



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

JAN 28 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 PR2170027203,

- 1) SWMU 1 (Former Army Cremator Disposal Site) – Draft Final Steps 6 and 7 of Baseline Ecological Assessment (BERA) Report, dated December 1, 2009
- 2) SWMU 2 (Langley Drive Disposal Site) - Steps 6 and 7 of Baseline Ecological Assessment (BERA) Report, dated December 4, 2009
- 3) SWMU 1 and 2 – Draft Phase I Interim Corrective Measures Work Plan, dated November 19, 2009
- 4) SWMU 68 (Former Southern Fire Training Area) – Draft Corrective Measures Implementation (CMI) Plan and Design Report, dated November 19, 2009

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, and has the following comments:

SWMU 1 (Former Army Cremator Disposal Site) – Draft Final Steps 6 and 7 of Baseline Ecological Assessment (BERA)

EPA has completed its review of the December 1, 2009 revised Report and the Navy's Responses to EPA's September 17, 2009 comments on the previous version of the draft BERA report (dated July 1, 2009).

As part of our review, EPA requested our contractor, TechLaw Inc. to review the Navy's Responses and revisions to the Report. TechLaw had several minor comments and clarifications, which are given in the enclosed Technical Review, dated January 8, 2010 (enclosure #1). Within 60 days of your receipt of this letter, please submit an addendum to the Report addressing those comments.

In addition, the U.S. Fish and Wildlife Service (FWS) in their letter dated December 10, 2009 has submitted several comments on the Report, which are included as enclosure #2 to this letter. Within 60 days of your receipt of this letter, please also address FWS' comments.

The Puerto Rico Environmental Quality Board (PREQB) has not submitted comments to EPA on the Draft Final BERA Report, but had made extensive comments on the previous version of the draft BERA report (dated July 1, 2009).

SWMU 2 (Langley Drive Disposal Site) - Draft Steps 6 and 7 of Baseline Ecological Assessment (BERA)

EPA has completed its review of the December 4, 2009 Draft Report. As part of our review, EPA requested our contractor, TechLaw Inc. to review the Navy's the Draft Report. TechLaw had several comments, which are given in the enclosed Technical Review, dated January 8, 2010 (enclosure #3). Within 60 days of your receipt of this letter, please submit revisions to the Report addressing those comments.

In addition, the U.S. Fish and Wildlife Service (FWS) in their letter dated December 15, 2009 has submitted several comments on the Report, which are included as enclosure #4 to this letter. Within 60 days of your receipt of this letter, please also address FWS' comments.

PREQB has not submitted comments to EPA on the Report.

SWMU 1 and 2 – Draft Phase I Interim Corrective Measures (ICM) Work Plan

EPA has completed its review of the November 19, 2009 Draft Phase I ICM Work Plan. As part of our review, EPA requested our contractor, TechLaw Inc. to review the Navy's the Draft Work Plan. TechLaw had several comments, which are given in the enclosed Technical Review, dated January 8, 2010 (enclosure #5). Within 60 days of your receipt of this letter, please submit revisions to the ICM Work Plan addressing those comments.

The Puerto Rico Environmental Quality Board (PREQB) in their letter of January 20, 2010 has submitted comments on the ICM Work Plan. PREQB's comments are included as enclosure #6 to this letter. In addition, the U.S. Fish and Wildlife Service (FWS) in their letter dated

December 10, 2009 has submitted several comments on the ICM Work Plan, which are included as enclosure #7 to this letter. Within 60 days of your receipt of this letter, please also address PREQB's and FWS' comments, which are included as enclosures #6 and #7 to this letter.

Also, as indicated in your Email of January 25, 2010 to myself and Ms. Wilmarie Rivera and Gloria Toro of PREQB, several items that appear to be munitions of explosive concern (MEC) have recently been found at SWMU 1 during preliminary work associated with the ICM activities. Therefore, within 60 days of your receipt of this letter, please submit a complete report on the MEC items found and any revisions to the ICM Work Plan and implementation schedule which are necessary to screen for and address potential MEC hazards at SWMU 1.

SWMU 68 (Former Southern Fire Training Area) – Draft Corrective Measures Implementation (CMI) Plan and Design Report

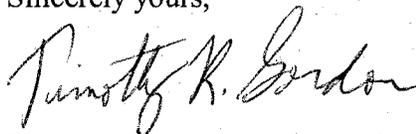
EPA has completed its review of the November 19, 2009 Draft CMI Design and Work Plan for SWMU 68.

As part of our review, EPA requested our contractor, TechLaw Inc. to provide comments on the Draft CMI Design and Work Plan. TechLaw's comments are given in the enclosed Technical Review, dated January 6, 2010 (enclosure #8). Within 75 days of your receipt of this letter, please submit acceptable revisions to the Draft CMI Design and Work Plan addressing all comments in the enclosed Technical Review.

In addition, the Puerto Rico Environmental Quality Board (PREQB) in their letter dated January 22, 2010, has submitted extensive comments on the Draft CMI Design and Work Plan, which is included as enclosure #9 to this letter. Within 75 days of your receipt of this letter, please also address PREQB's comments, and make any necessary revisions to the Draft CMI Design and Work Plan.

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

Sincerely yours,



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

Enclosures (9)

cc: Ms. Wilmarie Rivera, P.R. Environmental Quality Board, w/encls.
Ms. Gloria Toro, P.R. Environmental Quality Board, w/encls.
Mr. Mark Kimes, Baker Environmental, w/encls.
Mr. Anthony Scacifero, TechLaw Inc., w/encls.
Mr. Felix Lopez, USF&WS, w/encls.

**REVIEW OF THE NAVY RESPONSES TO EPA COMMENTS ON THE
DRAFT STEPS 6 AND 7 OF THE
BASELINE ECOLOGICAL RISK ASSESSMENT
FOR SWMU 1**

DECEMBER 1, 2009

**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.
The Wannalancit Mill
175 Cabot Street, Suite 415
Lowell, MA 01854**

EPA Task Order No.:	002
Contract No.:	EP-W-07-018
TechLaw TOM:	Anthony Scacifero
Telephone No.:	212-695-3600 x2
EPA TOPO:	Timothy Gordon
Telephone No.:	212-637-4167

January 8, 2010

**REVIEW OF THE NAVY RESPONSES TO EPA COMMENTS ON THE
DRAFT STEPS 6 AND 7 OF THE
BASELINE ECOLOGICAL RISK ASSESSMENT
FOR SWMU 1**

DECEMBER 1, 2009

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

Evaluation of the Response to EPA General Comment 1: Overall, the executive summary met all of the recommendations provided in General Comment 1. However, a few minor edits are provided below:

- Page ES-1: The first bullet under Terrestrial Invertebrates states, “[c]omparison of antimony, cadmium, copper, lead, mercury, tin, zinc, 4,4’-DDD, 4,4’-DDE, and 4,4’-DDT in SWMU 1 surface soil to invertebrate-based screening values.” It is recommended to add the term “concentrations” after 4,4’-DDT to clarify that chemical concentrations are being compared to the screening values.
- Page ES-4: Explain why antimony, copper, and tin are evaluated since they are not identified as chemicals of concern (COCs) in Step 3A. Note, the explanation provided on Page 2-30 would be sufficient.
- Table on Page ES-4: Add a footnote detailing that the no observed adverse effect level - hazard quotient (NOAEL-HQs) are based on 95% upper confidence limit (UCL) means of surface soil and earthworm tissue data.
- Table on Page ES-5: Add a footnote detailing that the NOAEL-HQs are based on maximum concentrations of surface soil and earthworm tissue data.

Evaluation of the Response to EPA General Comment 3: The explanation provided on Page 2-31 stating that the conclusions for the American robin are NOAEL-based because it is a surrogate for the yellow-shouldered blackbird satisfies one of the major concerns identified in General Comment 3. However, the concern regarding the calculation and inclusion of maximum acceptable toxicant concentration (MATC-HQs) and lowest observed adverse effect level (LOAEL-HQs) when modeling for endangered species still remains. It is understood that the risk to the yellow-shoulder blackbird and manatee are only evaluated on the NOAEL-based HQs. This does not ensure, however, that the MATC and LOAEL-based HQs will not influence future risk decisions such as clean-up goals (especially when the MATC and/or LOAEL-HQs show a negligible risk in comparison to the NOAEL-HQs). Examples are the pesticide HQs for the American robin (i.e., 4,4’-DDD, 4,4’-DDE, and 4,4’-DDT) where the NOAEL-based HQs ranged from 11.37 to 14.32, whereas the LOAEL-HQs ranged from 1.14 to 1.43. The LOAEL-HQs only marginally exceed one in comparison to the NOAEL-HQs. If the major objective is to be overly protective when modeling for endangered species, then it is not acceptable to assume that the differences between NOAEL-HQ, MATC-HQ, and LOAEL-HQs will not be assessed

and potentially incorporated into future risk management decisions. This issue should be further addressed.

