked against the hard copies of the validation reports before the database is uploaded to the NAPR website.

16. Section 6.1, Project Team Responsibilities, Page 6-1: This section does not provide the responsibilities of all the project team members (e.g., data validator). Revise the Work Plan 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.

17. Table 3-1, Summary of Sampling and Analytical Program – Environmental Samples, Page 1: There are more than 10 surface soil samples proposed, but only one field duplicate sample and no matrix spike/matrix spike duplicate (MS/MSD) samples have been proposed for surface soil samples. The Work Plan indicates that duplicates should be collected at a frequency of 1 per 10 environmental samples, and MS/MSDs should be collected at a frequency of 1 per 20. Revise the Work Plan to address this discrepancy.

Navy Response: Table 3-1 will be revised to reflect the correct number of field duplicate and MS/MSD samples in relationship to the number of environmental surface soil samples. One additional duplicate and one MS/MSD sample will be added to the surface soil. This will result in the collection of 18 surface soil samples with 2 duplicates and one MS/MSD, and 56 subsurface soil samples with 6 duplicates and 4 MS/MSDs.

18. Table 3-1, Summary of Sampling and Analytical Program – Environmental Samples, Pages 3-4: The table indicates that the groundwater sampling depths are not available. However, the Work Plan should specify the depth at which the pump will be set in the well during sample collection. Revise the Work Plan to provide this information.

Navy Response: The depth interval indicated on Table 3-1 is intended for specifying soil sampling depths and is not applicable to groundwater samples. The subsurface soil at this SWMU is typically a very tight, low yielding clay with no distinct water bearing zones. Consequently, the pump intake should be placed at the lowest practicable point in the well, which is typically within a couple feet of the bottom of the well. The first sentence of the second paragraph of Section 3.3 will be revised to read as follows:

“The groundwater will be sampled using a bladder pump and low-flow sampling technique, if the well exhibits sufficient yield, with the pump intake set at the lowest practicable point in the well.”

19. Table 3-1, Summary of Sampling and Analytical Program – Environmental Samples, Page 4: The notes at the bottom of this page are incomplete. Revise the Work Plan accordingly.

Navy Response: The table will be edited as requested by this comment.

20. Table 3-1, Summary of Sampling and Analytical Program – Environmental Samples, Pages 1-4: This table indicates that field duplicate samples will be distinguished using a “D” at the end of

the sample nomenclature. However, the analytical laboratory can easily figure out that the “D” represents duplicate. Therefore, it is suggested that all field duplicate samples be submitted to the laboratory blind. Revise the Work Plan to remove the “D” from field duplicate sample nomenclature and indicate that duplicate samples will be submitted to the laboratory blind.

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 Full RFI Work Plan for SWMU 71 are required.

21. Table 3-2, Summary of Sampling and Analytical Program – QA/QC Samples, Page 1: It is unclear why this table indicates that aqueous IDW samples will not be analyzed for metals. Since vanadium is an issue in groundwater, aqueous IDW samples should be analyzed for metals. Revise the Work Plan to address this discrepancy.

Navy Response: Table 3-2 currently indicates that aqueous IDW samples will be analyzed for Appendix IX metals.

22. Table 3-3, Method Performance Limits: This table contains analytes that have RLs above ecological screening levels, but have not been shaded as indicated in the key (e.g., copper, nickel, and silver). In addition, the Work Plan does not specify how analytes with reporting limits that exceed screening levels will be evaluated or qualified. This is particularly important since the RLs in Table 3-3 are based on wet weight results, and they will be elevated when corrected for dry weight. Finally, it is unclear if the laboratory chosen will be able to meet the reporting limits presented in the table. Revise the Work Plan to present the laboratory specific reporting limits, indicate which analytes have screening levels below the reporting limits and clarify how results will be evaluated and/or qualified if screening levels are below the reporting limit.

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).

23. Table 4-2, Ecological Groundwater Screening Values: Table 4-2 provides ecological “groundwater” screening values, which represent conservative surface water screening benchmarks. The Work Plan needs to clarify how these values will be applied in screening the groundwater analytical data, considering that (a) groundwater at SWMU 71 is expected to be approximately 20ft deep (see Section 2.2.1, Page 2-2), and (b) the closest aquatic habitat is the bay located about 1,500ft east of SWMU 71 (see Figure 1-2). Revise the Work Plan to clarify how these values will be used in screening groundwater analytical data.

