UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

OCT 07 2010

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

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

1) SWMU 57 (POL Drum Storage Area) – Draft Phase I RFI Report, dated August 13, 2010

2) SWMU 79 (Cobras Island) – Draft Phase I RFI Work Plan, dated August 20, 2010

3) SWMU 80 (Drainage Ditch near Building 207) - Draft Phase I RFI Work Plan, dated August 17, 2010

Dear Mr. Davidson:

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

EPA has completed its review of the above documents. As part of that review, EPA requested our consultant, TechLaw Inc., to review those documents. TechLaw's comments are given in the three Technical Reviews (dated September 10, September 30, and September 10, 2010 respectively), which I have Emailed to you and other indicated parties as listed below. Within 45 days of your receipt of this letter, please submit revisions to the above documents which acceptably address the comments on them in the enclosed Technical Reviews.

In addition, the Puerto Rico Environmental Quality Board (PREQB) has reviewed the Draft Phase I RFI Report for SWMU 57 and has comments on it, which were transmitted with PREQB's letter dated September 27, 2010 to myself. I have Emailed a copy to you and other indicated parties as listed below. Within 45 days of your receipt of this letter, please also submit revisions to the SWMU 57 RFI Report which acceptably addresses PREQB's comments.

Also, PREQB has reviewed the Draft Phase I RFI Work Plan for SWMU 80 and has comments on that work plan, which were transmitted with PREQB's letter dated September 24, 2010 to myself. I have Emailed a copy to you and other indicated parties as listed below. Within 45 days of your receipt of this letter, please submit revisions to the RFI Work Plan which acceptably addresses PREQB's comments.

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

Sincerely yours,

Timothy R. Gordon

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

Enclosures (sent via Email, as indicated)

cc: Ms. Wilmarie Rivera, P.R. Environmental Quality Board (encls. 1, 2, & 3 sent via Email).
Ms. Gloria Toro, P.R.Environmental Quality Board (encls. 1, 2, & 3 sent via Email).
Mr. Mark Kimes, Baker Environmental (with all encls. sent via Email).
Ms. Cathy Dare, TechLaw Inc. w/o encls.
Mr. Felix Lopez, USF&WS, w/o encls.

TECHNICAL REVIEW OF THE DRAFT PHASE I RCRA FACILITY INVESTIGATION REPORT FOR SWUM 57 – POL DRUM STORAGE AREA, DATED AUGUST 13, 2010

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

Submitted to:

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

Submitted by:

TechLaw, Inc.
221 Mineola Boulevard
Mineola, NY 11501

EPA Task Order No.	**002**
Contract No.	**EP-W-07-018**
TechLaw TOM	**Cathy Dare**
Telephone No.	**315-334-3140**
EPA TOPO	**Timothy Gordon**
Telephone No.	**212-637-4167**

September 10, 2010

TECHNICAL REVIEW OF THE
DRAFT PHASE I RCRA FACILITY INVESTIGATION REPORT
FOR SWUM 57 – POL DRUM STORAGE AREA,
DATED AUGUST 13, 2010

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

The following comments were generated based on review of the August 13, 2010 *Draft Phase I RCRA Facility Investigation Report for SWMU 57, Naval Activity Puerto Rico, Cieba, Puerto Rico* (Report)**.**

GENERAL COMMENTS

1. It is noted that several unforeseen circumstances resulted in sample mishandling by the laboratory courier or by the laboratory itself. In the future, additional steps should be taken to maintain sample integrity such as shipping samples as soon as practical after sample collection and following all courier instructions to ensure prompt sample receipt by the laboratory. Additionally, if laboratory mistakes are commonly noted, a new laboratory should be considered in future investigations.

2. SWMU 57 is described as a Petroleum, Oils, and Lubricant (POL) Drum Storage Area in the Report; however during the previous investigations described in Section 2.3, total petroleum hydrocarbons (TPH) were not analyzed. Page 2-3 states "From the detections of fuel … soil at the site had been impacted by previous activities." Revise Section 2.3 Previous Investigations to include a description of all the analyses performed or the basis for the reference to fuel detections at the site.

3. Based on the information presented in Section 6.7.2 and Appendix E, it appears that only the parent samples were qualified for metals matrix spike/matrix spike duplicate (MS/MSD) exceedances, instead of the entire sample delivery group (SDG). Since MS/MSD samples are subject to a batch quality control (QC), all samples in the associated SDG should be qualified. Revise the Report to address this discrepancy.

4. A data quality assessment (DQA) has not been included in the Report. The DQA should discuss whether the data collected was of sufficient quality to meet to data quality objectives (DQOs) for the project. In particular, the DQA should discuss precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) and should examine the data for any trends or biases. Additionally, the DQA should discuss whether rejected data (e.g., sample 57SB02-00, etc.) has created potential data gaps and how these data gaps will be mitigated. Revise the Report to provide a detailed DQA as described above.

SPECIFIC COMMENTS

1. **Section 3.0, Physical Characteristics of Study Area, Pages 3-1 through 3-5:** Regional information is presented throughout Section 3.0; however, specific information relating to SWMU 57 is not presented in these sections. Revise the following to include information specific to SWMU 57:

   - **Section 3.2, Page 3-1 and 3-2**– Describe the elevation and topography at SWMU 57
   - **Section 3.3.1, Page 3-2 and 3-3** – Describe the soils specifically found at SWMU 57
   - **Section 3.3.2, Page 3-3** – Based on available information, describe the geology in the SWMU 57 area
   - **Section 3.3.3, Page 3-3 and 3-4** – Describe the hydrogeology near SWMU 57 including the nearest stream or other surficial water features to the area
   - **Section 3.3.4, Page 3-4 and 3-5** – Include SWMU 57 in the regional geology description and describe the type of residuum found at SWMU 57

2. **Section 4.0, Phase I RCRA Facility Investigation Activities, Page 4-1:** This section describes four concrete wipe samples and five newly installed permanent monitoring wells while Figures 4-1 and 4-2 include three concrete wipe sample locations and does not include the five newly installed permanent monitoring wells. If a boring location is also a monitoring well location, this should be noted in the figure legend. Revise the text, the figures, and/or the figure legends to reflect the actual number of samples taken and their locations.

3. **Section 4.2, Subsurface Soil Sampling, Page 4-2:** This section describes relative locations of the subsurface soil sampling (upgradient, sidegradient, and downgradient). The regional and local topography and groundwater flow should be presented in Section 3.0 in order to establish the relative elevation locations for the sampling. Revise Section 3.0 and Section 4.2 to include descriptions of the local topography and groundwater flow.