Evaluation of the Response to EPA Specific Comment 3: The response to Specific Comment 3 details how the American robin food ingestion rate (FIR) was developed, however additional clarification would be helpful. The development of the American robin FIR should be transparent due to the fact that the American robin is being used as a surrogate for the listed yellow-shoulder blackbird and because the FIR will be used to back-calculate site-specific soil cleanup goals. The response to Specific Comment 3 states that, “[b]ecause the diet of the American robin was assumed to be 90.9 percent earthworms and 9.1 percent soil, the FIR rate used in the BERA (0.00383 kg/day/day-dry weight or 0.33 g/g-day) was *weighted* to reflect the absence of plant material. Explain how the FIR was adjusted and/or weighted to reflect the absence of plant material. Furthermore, justify how this lower FIR is still protective of the yellow-shouldered blackbird.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Boqueron Field Office
Carr. 301, KM 5.1, Bo. Corozo
P.O. Box 491
Boqueron, PR 00622

DEC 10 2009

Mr Adolf Everett
Chief, RCRA Program Branch
US EPA Region 2
290 Broadway
New York, NY 10007

Re: PR2170027203, Naval Activity PR (Former
Roosevelt Roads) SWMU 1, Ceiba, Puerto Rico

Dear Mr. Everett:

This is in reply to the December 1, 2009, Final Draft of the Baseline Ecological Risk Assessment for SWMU1 (Army Cremator Site). Our comments are provided as technical assistance in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (16 U.S.C. 1531 et seq. as amended).

Turtle grass (*Thalassia testudinum*) samples were taken to determine the risk to the West Indian manatee (*Trichechus manatus manatus*). Although we believe that using *Thalassia* adequately represents the dietary habits of the manatee, it is important to note that manatees do not exclusively eat *Thalassia*. Their foraging behavior is to rip out a section of seagrass (*Thalassia*, *Syringodium*, etc), complete with rhizomes and consume it.

Both whole-plant and above ground tissue were sampled. It is not clear what above ground tissue is, but we presume it is the seagrass leaves. As stated above, the whole-plant samples better represent the manatee feeding behavior. Above ground tissue is more representative of what green sea turtles, parrot fish and other marine creatures would consume.

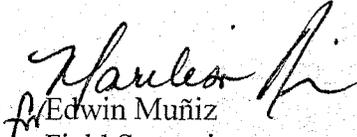
With regards to the endangered yellow-shouldered black bird (*Agelaius xanthomus*), the robin makes an adequate surrogate, although we would have preferred the shiny cowbird. Black birds and cowbirds fly in mixed flocks, usually foraging in the same areas. Cowbirds are nest parasites and sampling eggs and chicks help in determining the availability of COC to developing chicks.

Mr. Evertt

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As always we are willing to work with the Navy and its consultants in determining what remedial actions to take regarding this site. Thank you for the opportunity to comment on this project, if you have any questions please contact Felix Lopez of my staff at 787 851 7297 x226.

Sincerely,


Edwin Muñiz
Field Supervisor

fhl

cc:

DNER, San Juan

EPA, San Juan

Wilmarie Rivera, EQB, San Juan

Tim Gordon, RCRA, EPA, New York

David Chriswell, USN, Norfolk

Mark Kines, Baker, Pennsylvania

ENCL. #3

**TECHNICAL REVIEW OF THE
DRAFT STEPS 6 AND 7 OF THE BASELINE ECOLOGICAL RISK ASSESSMENT
SWMU 2**

**NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO**

DECEMBER 4, 2009

Submitted to:

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

Submitted by:

**TechLaw, Inc.
The Wannalancit Mills
175 Cabot Street, Suite 415
Lowell, MA 01854**

EPA Task Order No.:	002
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TechLaw TOM:	Tony Scacifero
Telephone No.:	212-695-3600 x2
EPA TOPO:	Timothy Gordon
Telephone No.:	212-637-4167

January 8, 2010

**TECHNICAL REVIEW OF THE
DRAFT STEPS 6 AND 7 OF THE BASELINE ECOLOGICAL RISK ASSESSMENT
SWMU 2
NAVAL ACTIVITY PUERTO RICO
CEIBA, PUERTO RICO**

DECEMBER 4, 2009

Presented below are technical review comments on the *Draft Steps 6 and 7 of the Baseline Ecological Risk Assessment, SWMU 2, [Draft BERA], Naval Activity Puerto Rico, Ceiba, Puerto Rico*, dated December 4, 2009. The Draft BERA was reviewed for technical adequacy, completeness, and consistency with the *Guidelines for Ecological Risk Assessment* (EPA, 1998) and the *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final* (EPA, 1997).

GENERAL COMMENTS

1. The executive summary presents a thorough overview of the Draft BERA. It was noted, however, that this section does not mention amphibians or reptiles even though these two receptor groups were retained in the Draft BERA. The text on Page 2-24 states that risk to amphibians and reptiles would be inferred from risk to upper trophic level terrestrial receptors. Revise the report to provide a discussion of these two receptor groups in the executive summary, and elsewhere in the text, as appropriate, in order to provide a complete evaluation.
2. Section 7 (uncertainty analysis) discusses several uncertainties associated with the analytical data, the selection of reference sites, the lines of evidence, and the ecological receptors. Several other uncertainties should also be considered, such as using generic soil and sediment benchmarks to calculate hazard quotients; the applicability of the wildlife toxicity reference values; or the impact of using site-specific tissue residue data on the food chain modeling results. A comprehensive uncertainty analysis provides valuable information for use in risk management decision making. Revise the report to address these concerns.
3. The "Terrestrial Invertebrate Community" line of evidence is thorough and provides supporting evidence for the risk characterization. Other lines of evidence, such as those collected for the "Terrestrial Avian Omnivore Populations" include an assessment of reference area risk contribution. It is recommended that the same reference area contribution be applied to the terrestrial invertebrate community assessment to assist with the risk conclusions on contaminant effects (versus reference concentration effects). Revise the report to include this approach to the assessment.
4. The Draft BERA relies on several lines of evidence derived from tissue residue analysis of fiddler crabs, turtle grass, and earthworms. It appears that the only Quality Assurance (QA) samples collected for these media consisted of laboratory-grade deionized water bottle blanks (refer to Section 3.3, Quality Assurance/Quality Control Sampling, and Table 3-7 as an

example). Tissue analysis results can create matrix interference error that can only be checked by using certified standard matrix spike and/or matrix spike duplicate (MS/MSD) samples. Revise the report to describe if certified QA tissue samples were included in the chemical analyses, or describe any uncertainty associated with matrix interference to the analysis results.

SPECIFIC COMMENTS

5. **Section 1.0, Introduction, Page 1-1 (and others):** The document title indicates that the Draft BERA contains information pertinent to Steps 6 and 7 of the ecological risk assessment process, whereas in reality, the document also encompasses Step 5 (field verification). The title and all title references should be edited to include reference to Step 5.
6. **Section 2.2.1, Terrestrial Habitats, Page 2-2:** The discussion in this section should refer to the findings from the Vegetation Community Description and Plant Community Health documentation provided on Pages 14 and 15 of Appendix A. Section 2.2.1 should be revised to include a reference to this work since it describes the species observed from the on-site studies conducted and documented. Revise the document to include this information.
7. **Table 2-2, Screening-Level Assessment Endpoints, Risk Questions, and Measurement Endpoints:** As stated in General Comment 1 above, it is difficult to follow the fate of amphibian and reptile receptors in this document. As stated in the third paragraph on Page 2-8, "amphibians and reptiles were qualitatively evaluated... for additional evaluation in Step 3b of the ERA process." For consistency, Table 2-2 should include a statement that these receptors were evaluated in Step 3b. The title of the table also incorrectly refers to SWMU 1 and should be revised to indicate SWMU 2. Revise the document to reflect these clarifications.
8. **2.4.1, Contaminant Fate and Transport and Toxicity Evaluation, Pages 2-10 through 2-21:** The subsection descriptions for antimony, arsenic, cadmium, copper, lead, mercury, selenium, and zinc use literature-derived information to characterize the fate and transport of these elements in the food chain. These subsections would benefit from the inclusion of a bullet statement summarizing the concentrations of each element detected at the reference site, and inclusion of any remedial investigation (RI)-derived discussion of the nature and extent, fate and transport of the element. This information is especially critical in light of the recommendations to remove soil. If the RI discussion indicated any potential stormwater transport of soil contaminants to the adjacent estuarine wetland, then the proposed recommendations would be further endorsed. Revise this section to include any relevant (previously documented) RI information describing the fate and transport of these elements in SWMU 2.
9. **Section 2.5.4, Data Evaluation and Interpretation, Survival, growth, and reproduction of terrestrial avian omnivore populations, Page 2-33:** It is understood that the Food Ingestion Rate (FIR) of the American robin should be somewhat lower than those provided in the wildlife exposure factors handbook (USEPA, 1993) based on the fact that the modeled

diet for this receptor consists entirely of earthworms, instead of a mixed invertebrate and/or fruit diet. The text mentions that the FIR was "weighted to reflect the absence of plant material from the total diet". Revise the report to explain briefly, in this section, how the weighting was applied to derive the FIR used in the food chain modeling.