Navy Response: The Navy offers the following points of clarification relative to this comment. As discussed in the Navy response to EPA General Comment No. 12, a preliminary conceptual model for ecological receptors will be included within the Full RFI Report. Based on the findings of the Phase I RFI, leaching of chemicals from surface soil and/or subsurface soil by infiltrating precipitation and transport with groundwater to estuarine wetland surface water and sediment is considered a potentially complete, but insignificant transport pathway (see discussion in Section 2.3.1.1 of the revised Full RFI Work Plan). Groundwater screening values are presented within

the Draft Full RFI Work Plan since groundwater samples will be collected as part of the Full RFI field investigation.

MINOR COMMENT

1. Section 3.1, Soil Sampling and Analysis Program, Page 3-1: The last bullet on this page indicates four samples (71SB28 through 21SB30) will be collected. However, it appears the text should indicate that three samples will be collected. Revise the Work Plan accordingly.

Navy Response: The last bullet on page 3-1 will be revised to indicate that three samples will be collected.

PREQB COMMENTS DATED JULY 30, 2010

1. Page 2-2, Section 2.2.1:

- a. *Paragraphs 3 and 4: Please clarify whether the depth to ground water is 24 feet below grade, as stated in paragraph 3 or 20 feet below grade, as stated in paragraph 4.*

Navy Response: Paragraphs 3 and 4 will be revised indicate that groundwater was encountered at 20 feet below grade and the soil boring was terminated at 24 feet below grade.

- b. *Paragraph 4: Please correct the mis-spelling of “indeno[1,2,3-cd]pyrene in the second sentence.*

Navy Response: The text will be edited as requested by this comment.

2. Page 2-3, Section 2.2.2, paragraph 3: *Please clarify what is meant by “regional and/or industrial Screening Levels (SLs).” This phrase is used here and in Section 3.1. It appears that residential and/or industrial regional screening levels were used for comparison to Phase I RFI data. Please revise this phrase to “residential and/or industrial regional screening levels” in this section and in Section 3.1.*

Navy Response: The text will be edited as requested by this comment.

3. Page 3-1, Section 3.1: *Please specify in the text that the analysis Appendix IX Metals in soil samples are for total metals.*

Navy Response: The text will be edited as requested by this comment.

4. Page 3-1, Section 3.1, Third bullet of the Upper Area: *Correct that samples 71SB28 through 71SB30 are three samples instead of four.*

Navy Response: The text will be edited as requested by this comment.

5. Page 3-1, Section 3.1: *As discussed in Section 2.1, surface water runoff from the majority of the site flows southwest towards an existing ditch and culvert system before eventually discharging into nearby wetlands. Please provide a justification for not proposing samples within the ditch and downgradient areas as this system would appear to provide a depositional environment for site contaminants transported via past stormwater runoff.*

Navy Response: The stormwater runoff ditch and culvert were installed during and after construction of the commissary and would not contain site contaminants from past stormwater runoff from the SWMU. No revisions to the text are proposed.

6. Page 3-2, Section 3.1, Lower Area:

- a. *Bullet 1: Please consider the collection of a sub-surface soil sample from 9- to 11-foot below grade at proposed location 71SB31 which is being drilled to evaluate conditions in the area of 71SB11. The Phase 1 RFI results indicated that the cobalt concentration decreased to below the SLs in the 13- to 15-foot interval at the 71SB11 location, however, there are no analytical results from the 9- to 11-foot interval at this location.*

Navy Response: The proposed subsurface soil sample will be shifted from the 7 to 9 foot bgs interval to the 9 to 11 foot bgs depth interval. This modification will be incorporated into the first bullet under Section 3.1 Soil Sampling and Analysis Program, Lower Area.

- b. *Bullet 2: Although shallow refusal is anticipated in the upper area based on previous testing, please consider including a statement to indicate that if sub-surface conditions allow, soil samples will also be collected from the 3- to 5-foot below grade interval in the vicinity of boring 71SB03 to assess cobalt concentrations.*

Navy Response: The second bullet in Section 3.1 Soil Sampling and Analysis Program, Upper Area will be amended to include the following:

“However, if one or more of the soil borings are advanced beyond 3 ft bgs, attempts will be made to collect a subsurface soil sample from the 3 to 5 foot bgs depth interval.”