4. **Section 4.2, Subsurface Soil Sampling, Bullet 1, Page 4-2:** The sampling location 57SB01 is described in the text as "moved from its proposed up and sidegradient location northeast of the concrete pad to a downgradient location west of the pad." On Figures 4-1 and 4-2, the sampling location appears northwest of the pad. Revise the figures and/or the text to accurately describe/show the sampling location.

5. **Section 4.3, Monitoring Well Installation and Groundwater Sampling, Page 4-4:** This section appears to have some internal inconsistencies. The third paragraph on Page 4-4 states "The groundwater was sampled using a decontaminated bladder pump and low-flow sampling techniques at each well with the exception of well 57GW02 due to its insufficient groundwater yield." The fourth paragraph on Page 4-4 states "Six groundwater monitoring wells … were sampled and analyzed…" It is unclear whether or not 57GW02 was sampled and by what methods and if the total number of monitoring wells sampled is six or fewer. Revise this section to clarify whether or not well 57GW02 was sampled and the methods used.

6. **Section 4.6, Concrete Chip Sampling, Page 4-5:** It is unclear why the concrete chip samples were not taken where historical information such as aerial photographs indicate stained areas. Current conditions may not be representative of historical conditions and it should also be noted that PCBs do not necessarily leave stains so visual observations of chipped surfaces may not be indicative of contamination. Evaluate and discuss the relevance of the sample locations based on a comparison of current and historical observations.

7. **Section 5.1, Current Conditions, Page 5-1:** This section discusses the general topography of the area, but does not provide the elevation or range of elevations at the site. Revise this section to include elevations or other topographic information specific to SWMU 57.

8. **Section 5.1, Current Conditions, Page 5-1:** This section notes that one earthen drainage feature was identified at SWMU 57, which was "approximately 140 linear feet and conveys runoff around the northeastern portion of the concrete pad, but terminates before reaching the access road" and was dry at the time of the investigation. No samples appear to have been taken in this area. Revise this section to clarify why additional samples were not taken in this area and revise the recommendations in Section 7.2 to include sampling in this area.

9. **Section 5.2.2, Hydrogeology, Page 5-2:** This section states that "well 57SB02 revealed a very low yield and recharge rate (i.e. the well went dry during development and the yield was insufficient to be sampled using low flow procedures)." It appears that a groundwater sample was collected (i.e., 57GW02). It is unclear what procedures were used to collect the groundwater sample since low flow procedures were not used based on the low groundwater volume. Revise this section to clarify what methods were used and how the sample was collected.

10. **Appendix E, COMPUCHEM SDG 1001159, Page 1:** This page indicates that metals were analyzed by Method 6020A. However, Method 6020B is the most current version of this method. Revise the data validation report (DVR) to correct this discrepancy.

11. **Appendix E, COMPUCHEM SDG 1001159, Page 3:** The last paragraph on this page indicates that the re-extracted diesel range organics (DRO) sample was rejected in favor of the original extraction. However, neither this page nor page 11 of the DVR indicates why the original extraction was more favorable. Revise the DVR to provide this information.

12. **Appendix E, COMPUCHEM SDG 1001159, Page 8:** The first table on this page indicates the action level for di-n-butylphthalate is "2X RL" but the concentration reported was 20J ug/kg, while the reporting limit (RL) was 170 ug/kg. Therefore, it appears that the action level listed should be "RL." Revise the DVR to address this discrepancy.

13. **Appendix E, COMPUCHEM SDG 1001159, Page 9:** There are two percent recoveries (%R) listed in the surrogate table on this page that appear to be within the QC limits (e.g., phenol in sample 57SB03-00 had a 100%R and terphenyl-d14 in sample 57SB03-01 had a 125%R). Since these recovery values were at the upper end of the acceptable QC limits, it is unclear why these samples were qualified. Revise the DVR to clarify why these samples were qualified (e.g., rounding down due to significant figures).

14. **Appendix E, COMPUCHEM SDG 1001159, Page 9:** The SVOC surrogate table indicates base/neutrals were qualified J in two samples due to surrogate exceedances. However, it appears that acid SVOC should also be qualified due to 2-fluorophenol exceedances. Revise the DVR to clarify this apparent discrepancy.

15. **Appendix E, COMPUCHEM SDG 1001159, Pages 9 and 10:** Both the laboratory control sample (LCS) and MS/MSD exhibited zero percent recoveries for p-phenylenediamine. Based on this information, it appears that the laboratory is unable to effectively recover this compound. The Report should discuss this issue and its impact upon data usability. Revise the Report to provide this discussion in the DQA section.

16. **Appendix E, COMPUCHEM SDG 1001159, Page 10:** This section indicates that the MS/MSD for antimony and selenium were less than the acceptance limits. However, the DVR does not include an evaluation of the post digestion spike (PDS) results for these analytes. Revise the DVR to evaluate the PDS, and to ensure these analytes are qualified appropriately in all associated samples for this SDG.

17. **Appendix E, COMPUCHEM SDG 1001159, Page 10:** The serial dilution discussion on this page indicates that there was a non-compliant percent difference (%D) for cobalt. However, the table indicates that lead was qualified instead of cobalt. Revise the DVR to clarify this apparent discrepancy.

18. **Appendix E, COMPUCHEM SDG 1001159, Page 11:** This discussion of PCB field duplicates indicates that an outlier was observed. However, the extent of the exceedance was not presented. Revise the DVR to present the field duplicate relative percent difference for PCB Aroclor 1260.

MINOR COMMENTS

1. **Appendix A, Summary of Analytical Results from Phase II ECP:** The tables in Appendix A are labeled B-1, B-2. Etc. Revise the table numbering system to begin with A, per Appendix A, instead of B.

2. **Appendix E, COMPUCHEM SDG 1001159, Page 9:** The text under the surrogates section indicates the samples listed in the table exhibited low surrogate recoveries. Based on the information in the table, it appears that the samples exhibited high surrogate recoveries. Revise the DVR to address this apparent discrepancy.

TECHNICAL REVIEW OF THE
DRAFT RCRA FACILITY INVESTIGATION WORK PLAN
SWMU 79
NAVY OPERATIONS ON CABRAS ISLAND
DATED AUGUST 20, 2010

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

Submitted to:

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

Submitted by:

TechLaw, Inc.
221 Mineola Boulevard
Mineola, NY 11501

EPA Task Order No.	**002**
Contract No.	**EP-W-07-018**
TechLaw TOM	**Cathy Dare**
Telephone No.	**315-334-3140**
EPA TOPO	**Timothy Gordon**
Telephone No.	**212-637-4167**

September 30, 2010

TECHNICAL REVIEW OF THE
DRAFT RCRA FACILITY INVESTIGATION WORK PLAN
SWMU 79
NAVY OPERATIONS ON CABRAS ISLAND
DATED AUGUST 20, 2010

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

The following comments were generated based on review of the August 20, 2010 *Draft RCRA Facility Investigation Work Plan, SWMU 79 Navy Operations on Cabras Island, Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico* (hereinafter referred to as the Work Plan).