ENCL. #4



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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Boqueron, PR 00622

DEC 15 2009

Mr Adolf Everett
Chief, RCRA Program Branch
US EPA Region 2
290 Broadway
New York, NY 10007

Re: PR 2170027203, Steps 6&7 of the Baseline
Ecological Risk Assessment for SWMU 2, Langley
Drive Disposal Area, Ceiba, PR

Dear Mr. Everett:

This is in reply to the December 4, 2009, letter regarding the above mentioned document. Our comments are provided as technical assistance in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (16 U.S.C. 1531 et seq. as amended).

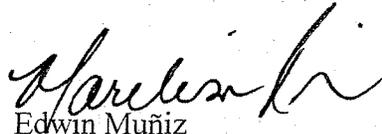
Based on the information provided we have the following comments and recommendations:

- 1) This site is located within mangrove wetlands. The document states that the area is incapable of supporting fish, so piscivorous birds were excluded from the risk assessment. Birds like night herons, and other large birds of the heron and egret family eat fiddler crabs. Birds like the American egret and cattle egret consume lizards and insects. Since the site boundary extends to the sea, and since the egret and heron family have a varied diet we recommend that this guild be included in the BERA. We recommend species like the green heron, night heron and American egret, included in the BERA especially since lead and mercury were found in the fiddler crabs in Section No. 3 of the site.
- 2) Comments regarding the Antillean manatee are the same as for SWMU 1.
- 3) The possible interim corrective measure would be soil removal, depending on further sampling the area could remain as open water. This would attract more wildlife into the area, and needs to be considered.

- 4) As part of the disposition of Navy lands, the Navy concluded Section 7 consultation under the Endangered Species Act with the Service. As part of that consultation, conservation recommendations were made regarding the cutting of vegetation and preservation of habitat. The conservation recommendations must be incorporated into all the RCRA actions for the Former Roosevelt Roads Naval Station.
- 5) Trees over 3 inch diameter must be left standing, unless they interfere with the remedial action.
- 6) Mangroves trees must not be cut at the trunk; clear of low lying limbs is allowed.

As always we are willing to work with the Navy and its consultants regarding this site. Thank you for the opportunity to comment on this project, if you have any questions please contact Felix Lopez of my staff at 787 851 7297 x226.

Sincerely,


Edwin Muñiz
Field Supervisor

fhl

cc:

DNER, San Juan

EPA, San Juan

Wilmarie Rivera, EQB, San Juan

Tim Gordon, RCRA, EPA, New York

David Chriswell, USN, Norfolk

Mark Kines, Baker, Pennsylvania

ENCL. #5

**TECHNICAL REVIEW OF THE
DRAFT PHASE I INTERIM CORRECTIVE MEASURES WORK PLAN FOR
SWMUs 1 AND 2**

NOVEMBER 19, 2009

**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.
The Wannalancit Mills
175 Cabot Street, Suite 415
Lowell, MA 01854**

EPA Task Order No.:	002
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Telephone No.:	212-637-4167

January 8, 2010

**TECHNICAL REVIEW OF THE
DRAFT PHASE I INTERIM CORRECTIVE MEASURES WORK PLAN FOR
SWMUs 1 AND 2**

NOVEMBER 19, 2009

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

The following comments were generated based on a technical review of the *Draft Phase I Interim Corrective Measures Work Plan for SWMUs 1 and 2*, Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico, dated November 19, 2009 (Draft ICM WP).

GENERAL COMMENTS

1. It is not clear how the purpose of the Draft ICM WP will be met by the proposed sampling. Based on Section 1.0 (Introduction), the purpose of the Draft ICM WP is to delineate the extent of surface soil contamination by performing soil sampling and analysis at SWMUs 1 and 2 as well as to reduce the risk of environmental contamination by removing surface debris at SWMU 1. However, the substantiation of the previously detected exceedances identified on Figures 1-3 (Surface Soil Delineation Sampling Locations for SWMU 1) or 1-4 (Surface Soil Delineation Sampling Locations for SWMU 2) have not been provided in the Draft ICM WP. As a result, substantiation for the proposed surface soil delineation samples has not been presented. In addition, it is not clear how the extent of the presented surface debris piles was determined as data demonstrating that these areas have been sufficiently characterized and/or delineated were also not presented in the Draft ICM WP. For example, it does not appear that the debris pile southwest of surface soil location 1SS11 on Figure 1-3 has been sufficiently characterized to the east, southeast, south, southwest, west, northwest, or north. Similarly, the surface debris pile located east of surface soil location 1SS13 has not been characterized to the northeast, east, southeast, or south. Similar scenarios exist at other surface debris piles. Revise the Draft ICM WP to clarify how the proposed sampling meets the purpose discussed in Section 1.0. In addition, revise the Draft ICM WP to include characterization and delineation of the areas surrounding the surface debris piles. Also provide the criteria for determining that success has been achieved for removal of the surface debris in the absence of characterization data. In addition, revise the Draft ICM WP to substantiate the determination of the locations of previous exceedances presented on Figures 1-3 and 1-4.
2. Technical specifications have not been provided in the Draft ICM WP. As a result, the standard operating procedures (SOPs), drawings, and specifications for project activities (e.g., site preparation, site surveying, surface soil delineation sampling, surface debris removal procedures, dust control, erosion control, and equipment decontamination) have not been provided. Revise the Draft ICM WP to include technical specifications and drawings so that the SOPs can be reviewed to ensure that the proposed activities are designed to be

ecologically protective and that they will be implemented in an ecologically protective manner.

3. The remediation goals for SWMUs 1 and 2 have not been provided. As such, it is not clear what criteria will be used to determine the extent of surface soil contamination. For example, Section 7.1 (Constructions Completion Report) states that information demonstrating that the approval plans were implemented and that the cleanup criteria have been met will be submitted in the completion report. However, without defined remediation goals and/or criteria, it is not clear how the completion report will be capable of demonstrating that the approval plans were implemented and that cleanup criteria were met. Revise the Draft ICM WP to clarify the criteria that will be utilized to assess the data collected in support of the determination of the extent of surface soil contamination at SWMUs 1 and 2. In addition, clarify the assessment and/or screening procedures that will be utilized to demonstrate that the approval plans were implemented and that the cleanup criteria were met.
4. It is not clear what action(s) will be taken should the surface soil delineation samples indicate that the extent of contamination exists and/or extends beyond the current sampling configuration. For example, it is not clear if additional surface soil delineation samples will be proposed. Revise the Draft ICM WP to clarify what actions will be taken should the surface soil delineation samples indicate that contamination exists and/or remains beyond the limits of the currently proposed sampling activities.

SPECIFIC COMMENTS

1. **Section 1.2.2, SWMU 1 – Army Cremator Disposal Site, Pages 1-2 to 1-3:** Details regarding the estuarine wetland and open water habitat have not been provided in the Draft ICM WP. As such, it is not clear how these areas will be identified, avoided, and protected during construction activities. Revise the Draft ICM WP to clarify how the estuarine wetland, and open water habitat, will be identified, avoided, and protected during construction activities at SWMU 1.
2. **Section 3.5, Decontamination Procedures, Page 3-1:** It is not clear why the *Final Steps 3b and 4 Baseline Environmental Risk Assessment (BERA) for SWMUs 1 & 2*, NAPR, Ceiba, Puerto Rico, dated January 2007 (2007 BERA) is referenced as the source of the decontamination procedures. However, treatment and disposal procedures for the decontamination of equipment and solutions have not been presented in the 2007 BERA. As a result, the reference to the 2007 BERA does not appear appropriate. Revise the Draft ICM WP to include technical specifications and SOPs for decontamination procedures.
3. **Section 4.1, Mobilization and Site Preparation, Page 4-1:** According to the text, “Site preparation will include verifying utility locations, installing erosion controls, clearing and grubbing (where required), constructing laydown and staging areas, establishing access routes for equipment and transport vehicles, and delineating work areas.” However, technical specifications, drawings, and SOPs have not been provided for these activities. As such, the Draft ICM WP does not provide the level of detail required of a functional work plan. Revise the Draft ICM WP to include technical specifications, drawings, and SOPs for the site

activities associated with mobilization and site preparation, such as those listed in Section 6.5.3 (Site Preparation).