- c. *Bullet 4: As the constituents of concern at the proposed borings around 71SB06 are metals, which cannot be discerned by the geologist in the field without the aid of specialized equipment, please consider identifying a secondary sampling interval (7 to 9 feet below grade) based on the previous results.*

Navy Response: The last sentence in fourth bullet in Section 3.1 Soil Sampling and Analysis Program, Lower Area will be amended to include the following:

“Two subsurface soil samples will be collected per boring, one from the 1 to 3 ft bgs interval and the other from the depth of suspected contamination (7 to 9 feet bgs), or an alternate interval at the discretion of the field geologist.”

- d. *Bullets 1 to 4: Please provide detail on what criteria will be used by the field geologist in selecting the appropriate subsurface sampling interval when his or her discretion is used rather than PID or olfactory information. Please address here and on Page 3-3, in the second full paragraph.*

Navy Response: The phrase “at the discretion of the field geologist” is included to recognize the myriad of field conditions that may be encountered and the ability of the field geologist to make sound field decisions based on their professional experience and capabilities. No revisions to the text of the Full RFI Work Plan for SWMU 71 are required.

- e. *Bullets 1 to 4: Please clarify why soil that may have been graded or reworked during construction activities is being excluded from investigation. If soil was*

impacted by past releases and then moved around an area, elevated concentrations of contamination would still be associated with the past release, similar to natural fate and transport mechanisms moving contamination away from an original release. Please note exclusion of surface soil from investigation is also discussed on Page 3-3, in the second full paragraph.

Navy Response: As indicated in the approved Revised Final Phase I Work Plan for SWMU 71 (Baker, April 2008), surface soil in the lower area is not considered representative of the SWMU releases to the surface and therefore will not be sampled.

7. Page 3-3, Section 3.1, paragraph 3: Please change the word “form” in the fifth sentence to “from”.

Navy Response: The text will be edited as requested by this comment.

8. Page 3-3, paragraph 4: Provide further clarification regarding that the samples will be analyzed for total metals.

Navy Response: The text will be edited as requested by this comment.

9. Page 3-5, Section 3.3: Please specify the appropriate containers that the laboratory will provide to collect and place the groundwater samples.

Navy Response: Container and preservation requirements are provided in the approved DCQAP (Baker, 1995).

10. Page 3-8, Section 3.5.5: The document claims that “the soil cuttings from the subsurface soil sampling will be placed back into the boring from which they came, unless contamination is present.” It is not clear how this will be achieved. Please provide more details on the considerations to be taken to determine if the soil cuttings are or not suitable for being returned to the boring.

Navy Response: As noted in the Navy’s response to EPA’s Specific Comment No. 11, 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 (there will not be one drum for each soil boring) and a composite sample will be collected and submitted for laboratory analysis. The text in Section 3.5.5 will be edited to clarify the IDW procedures.

11. Page 3-6, Section 3.4.4 and 3.4.5: Please clarify if soil is being considered an environmental media regardless of samples being taken at the surface or subsurface at the moment of calculating the frequency of field duplicates and MS/MSD samples. According to Table 3-1, there will be 74 soil samples, 6 duplicates and 4 MS/MSD, if the soil will be considered as one environmental media the frequency is acceptable. If not, there should be one more duplicate and one MS/MSD samples for surface Soil Samples and 3 MS/MSD for subsurface soil samples.

Navy Response: One additional duplicate and one MS/MSD sample will be added to the surface soil. This will result in the collection of 18 surface soil samples with 2 duplicates and one MS/MSD, and 56 subsurface soil samples with 6 duplicates and 4 MS/MSDs.

12. *Page 4-3, Section 4.6.1.2: Groundwater screening values are proposed for evaluating constituents detected in groundwater 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.*

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 71 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 71 groundwater.