GENERAL COMMENTS

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 (SOPs) for subsampling, sample preparation, and analysis; 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.
   - Field SOPs have not been provided for XRF, including sample preparation and analysis.
   - There is no project specific discussion of how precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS) measures will be incorporated into a data quality assessment, how completeness will be measured for this project, or if an evaluation of significant trends and biases will be included as part of a data quality assessment.
   - The Work Plan indicates the data validator will be determined at a later date. Per EPA QA/R-5, the data validator and independence from data generation activities must be ensured.

   Revise the Work Plan to provide this information.

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.
- For each sample matrix, provide the rationale for the proposed number, location, analyses, and depth of samples. 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.

3. The scope of the Work Plan is not clear and contains several inconsistencies. For example, Section 2.3, Area of Investigation at SWMU 79, states, "The soil investigation will focus on the determination of the extent of contamination in and around the areas where metals, semi-volatile organic compounds (SVOCs), and polynuclear aromatic hydrocarbons (PAHs) contaminated soil were identified during the ECP investigation." However, this is not consistent with the scope outlined in Section 3.0, Scope of Investigation, which focuses only on metals contamination. Further Section 3.1.3, Surface & Subsurface Soil Sampling Program for Fixed-Base Analysis, includes analysis for Total Petroleum Hydrocarbons (TPH) Gasoline Range Organics (GRO) and Diesel Range Organics (DRO), and perchlorate, which indicates that the scope of the investigation includes evaluation of petroleum/volatile organic compounds (VOC) and explosive-related contamination. Revise the Work Plan to address these inconsistencies and provide a clear purpose and scope to the investigation.

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.

   Further, in order to assist in this decision process, include a Conceptual Site Model (CSM) for human and ecological receptors (i.e., show sources, potentially complete exposure pathways, and receptors) based on the current level of understanding of site conditions.

5. 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 Corrective Measures 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 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 on the Final Corrective Measures Study for SWMU 68. Ensure that the Work Plan is revised to reflect these previous agreements to maintain consistency among all HHRAs performed at NAPR SWMUs and demonstrate compliance with EPA-recommended risk assessment methodologies. HHRAs 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).

6. 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.

7. 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 79 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.

8. Subsurface soil samples collected below three feet should not be included in the Screening Level Ecological Risk Assessment (SLERA) for comparison to soil screening values. Subsurface soil deeper than three feet is not considered accessible to most terrestrial receptors, except in the presence of fossorial mammals or if subsurface soil may be excavated to become surface soil, neither of which appears to be the case at SWMU 79. The

text needs to be modified accordingly to clearly state which soil samples will be retained for use in the SLERA.

9. Section 4.6.1 of the report describes sources of ecological screening values for soil, surface water, and sediment. No mention is made of an ecological problem formulation (e.g., selecting assessment and measurement endpoints, identifying receptor groups of concern, describing a conceptual site model), calculating exposure point concentrations to compare against the screening benchmarks, the proposed approaches to perform the risk characterization, or an uncertainty analysis. It is recommended not to present or use the screening values in the future site investigation report. Instead, the report should simply describe the results of the sampling effort. A SLERA Work Plan (WP) needs to be prepared separately to explain how these analytical data will then be used to assess the potential for risk to terrestrial and aquatic receptors associated with SWMU 79. The SLERA WP needs approval by the Agencies before the risk evaluation can be performed.

10. Appendix B 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.

11. Section 1.2, Site Description and History, and Section 2.1, Current Site Conditions and Use, reference Figure 1-3 for a site layout. The Work Plan does not include a Figure 1-3. Revise the Work Plan to provide Figure 1-3 so that the site layout can be reviewed in context with the proposed investigation.

12. Section 2.2.1, [Environmental Condition of Property] ECP Study, indicates that PAHs were detected in surface soil during the ECP study in 2009. Twelve (12) soil borings are proposed for the current investigation, and samples will be collected for PAHs. However, the locations of these additional borings are contingent upon the results of the field screening for metals, not on previous locations of PAH detections. Therefore, it is unclear how the extent of PAH contamination will be determined if the sampling locations do not target areas where PAHs were previously detected, or where historical operations are likely to have impacted soil with PAHs. Revise the Work Plan to indicate how the extent of PAH contamination will be adequately delineated with the proposed activities, or propose additional sampling with the objective of delineating the extent of PAHs.

SPECIFIC COMMENTS

1. Section 1.3, Objectives, Page 1-2: The sixth bulleted item states than an objective of the Phase I RFI is to "[c]ollect chemical and available flight test data regarding the probable disposition and current location(s) of used JATO bottles." It appears that some information pertinent to this objective already has been included in Appendix A, JATO Bottle Study Results. The Work Plan, however, does not propose any activities to further investigate the used JATO bottles, or possible contaminants associated with the JATO Bottles. Appendix A states, "Navy tests indicate that at 4,403°F, all propellant material within [the] bottle is

annihilated." However, it is unclear whether there is any possibility of malfunction, or cases in which the optimum temperature was not reached and some propellant material remains. Additionally, it is unclear whether the metal casings could begin to deteriorate after prolonged submergence under water, and could potentially impact sediment. Revise the Work Plan to indicate whether any additional investigation of the JATO bottles is proposed as part of the current investigation. Additionally, indicate whether the possibility exists for contamination associated with propellant, metals, or other constituents, or whether there are any risks to marine receptors from the casings themselves.

2. **Section 2.1, Current Site Conditions and Use, Page 2-1:** This section describes the current and/or historical use of buildings at SWMU 79, but it does not indicate the current or historical use of Building 104. Section 3.1.8, Surface Soil Sampling Program Near Buildings 104, 2004, and 2037, indicates that the soil surrounding Building 104 will be sampled only for lead due to the identification of deteriorating lead-based paint at this building. A discussion of current and/or historical use of Building 104, including chemical storage/usage, should be provided to demonstrate that the proposed analyses at this building should be limited to lead only. Revise Section 2.1 to include a description of the current and historical use of Building 104.

3. **Section 2.1, Current Site Conditions and Use, Page 2-1**: This section indicates that an underground storage tank (UST), associated with Building 2037, is located within SWMU 79, but the Work Plan does not provide any specific details on this UST. The UST's age, construction, current status, and current or historical contents should be described in this section. Additionally, the location of this UST should be shown on a site plan. The Work Plan should also clarify whether any of the proposed sample locations will specifically address potential leaks from this UST. Revise the Work Plan to describe the UST's age, construction, dates of use, and current or historical contents, and identify the location of the UST on a site plan. Additionally, revise the Work Plan to indicate whether any samples will be collected to specifically investigate potential releases from this UST.