4. **Section 4.3, Surface Soil Delineation Sampling, Page 4-1:** Section 4.3 implies that samples will be taken from zero to one foot below ground surface (bgs) and one to two feet bgs at all sampling locations within SWMU 2. The text states that, “[a]s indicated in Table 4-1, surface soil samples at SWMU 1 will be taken to a depth of 0-1 ft bgs; at SWMU 2, samples will be taken at 0-1 ft bgs, and 1-2 ft bgs (see Table 4-2).” However, according to Table 4-2 (SWMU 2 Pre-Excavation Delineation Sampling Matrix), subsurface sampling will not be collected at 2SS02, 2SS10, 2SS11, or 2SS14 (which is consistent with the 2007 BERA). Revise Section 4.3 and Table 4-2 to resolve this discrepancy.
5. **Section 4.4, Surface Debris Removal Procedures, Page 4-1:** Section 4.4 states that, “[d]uring debris removal, good engineering practices and appropriate measures will be implemented to control both contaminant releases and general exposure to workers.” However, details regarding these “good engineering practices and appropriate measures” have not been discussed in the Draft ICM WP. Revise the Draft ICM WP to clearly define the engineering practices and appropriate measures that will be implemented during debris removal to control both contaminant releases and general exposure to workers.
6. **Section 4.4, Surface Debris Removal Procedures, Page 4-1:** Erosion prevention measures have not been discussed in the Draft ICM WP. According to Section 4.4, Right Way Environmental Contractors, Inc. (RWEC) will not restore or replace trees that are damaged or removed for site access, or that are damaged as a result of remediation activities. As a result, it is not clear how erosion will be prevented due to the removal of trees and vegetation at the sites. It should be noted that the only references to site re-vegetation and/or erosion control are presented in Section 6.5.3 (Site Preparation) and Appendix D (Project Schedule). Section 6.5.3 states that, necessary erosion controls will be constructed and Appendix D includes a line item for site re-vegetation. Revise the Draft ICM WP to include details regarding erosion prevention measures and site re-vegetation efforts to reduce potential erosion at the sites.
7. **Section 5.1, Protection of Features, Page 5-1:** It is not clear whether trees outside of the authorized removal areas will be restored. The second paragraph of Section 5.1 states that, “[a]ny tree scarred or damaged by RWEC’s operations outside of authorized removal areas will be restored as much as possible to its original condition.” However, the paragraph also states that, “[t]rees that are damaged and/or removed as part of clearing for access or remediation activities will not be replaced.” As a result, it is not clear if trees will be restored or not. Revise the Draft ICM WP to clarify whether trees outside of the authorized removal areas will be restored.
8. **Section 5.1, Protection of Features, Page 5-1:** According to Section 5.1, “[a]ll streams, waterways, and storm drainage systems will be protected from damage and from sedimentation.” However, the measures to be utilized to protect against damage and sedimentation have not been identified or discussed in the Draft ICM WP. Revise the Draft ICM WP to provide details regarding how streams, waterways, and storm drainage systems

will be protected from damage and from sedimentation.

9. **Section 5.2, Traffic Plans, Page 5-1: Details regarding** the coordination between RWEC, the Navy Technical Representative (NTR), and the Public Works Point of Contact (POC) to determine an appropriate haul route for equipment and/or material deliveries, as well as transport of wastes off site, has not been included in Appendix D (Project Schedule). As a result, it is not clear when this coordination will occur, how long it will take, and how it will impact the project schedule. Revise Section 5.2 and Appendix D to provide details regarding when traffic planning will occur, how long it will take, and how it will impact the project schedule.
10. **Section 5.4, Dust Control Plan, Page 5-3:** It does not appear that dust monitoring at the perimeter of SWMUs 1 and 2 has been proposed. As a result, it is not clear how dust will be monitored and ultimately prevented from migrating beyond the construction limits. Revise the Draft ICM WP to include the use of dust monitoring equipment to monitor the perimeter of SWMUs 1 and 2 to prevent the migration of dust beyond the construction and SWMU 1 and 2 limits.
11. **Section 6.8.2, Requirements, Page 6-8:** It is not clear why the individual inspections, tests, and observations referenced in Section 6.8.2 have not been included on a schedule and/or timetable. Section 6.8.2 states that, “[i]ndividual inspections, tests, and observations will be scheduled at predetermined points in the project.” However, these predetermined points have not been provided or discussed. Revise the Draft ICM WP to include a schedule and/or timetable for these predetermined points.



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD

ENCL. # 6

Environmental Emergencies Response Area

January 20, 2010

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

**RE: TECHNICAL REVIEW DRAFT PHASE I INTERIM
CORRECTIVE MEASURES WORK PLAN
FOR SWMU'S 1 & 2 NAVAL ACTIVITY PUERTO RICO
PR2170027203**

Dear Mr. Gordon:

The Hazardous Wastes Permits Division (HWPD) of the Land Pollution Control Area and the Federal Facility Coordinator (FFC) has finished the review of the above-mentioned document.

Joint comments of the HWPD and the office of the EQB's Federal Facility Coordinator are being forwarded to EPA and the facility to avoid duplicity. If you have any additional comments or questions please feel to contact Gloria M. Toro Agrait at (787) 767-8181 ext 3586 or myself at extension 6141.

Cordially,

Wilmarie Rivera
Federal Facility Coordinator
Environmental Emergencies Response Area

cc: Ariel Iglesias Portalatín, USEPA, CEPD
Gloria M. Toro Agrait, Environmental Permits Officer

**Technical Review of the Draft Phase I Interim Corrective Measures
Work Plan for SWMUs 1 and 2, Naval Activity Puerto Rico, Ceiba,
Puerto Rico - EPA I.D. No. PR2170027203,**

I. GENERAL COMMENTS

1. Please provide a reference in the text to the Quality Assurance Project Plan (QAPP) that provides the quality assurance (QA) and quality control (QC) for this program. Specifically, the required analytical methods, reporting limits versus cleanup criteria, field QC sample frequency and acceptance criteria, laboratory QC sample frequency and acceptance criteria, data validation requirements, the name of the laboratory performing the work, etc. were not provided. It appears that *Final Steps 3B and 4 of the Baseline Ecological Risk Assessment at SWMUs 1 and 2* (January 2007) are referenced for sampling methods. The analytical methods cited in Table 5-4 of this same document need to be used for this program and referenced in the QAPP.
2. The text document must be revised in order to be specifically address toward sampling and debris removal activities. Since the document creates the impression to be a construction work plan.

II. PAGE-SPECIFIC COMMENTS

1. Section 1: Please include a brief summary of the rationale for only collecting soil samples at shallow depths within SWMUs 1 and 2. This information is needed to support the scope of this interim measure.
2. Page 1-2, Section 1.2.2, Paragraph 1: In order to support the rationale for actual sampling and analysis activities, please briefly summarize in the text of this section which analyses the previously-collected soil samples were subjected to that resulted in the identification of the presence of the select metals and pesticides currently listed.
3. Page 2-3, Section 2.5.3: According with the text the Quality Control System Manager's (QCSM) duties implementation will be delegated to the Quality Control Officer. The individual responsible to act as Quality Control System Manager is the same individual responsible for being the Site Superintendent (according to Section 2.5.5). Based on the responsibilities of the Quality Control System Manager, this individual needs to be someone who works independent of the project and has overall authority on quality control and therefore cannot be the same person who works day-to-day with the project manager in the field. Please update accordingly.

4. Page 2-3, Section 2.5.3 and Page 2-4, Section 2.5.7: A QC Officer is referenced in these sections as well as other sections later in the document. However, a description of the position as well as the name of the individual responsible for this position needs to be provided. It is the reviewer impression that the document identified the Site Superintendent to be responsible to manage, among others, quality aspects of the project implementation. Please clarify.
5. Page 3-2, Section 3.5.1, Paragraph 1: Please include steps to contain the dry decontamination process, such carrying out the process on plastic sheeting to ensure that potentially impacted soil will not be allowed to contact the surface below the equipment. It is also inferred that only heavy equipment is suitable to dry decontamination procedures, please clarify and clearly state in the text.
6. Pages 3-2 and 3-3, Section 3.5.2:
 - a. Please clarify or provide examples of the equipment on which the decontamination procedure on page 3-2 would be used versus the equipment on which the decontamination procedure on page 3-3 would be used. The procedure on page 3-2 should be used for reusable sampling equipment as well such as hand augers, stainless steel spoons, etc.
 - b. It is unclear what the following statement means: "To the greatest extent possible, sampling equipment will not be field decontaminated." Please clarify which equipment will be decontaminated and provide the procedure planned for use.
7. Page 3-2, Section 3.5.2, Bullet 4
 - a. Sub-bullets 1 and 3: Please indicate, in addition to noting that the potable water rinses will be changed frequently, that it will be containerized appropriately for subsequent sampling and determination of the appropriate means of disposal. This comment also applies to the subsequent discussion of the field decontamination of reusable equipment and personal protective equipment.
 - b. Sub-bullet 5: It is unlikely that evidence of high metals concentrations will be visible. Therefore, please incorporate the nitric acid rinse into the decontamination procedure to account for this.
8. Page 3-3, Section 3.6, Last Sentence: The project schedule presented at Appendix D does not considered a time frame for permit to be obtained from the Puerto Rico Environmental Quality Board (PREQB). It is likely that a General Permit will be required by PREQB for Erosion Control and Non Hazardous Waste Generation Activity.
9. Page 4-1, Section 4.2, Paragraph 1: This section indicates in general terms that a surveyor will be subcontracted as necessary. Please indicate specifically that the proposed sampling locations and debris removal areas will be surveyed. Also, please clarify if the surveyors will return to the site to re-survey any sampling

locations that may have had to be moved due to refusal or other obstructions and if the debris removal areas expand beyond their initial proposed limits.