13. *Page 4-3, Section 4.6.1.2: Groundwater sampling results are proposed to be screened against surface water screening benchmarks representing dissolved concentrations. Please note that metal ambient water quality criteria presented in the Puerto Rico Water Quality Standards (March 2010) are based on total recoverable concentrations of metals. Please revise the text accordingly.*

Navy Response: As indicated in the Navy Response to PREQB Comment No. 12, Section 4.6.1.2 will be revised to indicate that Puerto Rico Water Quality Standards will be used as the preferential screening benchmark source for groundwater. However, as noted by PREQB Comment No. 13 above, Puerto Rico Water Quality Standards for all metals are expressed as total recoverable concentrations. Therefore, the revisions to Section 4.6.1.2 noted by the Navy Response to PREQB Comment No. 12 will include text specifying the Puerto Rico Water Quality Standards for metals are expressed as total recoverable concentrations. Table 4-2 also will be revised accordingly.

14. *Page 4-6, Section 4.6.2.2: Please also include Puerto Rico's Water Quality Standards Regulation (PRWQS) in this section. Please use the more stringent of either the federal WQS or PRWQS as the enforceable groundwater standard.*

Navy Response: Section 4.6.2.2 will be revised to indicate that Puerto Rico Water Quality Standards will be incorporated as groundwater screening values in the Full RFI, as applicable. Further, the more stringent of the Federal MCL or PRWQS will be listed as the screening value. However, it is important to note that the PRWQS will be used only as one of the screening tools in the Full RFI, and will not be used 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, PRWQS will not be used to identify groundwater COPCs.

15. Page 4-6, Section 4.6.3: *Please consider using the EPA’s statistical software, ProUCL, to conduct the statistical comparison of site data to background. This software is published by EPA, and is used at sites in Puerto Rico for conducting statistical analysis.*

Navy Response: As noted in the Navy’s general response to EPA comments, Full RFI analytical data will not be statistically compared to background soil data sets. Statistical 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. Therefore, Section 4.6.3 will be revised and Figure 4-1 – Statistical Analysis Process will be deleted from the Full RFI Work Plan.

16. Table 3-1

- a. *The table shows that for samples 71SB28 through 71SB30 the laboratory will perform analysis for Appendix IX Low-Level Polycyclic Aromatic Hydrocarbons (PAHs) and Metals (Total), according to Section 3.1 the analysis will be only for Appendix IX Low-Level PAHs. Please clarify and make appropriate corrections.*

Navy Response: Samples 71SB28 through 71SB30 will be analyzed for Appendix IX Low-Level Polycyclic Aromatic Hydrocarbons (PAHs) and Metals (Total) for the purpose of delineate the boundaries of the 1985 polygon. Section 3.1 will be edited accordingly.

- b. *The table shows that for samples 71SB44 through 71SB48 the laboratory will perform analysis for Appendix IX Low-Level Polycyclic Aromatic Hydrocarbons (PAHs) and Metals (Total), according to Section 3.1 the analysis will be only for Appendix IX Metals (Total). Please clarify and make appropriate corrections.*

Navy Response: Samples 71SB44 through 71SB48 will be analyzed for Appendix IX Metals (Total) only for the purpose of determining the potential source of the vanadium and confirming that elevated concentrations of dissolved vanadium are not present in the groundwater south and southeast of Langley Drive. Table 3-1 will be edited accordingly.

17. Table 3-1: *Please revise and correct for the following typographical errors:*

- a. *The mis-spelling of “collected” in note 2.*

Navy Response: The table will be edited as requested by this comment.

- b. *In the electronic version posted at the Team’s Website please finish the sentences for notes 2 and 3.*

Navy Response: The table will be edited as requested by this comment.

18. Table 3-2:

- a. *TBD should be eliminated from the footnotes.*

Navy Response: The table will be edited as requested by this comment.

- b. *IDW should be corrected changing an “f” for a “g”.*

Navy Response: The table will be edited as requested by this comment.

- 2) *Tables 3-3 and 4-2: Please check the quantitation limits for the aqueous samples versus the screening level presented in Table 4-2. In particular, it appears as though the quantitation limits for copper, nickel and silver exceed the ecological screening values.*

Navy Response: The Navy is aware that some of the reporting limits exceed the ecological surface soil 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 SERA and undergo additional evaluation in Step 3a of the BERA.