4. **Section 2.2.1, ECP Study, Page 2-1:** The ECP Study is described in this section, but the analyses that were conducted on the samples as part of the study are not described. Therefore, it cannot be determined whether the limited analyses proposed for the current investigation are appropriate in light of historical use of the site. Additionally, the last sentence of the second paragraph in this section states, "The results of the surface soil sampling investigation conducted as part of the ECP investigation are depicted on Figure 2-1." Figure 2-1, Phase I/II ECP Sample Locations, only shows the sample locations and not the results of the sampling. A summary table of results from the ECP investigation has not been provided. As such, the rationale for the currently proposed analyses and sampling locations cannot be verified. Revise the Work Plan to identify all of the analyses that were conducted on samples as part of the ECP Study and whether or not analytes were detected. Additionally, revise the Work Plan to either include detected analyte concentrations on Figure 2-1, or provide a summary table of the results.

5. **Section 2.2.2, JATO Bottle Study, Page 2-2:** This section indicates that JATO bottles are "composed primarily (49%) of nitrocellulose…" The other components of JATO bottles should also be described in this section. The Propellant Description Sheet included in Appendix A, JATO Bottle Study Results, also indicates that JATO Bottles are composed of 39% nitroglycerin as well as smaller percentages of triacetin, di-n-propyl-adipate, 2-nitrodiphenylamine, LC-12-15, candelilla wax, carbon black, and aluminum. For clarity, revise Section 2.2.2 to describe all components of JATO bottles.

6. **Section 3.0, Scope of Investigation, Page 3-1:** This section describes field screening of metals in surface and subsurface soil at the site using an Innov-X Alpha XRF Analyzer; however, the Work Plan never describes the specific metals that will be screened by this method. Revise the Work Plan to clearly state the metals that will be screened using the XRF Analyzer.

7. **Section 3.0, Scope of Investigation, Page 3-1:** This section states, "Updated [SOPs] previously provided in the Final RFI Management Plans (Baker Environmental, Inc., 1995) will be followed for the proposed field work." However, updated SOPs have not been provided in the Work Plan. Revise the Work Plan to provide the updated SOPs as referenced in this section.

8. **Section 3.0, Scope of Investigation, Page 3-1:** This section indicates that the investigation will include obtaining subsurface soil samples from beneath the concrete launch pads. It does not mention, however, sampling of the concrete itself. Section 1.3, Objectives, indicates than an objective of the investigation is to "[d]etermine the presence or absence of metals in the concrete launch pads…" Section 2.3, Area of Investigation at SWMU 79, also states that the scope of the investigation "includes soil, concrete, groundwater, and open water sediment sampling and analysis." Revise the Work Plan to address this discrepancy, and consistently state whether concrete sampling will or will not be conducted as part of the investigation.

9. **Section 3.0, Scope of Investigation, Page 3-1:** Under section 1.3, *Objectives*, the first bullet states: "Determine the presence or absence of contamination in the surface and shallow subsurface soil adjacent to Buildings 2004, 2037, and 2353…". The first bullet under section 3.0 does not include Building 2004 as a location to identify and mark sample locations for field screening of surface and subsurface soil. Include Building 2004 in these locations.

10. **Section 3.1.1, Surface and Subsurface Soil Grid Program for Field Screening, Page 3-1:** The title of this section implies that a grid program will be employed for the field screening investigation; however, Figure 3-1, Soil Sample Locations, does not appear to show that a grid program has been applied. It is noted that the sample locations shown on Figure 3-1 are approximate, and will be adjusted in the field based on the locations of drainage patterns observed in the field; however, the Work Plan needs to provide the rationale for the selection of each of the existing sample locations, if a grid pattern is not used. The Work Plan states that sampling locations will be selected based on "previous

study results and drainage patterns as determined from site reconnaissance observations and aerial photography." Previous study results and aerial photographs are available, and should be used as justification for the initial selection of sampling locations. Section 3.1.6.3, Open Water Sediment Sampling Program, also indicates that site reconnaissance visits have already been conducted. Revise the Work Plan to revise the title of Section 3.1.1 to remove reference to a grid program, as this does not appear to be the proposed approach. Additionally, revise the Work Plan to provide the rationale for selection of the initial sampling locations, based on previous study results, review of aerial photographs, and any previous site reconnaissance visits. It is acknowledged that these initial locations may be modified in the field based on observed site conditions.

11. **Section 3.1.1, Surface and Subsurface Soil Grid Program for Field Screening, Page 3-2:** The text states that one surface soil sample (0-1 ft below ground surface [bgs]) and one subsurface soil sample (1-3 ft bgs) will be collected from each boring location under the subheading "*Subsurface soil samples will be designated as follows:*" the first subsurface sample is labeled 1-3 feet and the second is labeled 3-5 feet bgs. This information implies that subsurface soil samples will be taken deeper than the 1-3 ft bgs; soil deeper than three ft is not considered environmentally available to potential terrestrial receptors. Note also that Table 3-1 only lists two samples, namely one surface sample (0.0-1.0) and one subsurface sample (1.0-3.0) ft bgs. This inconsistency must be corrected by clarifying at what depth the subsurface soil samples will be collected from.

12. **Section 3.1.2.1, XRF Testing, Page 3-3:** This section states that the soil samples for field screening will be mixed prior to analysis, but the Work Plan does not include the methodology for this task. Revise the Work Plan to state how the soil will be mixed; identify appropriate equipment, and reference an applicable SOP as appropriate. Revise the Work Plan to provide this information. Additionally, the Work Plan should also address homogenization of the soil samples that will be submitted for fix-based laboratory analysis.

13. **Section 3.1.2.1, XRF Testing, Page 3-3:** This section discusses the XRF analytical procedure but does not describe the number of XRF readings to be collected per bag. Additionally, if multiple readings will be collected per bag, it is unclear if the XRF will be moved or if all readings will be collected from one location. Revise this section to provide more detailed discussion regarding XRF analysis. Alternatively, if this information is located in an SOP, provide a specific reference to where it can be found.

14. **Section 3.1.2.2, Data Evaluation, Page 3-3:** The last sentence of the first paragraph states that additional samples may be collected and analyzed by XRF if the evaluation determines that additional samples are required. The Work Plan has not indicated what requirements must be met in order to collect additional samples (i.e., concentrations exceed applicable screening levels, etc.). If additional samples are required, the Work Plan should state what approach will be employed to locate these samples. For instance, the Work Plan should indicate whether a step-out approach will be utilized, collecting additional samples

east, west, north, and south of a sample that exhibits a screening criterion exceedance, or whether some other approach will be used. Revise the Work Plan to state what requirements must be met in order to collect additional samples for XRF analysis, and describe the approach that will be employed for this additional sampling.