10. Page 4-1, Section 4.3, Paragraph 1: Although direct inclusion, at the ICM Work Plan, of soil sampling collection procedures is recommended. As the procedures for the collection of the soil samples are not provided herein but rather, by reference, please provide a copy of the Final Step 3b and 4 BERA (Baker, 2007) to field personnel for review prior to the initiation of field operations to ensure that the appropriate procedures are followed.
11. Page 5-2, Section 5.3.2: Please include in this section (or in the Site Specific Safety and Health Plan) the reportable quantities of the possible substance that can cause a spill on site for personnel reference.
12. Page 6-3, Section 6.3, Second Paragraph: The text specified that "The QC Officer will closely monitor the actual field testing, verifying proper procedure technique, sample handling, chain of custody, if required.". It is not clear what is meant by this statement. Please revise to clearly state what should or could be required from the QC Officer since proper procedures, sampling handling and chain of custody use is in fact required as part of the activities.
13. Page 6-3, Section 6.4: Please include within this section the procedures for changes that could affect the work plan. If they are to be pre-authorized by or discussed with the Quality Officer.
14. Page 6-7, Section 6.6.4: Please discuss what quality objectives will define unacceptable work.
15. Page 7-1, Section 7.1:
 - a. 4th bullet: Please clarify what the cleanup criteria are for this program.
 - b. 6th bullet: Please clarify what the data validation requirements are for this program.
16. Table 4-1: Based on the table, there are 126 surface soil samples being collected at SWMU 1. There are 12 field duplicates planned for collection. If the typical field duplicate frequency of one per 10 samples is being used, one additional sample should be designated as a field duplicate.
17. Table 4-2:
 - a. Based on the table, there are 158 soil samples being collected at SWMU 2. There are 15 field duplicates planned for collection. If the typical field duplicate frequency of one per 10 samples is being used, one additional sample should be designated as a field duplicate.
 - b. Please clarify why soil samples at SWMU 2 are being analyzed for the same list of constituents as SWMU 1. According to Section 1.2.3, the only constituents of concern at SWMU 2 are antimony, copper, lead, and mercury.

Therefore, it is unclear why cadmium, tin, zinc, DDD, DDE, and DDT were also included. Analysis of the samples for the four metals would also be consistent with what was performed for surface soil at SWMU 2 during the baseline ecological risk assessment field investigation.

18. Figure 1-4:

- a. This figure indicates that only select locations will be subjected to sampling at both the 0-1 ftbg and 1-2 ftbg intervals. Three of the previous soil sampling locations around which additional sampling is proposed to take place (2SS10, 2SS11 and 2SS14) are locations at which only surface soils were collected in 2004. As there does not appear to be data at these three locations to indicate whether there are subsurface impacts, please collect subsurface soil samples in these three areas to delineate potential impacts.

19. Appendix A, Organizational Chart:

- i. The personnel listed in the project organization chart do not agree with Section 2 of the Work Plan as follows.
 - i. Quality Control System Manager is listed in Section 2 but not included in the Chart.
 - ii. There appears to be a typo in the name of the Safety and Health Officer, revise if it is Felix Gonzalez or Felix Gonzolez.
 - iii. The chart lists Alejandro Rodríguez as Quality Control Manager and Felix Gonzolez as Safety and Health Manager. Meanwhile, Section 2.5.5 appoints Luiz Ríos as responsible of managing all aspects pf project implementation including quality and safety, among others.
- ii. Revise the organizational chart to ensure that all positions described in Section 2 of this document, including the QC Officer, are included and that Section 2 correctly and clearly describes the responsibilities of each personnel.

20. Appendix B, Site Specific Safety and Health Plan:

- i. Section 3.2 of this safety and health plan lists the Key Personnel which does not agree with Table 9.3 of this safety and health plan, Section 2 of the Work Plan or Appendix A of the Work Plan, the organizational chart. Please update all sections to be consistent.
- ii. Section 8.1 of this safety and health plan incorrectly refers to SWMU 68. Please correct.



United States Department of the Interior



FISH AND WILDLIFE SERVICE

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Carr. 301, KM 5.1, Bo. Corozo
P.O. Box 491
Boqueron, PR 00622

DEC 10 2009

Mr Adolf Everett
Chief, RCRA Program Branch
US EPA Region 2
290 Broadway
New York, NY 10007

Re: PR2170027203, Naval Activity PR (Former
Roosevelt Roads) Draft Phase I Interim Corrective
Measures SWMU 1 & 2, Ceiba, Puerto Rico

Dear Mr. Everett:

This is in reply to the November 19, 2009, Draft Phase I Interim Corrective Measures for SWMU 1 and SWMU 2. Our comments are provided as technical assistance in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the Endangered Species Act (16 U.S.C. 1531 et seq. as amended).

Based on the information provided we have the following comments and recommendations:

- 1) Both of these sites are located within mangrove wetlands. The enclosed figures do not adequately show the wetland limits in relation to the work being proposed. The removal of the debris piles, while beneficial could impact the wetlands if temporary roads or fill needs to be placed to access them.
- 2) Surface soil samples areas should also be accessed on foot. Surface soil samples should be taken by hand auger or similar hand held instrument.
- 3) Any wetland vegetation impacted by the action must be replaced as soon as the work is completed.
- 4) Trees over 3 inch diameter must be left standing.
- 5) Mangroves trees must not be cut at the trunk; clear of low lying limbs is allowed.

Mr. Evertt

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As always we are willing to work with the Navy and its consultants regarding this site. Thank you for the opportunity to comment on this project, if you have any questions please contact Felix Lopez of my staff at 787 851 7297 x226.

Sincerely,


for Edwin Muñiz
Field Supervisor

fhl

cc:

DNER, San Juan

EPA, San Juan

Wilmarie Rivera, EQB, San Juan

Tim Gordon, RCRA, EPA, New York

David Chriswell, USN, Norfolk

Mark Kines, Baker, Pennsylvania

ENCL. # 8

**TECHNICAL REVIEW OF THE
DRAFT BASIS OF DESIGN REPORT FOR CORRECTIVE MEASURES
IMPLEMENTATION – SWMU 68;
THE TECHNICAL SPECIFICATION FOR CORRECTIVE MEASURES
IMPLEMENTATION – SWMU 68; AND
THE DRAFT CORRECTIVE MEASURES IMPLEMENTATION WORK PLAN – SWMU
68**

NOVEMBER 19, 2009

**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.
The Wannalancit Mill
175 Cabot Street, Suite 415
Lowell, MA 01854**

EPA Task Order No.:	002
Contract No.:	EP-W-07-018
TechLaw TOM:	Anthony Scacifero
Telephone No.:	212-695-3600 x2
EPA TOPO:	Timothy Gordon
Telephone No.:	212-637-4167

January 6, 2010

**TECHNICAL REVIEW OF THE
DRAFT BASIS OF DESIGN REPORT FOR CORRECTIVE MEASURES
IMPLEMENTATION – SWMU 68;
THE TECHNICAL SPECIFICATION FOR CORRECTIVE MEASURES
IMPLEMENTATION – SWMU 68; AND
THE DRAFT CORRECTIVE MEASURES IMPLEMENTATION WORK PLAN – SWMU
68**

NOVEMBER 19, 2009

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

The following comments were generated based on a review of the *Draft Basis of Design Report for Corrective Measures Implementation – SWMU 68*, Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico, dated November 19, 2009 (Draft Basis); the *Technical Specifications for Corrective Measures Implementation – SWMU 68*, NAPR, Ceiba, Puerto Rico, dated November 19, 2009 (Draft TS); and the *Draft Corrective Measures Implementation Work Plan – SWMU 68*, NAPR, Ceiba, Puerto Rico, dated November 19, 2009 (Draft CMI WP). All of the documents are part of the Draft Corrective Measures Implementation Design Package and Work Plan for SWMU 68, dated November 19, 2009 (Draft CMI Design Package).

GENERAL COMMENTS

1. It is unclear if any project planning meetings have taken place in preparation for this CMI. Clarify if meetings have occurred and revise the CMI Design Package to include pertinent information (i.e., action items and agreements) from any project planning meetings related to this CMI.
2. It is unclear from the Draft Basis whether the corrective action objectives (CAOs) for surface soil at SWMU 68 were approved by the regulatory stakeholders. According to Section 2.4 (Remediation Levels) of the Draft Basis, the CAOs were developed in the *Final Corrective Measures Study Report – SWMU 68*, NAPR, Ceiba, Puerto Rico, dated March 2009 (CMS). However, it is unclear if the CMS and CAOs presented in the document were approved by the regulatory stakeholders. Revise the Draft Basis to clarify whether the CAO values presented in the CMS, were approved by the regulatory stakeholders. In addition, revise the Draft Basis to clarify how these CAOs are protective to risk receptors.
3. The number of confirmation samples to be collected in the drainage feature located southeast of sample location 14E-01 has not been provided in the Draft Basis. According to Section 4.3 (Ditch Confirmation Sampling and Wetlands Delineation) of the Draft CMI WP, a minimum of two samples will be taken from the ditch. As such, it is unclear if the extent of contamination will be sufficiently delineated by the proposed confirmation sampling. Revise the Draft Basis and Figure 2-2 (Conceptual Design Plan) of the Draft Basis to provide the locations of confirmation samples to be collected in the drainage feature located southeast of

sample location 14E-01. In addition, revise the Draft Basis to clarify how these confirmation sampling locations are appropriate to sufficiently delineate the extent of contamination in the drainage feature.

4. It is unclear if the frequency of confirmation sampling outside the outer edge of the excavation is appropriate to delineate the extent of contamination. According to Section 3.2 (Description of the Proposed Removal Actions) of the Draft Basis, confirmation sampling will be conducted outside the outer edge of the excavation, in undisturbed soil, every 25 feet at a depth of 0-2 feet below the ground surface (bgs). However, based on Figure 2-2 (Conceptual Design Plan) of the Draft Basis, no confirmation samples have been proposed outside the outer edge of the excavation at sample location 14E-01 (i.e., Area 1) or sample location 14E-03 (i.e., Area 2). Based on the dimensions of Area 1 (50 feet by 100 feet) and Area 2 (50 feet by 50 feet), 12 confirmation samples should be collected from Area 1 and eight confirmation samples should be collected from Area 2. It should be noted that Section 3.2.1 (SWMU 68) of the Draft CMI WP indicates that 12 confirmation samples are estimated to be collected from Area 1 and eight confirmation samples are estimated to be collected from Area 2. Revise the Draft Basis to clarify how the proposed frequency of confirmation sampling outside the outer edge of the excavation is appropriate to delineate the extent of contamination. In addition, revise the Draft Basis to present consistent information regarding the frequency of confirmation sampling.
5. Details regarding the delineation of the wetlands in the vicinity of the proposed excavations have not been provided in the Draft Basis. Delineation of the wetlands is only briefly referenced in Section 4.3 (Ditch Confirmation Sampling and Wetlands Delineation) of the Draft CMI WP. As such, it is unclear how the wetland areas will not be disturbed during construction activities, especially if wetlands are identified within the proposed limits of excavation. Revise the Draft Basis to provide details regarding the delineation of the wetlands in the vicinity of the proposed excavations. In addition, revise the Draft Basis and Draft CMI WP to provide specifications for how disturbing the wetlands during construction activities will be prevented.
6. According to Section 3.2 (Description of the Proposed Removal Actions) of the Draft Basis, “[c]onfirmation sampling of the bottom of the excavation in areas approximately 25 ft by 25 ft in extent, where possible. In addition, confirmation sampling will occur along the bottom of the excavation in areas of known uncertainty.” It is unclear why sampling along the bottom of the excavation would not be possible. Furthermore, it is unclear how the areas of uncertainty will be known without prior confirmation sampling. Revise the Draft Basis to clarify why sampling along the bottom of the excavation would not be possible. Furthermore, revise the Draft Basis to include sufficient confirmation sampling to confirm all contaminated soils are removed from the excavations. Lastly, if known areas of “uncertainty” exist, they should be reflected on figures within the Draft Basis. Revise the construction drawings to indicate any known areas of “uncertainty.”
7. It is unclear if excavated soils will be stored in roll-off boxes, super-sacs or on tarps. Based on Section 3.2 (Description of the Proposed Removal Actions) of the Draft Basis, excavated soil will be transported to lined roll-off boxes or super-sacs. However, Section 3.3

(Preliminary Design Criteria and Rationale) of the Draft Basis states that contaminated surface soil will be placed on tarps while awaiting analysis of data identifying the ultimate disposal location. Similarly, Section 1.3 (Project Statement of Work) of the Draft CMI WP states that hazardous soils will be stored in appropriate Navy- and EPA-approved waste storage containers with adequate cover and drainage while non-hazardous soils will be stored on a lined and bermed soil staging area. As such, it is unclear how excavated soil will be temporarily stored while awaiting analysis of data identifying the ultimate disposal location. Revise the Draft Basis to clarify how excavated soil will be temporarily stored while awaiting analysis of data identifying the ultimate disposal location. In addition, clarify how soil will be stockpiled while awaiting disposal and whether confirmation samples will be collected at the staging areas to ensure recontamination of soil does not occur. Also, clarify the erosion control measures that will be implemented to prevent erosion of the stockpiles.

8. The depth to groundwater is identified as approximately 0.30 feet to 17.40 feet below pre-excavation ground surface in Part 1.5 (Description of Work) of Section 02 61 13 (Excavation and Handling of Contaminated Material) of the Draft TS. The depth to groundwater is not identified in the Draft Basis or Draft CMI WP. As such, it is unclear if the depth to groundwater is accurate. Thus, it is unclear if the potential exists for groundwater infiltration into the excavations, which would require dewatering. While Section 4.4 (Surface Water Collection and Control) of the Draft Basis discusses the evacuation of water from the excavation area, the Draft TS and Draft CMI WP do not. Revise all three documents to include a discussion regarding the depth to groundwater and the potential for groundwater infiltration into the excavations. In addition, revise the Draft TS and Draft CMI WP to include technical specifications for excavation dewatering, liquid containerization, sampling, analysis and disposal.
9. It is unclear if expanded excavation of contaminated soils will occur if bottom confirmation samples indicate contamination still exists. Based on Section 4.4 (Excavation Procedures) of the Draft CMI WP, no additional vertical excavation will be conducted beyond a depth of two feet bgs. As such, it is unclear how leaving the contamination in place will eliminate the future possibility of contaminants migrating to groundwater, surface water, and sediment. Revise the documents to clarify whether vertical excavation of contaminated soil will occur beyond a depth of two feet bgs. If appropriate, revise the documents to clarify what criteria must be met to excavate beyond a depth of two feet bgs.
10. It is unclear why several tasks have not been included in Appendix A (Construction Schedule) of the Draft Basis. For example:
 - a. Wetland delineation. Section 2.3 (Current Site Conditions) of the Draft Basis states that, “[t]he wetlands should be delineated in the field prior to excavation activities.”
 - b. Approval of field-stake locations. Figure T-1 (Corrective Measures Implementation Remedial Design for Soil Remediation) of the Draft Basis states that, “[f]ield-stake the location of all areas to be disturbed prior to actual work. These locations shall be reviewed by the ROICC prior to clearing, grubbing, and excavation activities.”

Revise Appendix A to include all tasks associated with the excavation of contaminated soils at SWMU 68.

11. The Draft CMI Design Package is missing many quality assurance (QA) related components. For example:

- No project-specific data quality objectives (DQOs) were established for this CMI and no goals for data quality indicators (DQIs) were defined. For example, the purpose of the ditch confirmation sampling is unclear. Revise the Draft SAP to establish DQOs and goals for the DQIs precision, accuracy, representativeness, comparability, completeness, and sensitivity (PARCCS). Explain if and how the results of the ditch confirmation sampling will be used to modify the extent of excavation.
- No discussion of quality control (QC) samples has been included (e.g., field duplicates, equipment blanks, matrix spikes, etc.). Revise the Draft sampling and analysis (SAP) to specify the QC samples to be analyzed and the frequency and acceptable control limits.
- No laboratory-specific information has been included in the Draft SAP to allow for review and approval. Revise the Draft SAP to include the name of the laboratory that will be used to analyze samples for copper, lead, and zinc. Also include appropriate laboratory standard operating procedures (SOPs) or quality assurance (QA) plan that will document the analytical procedures, reporting limits (RLs), and QC limits.

The CMI Design Package should be revised to include the QA components listed above or references should be provided as to where this information can be found. If the referenced documents do not include current information applicable to this project, provide the updated information in the CMI Design Package.

12. The Draft SAP does not provide a specific method for sample collection. Also, it is unclear what tools will be used, what kind of samples will be collected for each area (e.g., grab or composite), and how the samples will be homogenized. Revise the Draft SAP to clarify the sample collection procedure or include applicable field SOPs in an appendix.
13. It is unclear from information presented in the Draft SAP if any confirmation samples will be collected from the floor of the excavation area. Only sampling of the sidewalls is discussed. Further, the proposed sampling locations are not presented on any of the figures. Revise the Draft SAP to clarify if confirmation samples will be collected from the floor of the excavation area and include all proposed sampling locations on one figure. In addition, ensure that the information provided in the SAP is also consistent with the remaining components of the CMI Design Package.
14. The source of backfill material has not been specified. Also, it is unclear why the backfill material will only be analyzed for copper, lead, and zinc. Revise the Draft CMI WP to clarify this point or include more comprehensive testing for the backfill material.
15. It is unclear from the Construction Schedule presented in Appendix A of the Draft Basis and

the Project Schedule in Appendix F of the Draft CMI WP which tasks have been completed and which are outstanding. Further, it is unclear when the project is expected to begin (i.e., there is no indication what month correlates to Month 1). Revise all schedules presented in the Draft CMI Design Package to indicate when the project is expected to begin and indicate which tasks if any have already been completed.