15. **Section 3.1.2.2, Data Evaluation, Page 3-3:** The Work Plan does not consistently state how the samples for fixed-base laboratory confirmation will be selected. In Section 3.1.2.2, the Work Plan states that the samples for fixed-base analysis will be based on an analysis of areas of high contamination, depositional areas, stressed vegetation, etc. It is further noted that 12 soil borings are anticipated to be installed and samples collected for fixed-base analysis. Section 3.1.2.3, Fixed-Base Laboratory Confirmation, however, states that "[t]wenty percent of the surface soil and subsurface soil samples analyzed by XRF will be sent to the fixed-base laboratory for confirmatory analysis. The confirmatory samples will include a range of low level, medium level, and high level detections for confirmatory analysis." Revise the Work Plan to consistently state how samples for fixed-base analysis will be selected, and state the number or percentage of samples anticipated. If the installation of 12 soil borings/soil sampling for fixed-base analysis is a separate task from the XRF confirmation samples sent for fixed-base laboratory analysis, Section 3.1.2.2 should be revised to reflect this approach.

16. **Section 3.1.3, Surface & Subsurface Soil Sampling Program for Fixed-Base Analysis, Page 3-4:** The first full paragraph on Page 3-4 discusses the approach for selecting soil samples for laboratory analysis. The Work Plan states, "One surface soil sample (0 to 1 foot bgs) and a minimum of two subsurface soil samples (one based on FID/ PID screening or visual/olfactory observations and the other just above the water table) will be collected from each boring location, if site topography and terrain allow." The Work Plan does not state, however, what interval will be selected for analysis should there be no elevated FID/PID readings or no other visual or olfactory evidence of contamination. The Work Plan should propose a default sampling interval and provide the rationale for that sampling interval if no evidence of contamination is observed (i.e., no elevated FID/PID readings or no distinguishing visual/olfactory observations). The default sampling interval should be based on previous sampling results and/or be selected in consideration of the fate and transport characteristics of any potential contaminants, and the end use of the data. Revise the Work Plan to include this information.

17. **Section 3.1.3, Surface & Subsurface Soil Sampling Program for Fixed-Base Analysis, Page 3-4:** This section indicates that surface and subsurface samples will be analyzed for Appendix IX SVOCs and metals, TPH (GRO and DRO), and perchlorate. The rationale for selection of these limited analyses has not been provided. Revise the Work Plan to include this information. This comment also applies to the analysis proposed for groundwater samples in Section 3.1.5, Groundwater Sampling and Analysis Program, and the analysis proposed for soil sampling beneath concrete in Section 3.1.7, Subsurface Soil Sampling Program at Launch Pads. As previously noted, data from prior investigations may be used to support the selection of the proposed analyses.

18. **Section 3.1.3, Surface & Subsurface Soil Sampling Program for Fixed-Base Analysis, Page 3-3:** The text does not state at what depth the subsurface samples will be collected from. Below the sub heading *Subsurface soil samples will be designated as follows:* the first sample will be labeled 1-3 feet bgs and the second will be 3-5 bgs and the actual sample depth will be determined in the field. Table 3-1 only lists two samples, namely 0.0-1.0 and 1.0-3.0 ft bgs. Clearly state at what depth the subsurface soil samples will be collected from and specify that the ranges presented are only "target" depths subject to change depending on field conditions.

19. **Section 3.1.4, Monitoring Well Installation, Page 3-6:** Paragraph two of 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 recommended that three to five borehole volumes be removed to ensure proper development, at a minimum. Additionally, it is recommended that all of the bulleted items in this section be performed to ensure proper well development. If a criteria cannot be achieved, an explanation should be provided in the well development records. Revise the Work Plan to indicate that all of the bulleted items will be performed during well development.

20. **Section 3.1.4, Monitoring Well Installation, Page 3-5:** This section states that six permanent wells will be installed at SWMU 79. This is inconsistent with the number of wells presented in Section 3.0, Scope of Investigation, in which it is noted that five monitoring wells will be installed. Revise the Work Plan to consistently state the number of wells to be installed. Additionally, it does not appear that the Work Plan has proposed to prepare well construction reports for the new monitoring wells. Revise the Work Plan to state that well construction reports will be prepared for any new wells, or at a minimum, the well construction details should be added to the appropriate boring log.

21. **Section 3.1.5, Groundwater Sampling and Analysis Program, Page 3-6:** Groundwater samples will be analyzed for Appendix IX SVOCs with low level PAHs, metals (total and dissolved), salinity, and perchlorate. It is unclear why TPH GRO and DRO have not been proposed for the groundwater samples when they have been proposed for soil samples as well as the open water sediment samples. Revise the Work Plan to indicate why TPH GRO and DRO have not been proposed for groundwater samples.

22. **Section 3.1.6.3, Open Water Sediment Sampling Program, Page 3-8**: The Work Plan proposes to collect 10 sediment samples, the approximate locations of which are shown on Figure 3-2, Open Water Sediment Sample Locations. It is unclear why two sediment samples are proposed at each of five locations, rather than spreading the samples out to obtain greater coverage of the water front. It is acknowledged that sediment sample locations are trying to target depositional areas, but the rationale for two samples at each of these areas has not been provided. Revise the Work Plan to provide the rationale for the

sampling program. Additionally, please note that this section also references a Figure 3-6, but the Work Plan does not include Figure 3-6. Revise the Work Plan to provide the appropriate Figure or figure reference.

23. **Section 3.1.6.3, Open Water Sediment Sampling Program, Page 3-8:** The 2nd paragraph states that samples will be collected from 0-6 inches bgs using disposable stainless steel spoons. Collecting sediment samples with stainless steel spoons will only be sufficient if samples are collected at low tide with no overlying water. An enclosed sampling device (e.g., petite ponar) would need to be used if water covers the sediment to avoid sediment loss. Sample collection methods should be revised to include enclosed samplers for use in areas with overlying water.

24. **Section 3.1.6.3, Open Water Sediment Sampling Program, Page 3-8:** This section states, "Samples for SVOC analysis will be containerized, and the remaining sediment will be thoroughly homogenized following removal of debris…" However, it is unclear why the sediment will not be homogenized prior to collecting SVOC samples. Further, homogenization of aliquots for GRO analysis may bias those results low. Revise the Work Plan to indicate that sediment will be homogenized prior to collection of SVOC samples, and that GRO aliquots will be collected prior to homogenization.

25. **Section 3.1.7, Subsurface Soil Sampling Program at Launch Pads, Page 3-9:** The second paragraph states, "Subsurface soil samples will be collected below each of the three launch pads to evaluate for the presence of metals in the soil below the concrete pads." As the proposed analyses also include Appendix IX SVOCs and perchlorate, the above sentence should be revised to reflect these additional analyses. This same section also references Figure 3-4 for the proposed boring locations. However, the correct reference appears to be Figure 3-3, Launch Pad Subsurface Soil Sample Locations. Revise the Work Plan to address both of these concerns.

26. **Section 3.1.7 Subsurface Soil Sampling Program at Launch Pads, Page 3-9:** The only Fixed Based Analytical Lab Analysis listed in Table 3-1 for subsurface Soil Samples Below Launch Pads is Appendix IX Metals. The three bullets in Section 3.1.7 list Appendix IX low-level SVOCs with low-level PAHs, Appendix IX metals, and perchlorate for the intended analysis of samples obtained from below the concrete slab. The text or Table 3-1 must be corrected to indicate the appropriate analysis for samples taken below the launch pad slab.

27. **Section 3.1.8, Surface Soil Sampling Program Near Buildings 104, 2004, and 2037, Page 3-9:** This section indicates the surface soil samples will be collected for fixed-base laboratory analysis. No reference to analyzing surface soil with the XRF is made in this section. However, the note at the bottom of Figure 3-4, Surface Soil Lead Sample Locations, states that sample locations will be tested "using XREF" and the samples to be submitted to the laboratory will be based on "elevated XREF readings." A second discrepancy is noted between the number of samples proposed in Section 3.1.8 and those shown on Figure 3-4.

Section 3.1.8 states that the samples taken for fixed-base laboratory analysis will be identified as 79SS01 through 79SS25, which implies that 25 samples will be collected. However, Figure 3-4 shows only 13 samples. Revise the Work Plan and/or Figure 3-4 to address these discrepancies, and to consistently state the approach for the surface soil sampling program near Buildings 104, 2004, and 2037 and the total number of samples to be collected.

28. **Section 3.2.2, Equipment Rinsates, Page 3-10:** 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. In addition, this section does not identify hand augers as a potential piece of equipment that may require a rinsate sample. Revise the Work Plan to indicate that equipment rinsates will be collected from equipment requiring decontamination and identify all potential equipment.

29. **Section 3.4.3, Investigation Derived Waste Management, Page 3-12:** The investigation derived waste (IDW) sampling procedures are insufficiently detailed. For example:
    - It is unclear if IDW will be combined from multiple borings into one 55-gallon drum or if each boring will have its own drum.
    - The section states that soil cuttings from subsurface soils will be placed back into the boring from which they came, unless contamination is present. As much as possible, soils last out of the hole will be returned first, thereby, approximating original stratigraphy. However, it is unclear how soils will be returned to the correct boring and in the correct order if soil cuttings are collected and stored temporarily in 55-gallon drums. In addition, it is unclear how it will be known if soil is contaminated at the time of boring installation.
    - This section does not discuss management of used personal protective equipment (PPE) or disposable boring installation and sampling equipment.
    - The section does not indicate how each aliquot of IDW will be collected, and how these aliquots will be combined for the composite sample.
    - Finally, since volatiles will be analyzed, the Work Plan does not specify how composite samples are collected to reduce the analyte loss.

    Revise the Work Plan to provide a more detailed IDW management plan.

30. **Section 3.4.5, Surveying, Page 3-12:** The first sentence in this section states, "All sampling locations are pre-determined and presented on a figure prior to entering the field." This statement is not consistent with the sampling approaches previously described in Sections 3.1.1 through 3.1.6. In many cases, sampling locations will be determined in the field based on current conditions, and other sampling locations will be selected based on the

results of the XRF survey. Revise the Work Plan to remove the first sentence of Section 3.4.5 as it does not apply to all of the proposed samples.

31. **Section 3.4.5, Surveying, Page 3-12:** This section indicates that a global positioning system (GPS) will be used to locate samples. However, it is unclear what accuracy will be used. Revise the Work Plan to indicate the accuracy of the field grade GPS.

32. **Section 3.4.7, Chain-of-Custody, Page 3-12:** 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, or provide reference to an applicable SOP.

33. **Section 4.0, Reporting, Pages 4-1 through 4-8:** 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.).

34. **Section 4.6.2, Human Health Screening Values, Pages 4-7 and 4-8:** Human health screening values (i.e., Regional Screening Levels [RSLs], federal drinking water maximum contaminant levels [MCLs]) and background screening values are discussed in this section; however, these screening values have not been presented in the Work Plan. Verification that the laboratory RLs will be able to meet screening values cannot be performed without a presentation of all screening values to be used. Revise the Work Plan to provide all screening criteria to allow for comparison to analytical results.

35. **Section 4.7, Conclusions and Recommendations, Page 4-8:** 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, as documented in the data quality assessment, will impact the conclusions and recommendations. Revise Section 4.7 to ensure that the information provided in the data quality assessment will be considered when developing conclusions and recommendations.

36. **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 team as well as their responsibilities.

37. **Table 3-1, Summary of Sampling and Analytical Program – Environmental Samples:** Section 3.1.7, Subsurface Soil Sampling Program at Launch Pads, proposed to analyze soil samples beneath the launch pads for Appendix IX metals, Appendix IX SVOCs, and perchlorate; however, Table 3-1 only indicates that the samples will be analyzed for Appendix IX metals. Revise Table 3-1 to include all proposed analyses for the samples beneath the concrete launch pads.

38. **Table 4-1 Ecological Soil Screening Values:** The surface soil screening value for zinc (4.6 mg/kg), obtained from USEPA 2007d, is incorrect. The correct value from this source is 46 mg/kg. The zinc screening value needs to be corrected in this table.

39. **Table 4-1 Soil Screening Values and Table 4-2 Groundwater Screening Values and Table 4-3 Sediment Screening Values:** These three tables include screening values for VOCs, even though VOCs are not proposed for analysis. Remove all VOC screening values from these tables to avoid confusion.

40. **Table 4-3 Sediment Screening Values:** Several sediment screening values, mainly SVOCs, were found to exceed their QL presented in Table 3-2. The QL for these analytes must be brought down below the screening values to allow detected analytes to be compared to their sediment screening values. The QLs for these analytes must be adjusted accordingly.