16. Several inconsistencies exist between information presented in the Draft Basis, Draft TS, and Draft CMI WP. For example:

- a. Part 1.5 (Description of Work) of Section 02 61 13 (Excavation and Handling of Contaminated Material) of the Draft TS states that the work shall consist of excavation and temporary storage of approximately 3,000 cubic yards of contaminated material. However, calculations in Appendix B (Supporting Calculations) of the Draft Basis imply that the total volume to be removed is 555 cubic yards. Similarly, Section 4.4 (Excavation Procedures) of the Draft CMI WP states that 555 cubic yards will be excavated from SWMU 68.
- b. Part 2.1 (Backfill) of Section 02 61 13 of the Draft TS states that, “[b]ackfill material shall be tested for the parameters listed below at a frequency of once per 3000 cubic yards.” However, Section 4.2.2 (Soil Sampling) of the Draft Basis states that, “[a]s outlined in the project specifications, any off-site borrow material to be used as backfill will be sampled (by the contractor) at a frequency of one sample for every 500 cy of potentially clean/borrow material.”
- c. Part 3.4 (Confirmation Sampling and Analysis) of Section 02 61 13 of the Draft TS states that, “[s]amples shall be collected at a frequency of one sample every 25 lineal feet from the bottom and each of the side walls or as directed by the Contracting Officer. A minimum of one sample shall be collected from the bottom and each side wall of the excavation.” However, Section 3.2 (Description of the Proposed Removal Actions) of the Draft Basis states that, “[c]onfirmation sampling of the bottom of the excavation in areas approximately 25 ft by 25 ft in extent, where possible. In addition, confirmation sampling will occur along the bottom of the excavation in areas of known uncertainty.” In addition, Section 3.2.1 (SWMU 68) of the Draft CMI WP states that, “[Right Way Environmental Contractors, Inc.] RWEC will collect confirmation samples from the sidewall at a frequency of one sample per 25 lineal ft of sidewall to confirm removal of copper, lead, and zinc impacted soil to levels below the CAOs.”

Revise the CMI Design Package to ensure the technical specifications are applicable to SWMU 68 and are consistent throughout the three documents.

SPECIFIC COMMENTS

DRAFT BASIS

1. **Section 3.2, Description of the Proposed Removal Actions, Page 3-2:** Details regarding the collection, analysis and disposal of water from roll-off boxes has not been provided in the Draft Basis. As such, it is unclear if the water will be appropriately handled. Revise the Draft Basis to provide details regarding the collection, analysis and disposal of water from roll-off boxes.
2. **Section 3.4, General Operations and Maintenance Requirements, Page 3-3:** The text states that, “[p]eriodic visual inspections should be conducted to verify that the top soil cover is not eroding and the vegetation is growing.” Revise the Draft Basis to ensure periodic visual inspections are conducted during the initial weeks following seeding to verify that seeds have germinated and are becoming established.
3. **Section 4.1, Preparatory Work, Page 4-1:** It is unclear whether the pre-construction submittals listed in Section 4.1 will be submitted to EPA for review and approval. Revise the Draft Basis to ensure the pre-construction submittals listed in Section 4.1 are submitted to EPA for review and approval.
4. **Section 4.2, Monitoring, Sampling, Testing, and Analysis, Page 4-1:** The text states that, “[t]he Contractor will be required to submit to [Base Realignment and Closure] BRAC [Program Management Office] PMO [Southeast] SE, for approval, a Sampling and Analysis Plan (SAP) describing the Contractor’s sampling, analytical, and quality control procedures for the chemical data collected during the performance of work required by the specifications.” It is unclear if the SAP will be submitted to EPA for review and approval. Revise the Draft Basis to clarify that a copy of the Contractor’s SAP will be submitted to EPA for review and approval.
5. **Section 4.2.2, Soil Sampling, Page 4-2:** It is unclear if one or two confirmation samples will be collected from the off-site borrow material to be used as backfill. In addition, it is unclear if one or two samples will be representative and sufficiently certify that the soil is clean. Section 4.2.2 states that one sample will be collected for every 500 cubic yards of potentially clean/borrow material. Based on calculations in Appendix B (Supporting Calculations) of the Draft Basis and Section 4.4 (Excavation Procedures) of the Draft CMI WP, 555 cubic yards will be excavated from SWMU 68. As such, it is unclear if one or two confirmation samples will be collected. Revise the documents to clarify whether one or two confirmation samples will be collected. In addition, revise the document to discuss how one or two confirmation samples will be representative and sufficiently certify that the soil is clean.

6. **Section 4.4, Surface Water Collection and Control, Page 4-3:** It is unclear what devices and facilities will be utilized to prevent surface water from contacting contaminated materials during construction/excavation activities. Section 4.4 states, “[t]he Contractor will be required to provide devices and facilities as necessary to prevent surface water from contacting contaminated materials (e.g., contaminated equipment, excavated soils, exposed debris/contaminated soils within the excavation) throughout the course of all construction activities.” Revise the Draft Basis to clarify what devices and facilities will be utilized to prevent surface water from contacting contaminated materials during construction/excavation activities.

DRAFT TS

7. **Section 01 57 19.00 20 (Temporary Environmental Controls), Part 1.3 (Submittals), Page 6:** It is unclear why the dirt and dust control plan will not be submitted for government approval. Based on Part 1.2 (Submittals) of Section 01 33 00 (Submittal Procedures), submittals with a ‘G’ designation in Part 1.3 of Section 01 57 19.00 20 will be reviewed by the government for approval. Revise the Draft TS to clarify why government approval is not required for the dirt and dust control plan.
8. **Section 01 35 45.00 10 (Chemical Data Quality Control), Pages 1 through 8:** This specification references the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (1999, EPA 540/R 94-008). However, the Corrective Action Objectives (CAOs) for this project are for copper, lead, and zinc. Revise this section to reference the most recent version of USEPA Contract Laboratory Program National Functional guidelines for Inorganic Data Review (2004).
9. **Section 02 61 13.00 (Excavation and Handling of Contaminated Material), Part 2.1 (Backfill), Page 3:** The text states that, “[b]ackfill material shall be tested for the parameters listed below at a frequency of once per 3000 cubic yards.” However, the testing parameters are not listed. As such, it is unclear what parameters the backfill material will be analyzed for. Revise this section to specify the parameters the backfill material will be analyzed for.

DRAFT CMI WP

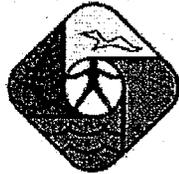
10. **Section 1.3, Project Statement of Work, Page 1-4:** Revegetation of SWMU 68 has not been included in list of activities to be performed at SWMU 68. Revise Section 1.3 to provide a complete listing of activities associated with the work at SWMU 68.
11. **Section 1.3, Project Statement of Work, Page 1-4:** The sixth bullet on Page 1-4 indicates that the contractor will “[c]ollect and analyze pre-characterization samples of soil from the excavation areas and submit profile information to appropriate waste disposal facilities.” It is unclear what information these characterization samples will provide. In addition, this activity is not discussed in the other section of the Draft CMI Design Package. Revise the CMI Design Package to clarify the purpose of the pre-characterization samples to be collected from the excavation areas. In addition, ensure that information is consistently discussed in the CMI Design Package.

12. **Section 6.4, Change and Control Procedures, Page 6-3:** This section does not indicate that regulators will receive Field Variance Reports describing potential changes. Revise this section to indicate that EPA will be notified of significant changes and provide the timing for notifying EPA.
13. **Section 6.5.4, Solid (Soil) Excavation and Staging, Page 6-5:** The proposed multiplier of 1.7 tons per cubic yard of soil appears too high. Consider using a multiplier in the range of 1.2-1.4 tons per cubic yard.
14. **Section 6.7, Nonconformance and Corrective Action, Pages 6-8 through 6-9:** The last bullet point states that a distribution list for discrepancy reports will be determined at the initial project planning meeting and will include, at a minimum, the NTR, PM, Site Superintendent, and QCSM. However, the EPA should also be notified of any significant corrective action. Revise this section to indicate that EPA will be included on the distribution list for discrepancy reports and provide the timing for notifying EPA.

DRAFT SAP

15. **Section 3.4, Data Validation, Page 3-2:** The information provided in this section is insufficient. For example, there is no discussion of how PARCCS will be incorporated into the usability report or if an evaluation of significant trends and biases will be included as part of the data quality assessment. Please revise the Draft SAP to provide this level of detail or reference where it can be found.

ENCL. #9



COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD

Land Pollution Control Area

January 22, 2010

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

**RE: REVIEW OF DRAFT CORRECTIVE MEASURES
IMPLEMENTATION DESIGN PACKAGE AND
WORK PLAN FOR SWMU 68 – FORMER
SOUTHERN FIRE TRAINING AREA
NAVAL ACTIVITY PUERTO RICO (NAPR), CEIBA
EPA ID NO. PR2170027203**

Dear Mr. Gordon:

The Hazardous Wastes Permits Division (HWPD) of the Land Pollution Control Area and the Federal Facility Coordinator (FFC) has finished the review of the above-mentioned package.

The design package for SWMU 68 consist of:

- Draft Corrective Measures Implementation (CMI) Work Plan
- Draft Basis of Design Report for CMI
- Technical Specifications for CMI

Enclosed you will find comments on the three documents for your consideration to be forwarded to the Navy. If you have any additional comments or questions please feel to contact Gloria M. Toro Agrait of my staff at (787) 767-8181 ext 3586.