TECHNICAL REVIEW OF THE
DRAFT PHASE I RCRA FACILITY INVESTIGATION WORK PLAN
SWMU 80 – DRAINAGE DITCH NEAR BUILDING 207
DATED AUGUST 17, 2010

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

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September 10, 2010

TECHNICAL REVIEW OF THE
DRAFT PHASE I RCRA FACILITY INVESTIGATION WORK PLAN
SWMU 80 – DRAINAGE DITCH NEAR BUILDING 207
DATED AUGUST 17, 2010

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The following comments were generated based on review of the August 17, 2010, *Draft Phase I RCRA Facility Investigation Work Plan: SWMU 80 – Drainage Ditch Near Building 207*, Naval Activity Puerto Rico, Ceiba, Puerto Rico (Work Plan)**.**

GENERAL COMMENTS

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.

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.

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.

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.

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).

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.

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.

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.

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.

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.

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.

SPECIFIC COMMENTS

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.).

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

ENVIRONMENTAL EMERGENCIES RESPONSE AREA

September 24, 2010

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

Re: Technical Review of the Draft Phase I
RCRA Facility Investigation Work Plan
for SWMU 80 – Drainage Ditch Near Building 207
Naval Activity Puerto Rico
Ceiba, PR2170027203

Dear Mr. Gordon:

The Federal Facility Coordinator (FFC) and the Hazardous Wastes Permits Division (HWPD) has finished the review of the above-mentioned document. Our comments are provided in the attachment.

If you have any additional comments or questions please feel free to contact Gloria M. Toro Agrait at (767) 787-8181 extension 3586 or myself at extension 6141.

Cordially,

Wilmarie Rivera
Federal Facilities Coordinator
Environmental Emergencies Response Area

cc. Gloria M. Toro Agrait, Environmental Permits Officer

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Technical Review Draft Phase I RCRA Facility Investigation Work Plan
for SWMU 80 – Drainage Ditch Near Building 207
Naval Activity Puerto Rico, Ceiba, Puerto Rico
PR2170027203
August 17, 2010

General Comments:

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.

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.

Page-Specific Comments:

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.

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.

   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.

   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.

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.

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.

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.

   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.

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.

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.

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.

   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.

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.

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

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

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

    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)

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

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

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

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

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

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.

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

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.

COMMONWEALTH OF PUERTO RICO
Office of the Governor
Environmental Quality Board

ENVIRONMENTAL EMERGENCIES RESPONSE AREA

September 27, 2010

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

Re: Technical Review of the Draft Phase I
RCRA Facility Investigation Report
SWMU 57 – POL Drum Storage Area
Naval Activity Puerto Rico
Ceiba, PR2170027203

Dear Mr. Gordon:

The Federal Facility Coordinator (FFC) and the Hazardous Wastes Permits Division (HWPD) has finished the review of the above-mentioned document. Our comments are provided in the attachment.

If you have any additional comments or questions please feel free to contact Gloria M. Toro Agrait at (767) 787-8181 extension 3586 or myself at extension 6141.

Cordially,

Wilmarie Rivera
Federal Facilities Coordinator
Environmental Emergencies Response Area

cc. Gloria M. Toro Agrait, Environmental Permits Officer

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Technical Review Draft Phase I RCRA Facility Investigation Report
SWMU 57 – POL Drum Storage Area
Naval Activity Puerto Rico, Ceiba, Puerto Rico
PR2170027203
August 13, 2010

1. Page 4-1, Section 4.0: Please revise the text reference for sample locations from Figure 4-1 to Figure 4-2.

2. Page 4-5, Section 4.5: The concrete wipe samples are identified as 57*SW*XX. Figure 4-2 identifies these samples as 57*WS*XX. Please revise the text or Figure for consistency.

3. Page 6-1, Sections 6.1.1 and 6.1.1.2: PREQB Water Quality Standards Regulations (2010) are also applicable, relevant and appropriate requirements for waters of Puerto Rico. Please add this reference to this section and review standards to ensure that the most stringent of the federal or state value for a particular chemical is used.

4. Page 6-3, Section 6.1.2.2:

    a. The ground water sampling results are compared to saltwater water quality criteria. This approach appears reasonable based on the presence of the Los Machos mangrove forest near SWMU 57. However, in order to provide transparency to the ecological data evaluation, please provide a brief explanation that presents the rationale for using saltwater criteria rather than freshwater criteria for this comparison.

    b. Surface water screening values are proposed for evaluating constituents detected in surface water samples at the site. Please include the SB 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. Please revise Table 6-3 accordingly citing this source and revising the screening values where appropriate.

5. Page 6-6, Section 6.2, Paragraph 4: The text states that GRO was detected in several samples at low estimated concentrations. However, as per Table 6-2, GRO was not detected in any of the surface soil samples. Please clarify or revise the text accordingly.

6. Page 6-6, Section 6.2, Paragraph 6:

    a. The text states that chromium exceeded ecological surface soil screening values at eight *locations*. However, as per Table 6-2, chromium exceeded the screening values at six locations (although this affected eight samples due to the inclusion of field duplicates). Please revise the text accordingly.

b. The text states that chromium only exceeded the background screening level in sample 57SB08. However, as per Table 6-2, this should state 57SB04 and not 57SB08. Please revise the text accordingly.

c. The text states that cobalt exceeded the regional screening level for industrial soil at six of the twelve *locations*. However, as per Table 6-2, cobalt exceeded this screening level at five of the twelve locations (although this affected six samples due to the inclusion of a field duplicate). Please revise the text accordingly.

7. Page 6-7, Section 6.2, Paragraph 1 and Page 6-8, Section 6.3, Paragraph 1: Please discuss in the text whether the rejection of selenium in seven of the fourteen samples affects the achievement of project objectives.

8. Page 6-7, Section 6.3, Paragraph 5:

a. The text states that DRO was detected in twelve of the fourteen samples. Please revise the text to state DRO was detected in twelve of the fifteen samples or eleven of the 14 locations.

b. The text states that GRO was detected in sample 57SB07-01 at a low estimated concentration. However, as per Table 6-2, GRO was not detected in any of the shallow subsurface soil samples. Please clarify or revise the text accordingly.

9. Page 6-9, Section 6.4, Dissolved Inorganics, Paragraph 2:

a. The text states that dissolved lead exceeded the ecological groundwater screening criteria and background value in sample 57GW05. However, as per Table 6-3, dissolved lead was below the background value in this sample. Please clarify or revise the text accordingly.

b. The text states that dissolved mercury exceeded background at four locations. However, as per Table 6-3, dissolved mercury was below the background value in all samples. Please clarify or revise the text accordingly.

10. Page 6-10, Section 6.4, Total Inorganics, Paragraph 2: The text states that total mercury exceeded the background value at four locations. However, as per Table 6-3, total mercury was below the background value in all samples. Please clarify or revise the text accordingly.

11. Page 6-11, Section 6.6, Paragraph 3: Please revise the list of detected metals to nine metals instead of eight and include zinc, as per Table 6-5.

12. Page 6-11, Section 6.7.1, Paragraph 2: Please revise the summary of detections in field blank FB02 to three SVOCs instead of two and include benzyl alcohol, as per Table 6-6.

13. Page 6-11, Section 6.7.1, Paragraph 4:

    a. Please revise the summary of detections in the eight equipment rinsate samples to seven VOCs instead of ten and remove bromodichloromethane, bromoform, and dibromochloromethane from the list, as per Table 6-6.

    b. Please revise the summary of detections in the eight equipment rinsate samples to four metals instead of five and remove beryllium from the list, as per Table 6-6.

14. Page 7-1, Section 7.1, Surface Soil: As per Table 6-1, vanadium did not exceed background in any of the surface soil samples; however, vanadium is listed as a metal that exceeded one or more of the screening criteria *and background*. Please clarify or revise the table accordingly.

15. Page 7-1, Section 7.1, Subsurface Soil, 1 to 3 foot interval:

    a. Bullet #1: Please clarify that lead also exceeds background in this paragraph.

    b. Bullet #2: Please clarify that thallium also exceeds background and revise to note that this exceedance occurs in all seven soil borings at this depth interval.

    c. Bullet #3: Please clarify that cobalt also exceeds background in this paragraph and revise to note that this exceedance occurs in all seven soil borings at this depth interval with the exception of 57SB04.

    d. Bullet #4: It appears that this bullet is discussing those metals that exceeded both background and ecological screening criteria. If so, please revise the text to state that these metals (mercury and zinc) also exceed the ecological screening criteria. Otherwise, many other metals that exceed only background would need to be included in this paragraph (i.e., beryllium, cadmium, nickel).

    e. Please add a bullet for arsenic which exceeds background and the industrial regional screening level at two locations for shallow subsurface soil (57SB02 and 57SB05).

16. Pages 7-1 and 7-2, Section 7.1, Subsurface Soil, 9 to 11 foot interval:

    a. Bullet #1: Please revise the text to remove the word “shallow.

b. Bullet #2: Please explain why the zinc exceedance is not included with bullet #4 since the exceedance relates only to background and the ecological screening value, as is the case for the other metals listed in bullet #4. If this bullet is maintained, please remove the word "shallow."

c. Bullet #3: Please remove the word "shallow" and include sample 57SB05 in the list of samples affected by the cobalt exceedances.

d. Bullet #4: Please revise the text to state that these metals (lead, barium, and nickel) also exceed the ecological screening criteria. Otherwise, many other metals that exceed only background would need to be included in this paragraph.

17. <u>Page 7-2, Section 7.1, Groundwater:</u>

a. Bullet #2: Please clarify why the mercury exceedances are listed since these values are below the background values, as per Table 6-3.

b. Bullet #3: The text states that vanadium exceeded the three project comparison criteria. However, only two project comparison criteria were included on Table 6-3. Please clarify.

c. Bullet #3: Please clarify that the project comparison criteria for vanadium was exceeded in both total and dissolved analyses.

d. Please add bullets to discuss the silver and nickel exceedances in groundwater.

18. <u>Page 7-2, Section 7.2, Paragraph 1:</u> Please consider the following when scoping additional work for this area: 1) The figures showing the sampling locations (both past and most recent) indicate that sampling has not taken place in the immediate vicinity of the loading dock. Sample 3E-02 appears to be the closest, however, it does not appear to be right up against the loading dock itself where spills may have occurred, nor is there a concrete wipe or chip sample located right at the loading dock area. As additional work is required at this site, please consider the addition of one or more sampling points in the immediate vicinity of the loading dock in order to evaluate conditions. 2) Please consider focusing a portion of the future sampling effort on the area of the suspected disposal pit location shown to the west of the pad. As indicated in the report, there were only a few surface soil samples collected in this area and if there were contaminants formerly disposed of into a pit area that may have been subsequently filled, surface samples may not be entirely representative of conditions in this area.

19. Tables 6-1 through 6-6: All metals results in these tables include nondetect results reported at the method detection limit (MDL). Typically, the MDL is a statistically derived value that is not accurately verified by the laboratory analysis. The reporting limits are accurately verified by laboratory analyses of standards at the unadjusted reporting limit. The reporting limits (not MDLs) should be used for the evaluation of the data when comparing results to the project comparison criteria due to the higher accuracy of these numbers. Please revise Tables 6-1 through 6-6 to reflect the reporting of nondetect results down to the reporting limit instead of the MDL. If the reporting limits exceed the comparison criteria, include a discussion in Section 6 of how these exceedances affect the achievement of the project objectives. It is acknowledged that this comment has been issued before and is pending EPA resolution, since PREQB defers to EPA position on this issue. Until EPA decision we will continue including the comment every time we notice it.

20. Table 6-3: Please verify the background concentrations listed in this table. Based on a review Table 4-4 of the *Revised Final II Summary Report for Environmental Background Concentrations of Inorganic Compounds at Naval Activity Puerto Rico*, the values presented in Table 6-3 do not coincide with the UTL values listed in the reference. For example, Table 6-3 states that a background value is not available for total antimony and total barium. However, the Table 4-4 of the reference lists a value of 12.24 µg/L for total antimony and 18.89 µg/L for total barium. The background concentration for total lead listed in Table 6-3 is 633 µg/L; however, Table 4-4 of the reference lists a value of 26.25 µgL for total lead. Please verify the background values listed in the tables.

21. Figure 4-2: Concrete wipe sample location 57WS04 is not visible on this figure. Please add the location of this field duplicate sample.

Appendix B, Chain-of-Custody Forms

1. According to the field notes (page 21 of Robert Roselius' notes), some of the parameters for groundwater sample 57GW02 (DRO, PCBs, SVOCs, and metals) were collected on February 1, 2010. However, the chain-of-custody only shows a collection date of January 31, 2010 for all parameters. Please clarify.

2. A review of the chains-of-custody showed that there were some sampling and handling issues with a few of the samples (specifically with bubbles in some of the vials and with bottle breakage). Please clarify what measures will be taken in future deployments to ensure that there are no bubbles in the vials submitted to the laboratory and in making sure that the samples are well wrapped/protected to minimize breakage during transit.

Appendix E, Phase I RFI Data Validation Summaries

1. For all validation reports, it appears that when blank qualification occurred in the metals analyses, the validator qualified the associated samples as nondetect (U) at the reported concentration. In many cases, the reported concentrations were below the reporting limit. Therefore, the new nondetect result at this "reported concentration" is not an accurate reflection of the actual nondetect value. As per the EPA Region 2 validation guidelines, sample results below the reporting limit should be raised to the reporting limit if affected by the blank contamination. Please revisit all validation memos and apply qualifications in accordance with EPA Region 2 procedures.