Cordially,
María V. Rodríguez

María V. Rodríguez Muñoz
Manager
Land Pollution Control Area

cc: Ariel Iglesias Portalatín, USEPA, CEPD
Wilmarie Rivera, Federal Facilities Coordinator

Comments on Draft Corrective Measures Implementation (CMI)
Design Package and Work Plan for SWMU 68
Former Southern Fire Training Area
Naval Activity Puerto Rico, Ceiba
PR2170027203

Draft CMI Work Plan

General Comments:

1. The text of the document must be revised in order to specifically address sampling and soil removal activities, since the document creates the impression to be a construction work plan.

SPECIFIC COMMENTS

1. Page 1-2, Section 1.2.1, last paragraph, first sentence: Please revise the sentence to clearly specify that the following subsections provide brief discussion of the background of one site instead of various sites.
2. Page 1-3, Section 1.2.2: In order to support the rationale for actual sampling and analysis activities, please include in this section information on which analyses the previously-collected soil samples were subjected to that resulted in the identification of the presence of the select metals and delineation of the area to be subject to soil removal activities.
3. Page 1-5, Section 1.3, Bullets: Please identify the areas to be excavated in order to locate each one at the drawings and figures included at the document.
4. Page 2-3, Section 2.5.3: According with the text the Quality Control System Manager's (QCSM) duties implementation will be delegated to the Quality Control Officer. The individual responsible to act as Quality Control System Manager is the same individual responsible for being the Site Superintendent (Section 2.5.5). Also, according to the responsibilities of the Quality Control System Manager, it needs to be someone who works independent of the project and has overall authority on quality control and therefore cannot be the same person who works day-to-day with the project manager in the field. Please update accordingly and clarify.
5. Page 2-3, Section 2.5.3: Please include copy of the Contractor Quality Control Plan and made it available to all personnel working on the corrective measures activities.

6. Page 2-3, Section 2.5.3 and Page 2-4, Section 2.5.5: It is the reviewer impression that the document identified the Site Superintendent to be responsible to manage, among others, quality aspects of the project implementation. Please clarify.
7. Page 3-1, Section 3.5 and Page 3-2, Section 3.5.1: Please include steps to contain the dry decontamination process, such carrying out the process on plastic sheeting to ensure that potentially impacted soil will not be allowed to contact the surface below the equipment. It is also inferred that only heavy equipment is suitable to dry decontamination procedures, please clarify and clearly state in the text.
8. Pages 3-2 and 3-3, Section 3.5.2:
 - a. Please clarify or provide examples of the equipment on which the decontamination procedure on page 3-2 would be used versus the equipment on which the decontamination procedure on page 3-3 would be used. The procedure on page 3-2 should be used for reusable sampling equipment as well such as hand augers, stainless steel spoons, etc.
 - b. It is unclear what the following statement means: "To the greatest extent possible, sampling equipment will not be field decontaminated." Please clarify which equipment will be decontaminated and provide the procedure planned for use.
9. Page 3-2, Section 3.5.2, Bullet 4
 - a. Sub-bullets 1 and 3: Please indicate, in addition to noting that the potable water rinses will be changed frequently, that it will be containerized appropriately for subsequent sampling and determination of the appropriate means of disposal. This comment also applies to the subsequent discussion of the field decontamination of reusable equipment and personal protective equipment.
 - b. Sub-bullet 5: It is unlikely that evidence of high metals concentrations will be visible. Therefore, please incorporate the nitric acid rinse into the decontamination procedure to account for this.
10. Page 3-3, Section 3.6, Last Sentence: The project schedule presented at Appendix D does not considered a time frame for permit to be obtained from the Puerto Rico Environmental Quality Board (PREQB). It is likely that a General Permit will be required by PREQB for Erosion Control and Non Hazardous Waste Generation Activity.
11. Page 4-1, Section 4.1, First Sentence: This sentence creates de impression that the Site Superintendent, the Quality Control Officer and the Site Safety and Health Officer are the same person. Please revise accordingly.

12. Page 4-1, Section 4.2, Paragraph 1: This section indicates in general terms that a surveyor will be subcontracted as necessary. Please indicate specifically that the proposed sampling locations and soil removal areas will be surveyed. Also, please clarify if the surveyors will return to the site to re-survey any sampling locations that may have had to be moved due to refusal or other obstructions and if the soil removal areas expand beyond their initial proposed limits.
13. Page 4-1, Section 4.3: Please specify which contractor or subcontractor will be responsible of sampling at the southeast of sampling location 14E-01 and to perform the wetland delineation. Although the Sampling and Analysis Plan (SAP) presented in Appendix C identify RWEC as the responsible for sampling collection, the Sheet C-2 at Appendix A, number 7 states that the Navy On-Site representative will conduct confirmatory sampling. Clarification should be made through the document on who will be responsible for sampling collection. Moreover, the Technical Specifications for CMI – SWMU 68 on Section 01 35 45 .00 10, Page 6 Part 3.1.1 stated that confirmatory samples should be taken by a Navy's Representative (nor the contractor). Please clarify.
14. Page 4-1, Section 4.3, First Paragraph: Action to be taken if concentrations above corrective action objectives are detected should be included.
15. Page 4-3, Section 4.6, Paragraph 1: Although direct inclusion at the CMI Work Plan of soil sampling collection procedures is recommended, the text refers to a Sampling and Analysis Plan (SAP) that does not include Standard Operating Procedures for doing so. As the procedures for the collection of the soil samples are not provided herein please reference to an appropriate document (see comment 22) and provide a copy to field personnel for review prior to the initiation of field operations to ensure that the appropriate procedures are followed.
16. Page 5-2, Section 5.4.1: Please include in this section (or in the Site Specific Safety and Health Plan) the reportable quantities of the possible substance that can cause a spill on site for personnel reference.
17. Page 6-1, Section 6.0 Last Sentence: Please revise the acronym and correct to SOW.
18. Page 6-3, Section 6.3, Second Paragraph: The text specified that "The QC Officer will closely monitor the actual field testing, verifying proper procedure technique, sample handling, chain of custody, if required." It is not clear what is meant by this statement. Please revise to clearly stated what should or could be required

from the QC Officer since proper procedures, sampling handling and chain of custody use is in fact required as part of the activities.

19. Page 6-3, Section 6.4: Please include within this section the procedures for changes that could affect the work plan. If they are to be pre-authorized by or discussed with the Quality Officer.
20. Page 6-7, Section 6.6.4: Please discuss what Data Quality Objectives (DQO) objectives that will define unacceptable work.
21. Appendix B, Organizational Chart:
 - i. The personnel listed in the project organization chart do not agree with Section 2 of the Work Plan as follows.
 - i. Quality Control System Manager is listed in Section 2 but not included in the Chart.
 - ii. The chart lists Alejandro Rodríguez as Quality Control Manager and Felix Gonzalez as Safety and Health Manager. Meanwhile, Section 2.5.5 appoints Luiz Ríos as responsible of managing all aspects of project implementation including quality and safety, among others.
22. Appendix C, General: Please provide a reference in the text to the Quality Assurance Project Plan (QAPP) that provides the quality assurance (QA) and quality control (QC) for this program. Specifically, the required analytical methods, reporting limits versus cleanup criteria, field QC sample frequency and acceptance criteria, laboratory QC sample frequency and acceptance criteria, the name of the laboratory performing the work, etc. were not provided. It appears that previous work plans for this SWMU will be referenced for sampling methods, if so, please perform appropriate reference in the text.
23. Appendix C, General: The Sampling and Analysis Plan (SAP) lack of the following:
 - i. Procedures to collect representative samples.
 - i. Standard Operating Procedures (SOPs) for the project or reference to SOPs to be followed
 - ii. Data Quality Objectives – Reference could be made to the Technical Specifications for CMI – SWMU 68 (RVEC, 2009) as part of the design package. If so, the documents should be available to the personnel as a whole.
 - iii. Wash water sample collection
 - iv. Quality Control Samples collection:
 - i. Duplicate Sample at a frequency of one per ten samples

- ii. Field Blank at a frequency of one per day of sampling
 - iii. Trip Blank at a frequency of one per cooler shipped to the fixed base laboratory
 - v. A Figure depicting proposed confirmatory sampling at the excavation area.
24. Appendix C, Page 3-1, Section 3.2.1: Please propose collection of samples at the bottom of the excavation pit. It is recommended to collect three samples from the bottom of each excavation. That will lead to three additional samples for area 68A and three samples at area 68B
25. Appendix C, Page 3-2, Section 3.2.2: Sample collection protocol to obtain representative samples for waste characterization should be included in the SAP. Separate considerations should be taken to characterize the waste generated during the CMI activities from the removed soil.
26. Appendix C, Page 3-2, Section 3.2.3: Section 4.7 detailed in four bullets the characteristics of the backfill soil. The tests to assure that the backfill accomplish the mentioned characteristics should be discussed at the section.
27. Appendix C, Page 3-2, Section 3.5: It is recommended to include the decontamination procedures in this section using the same format as in Section 3.5 of the document.
28. Appendix C, Table 3-2: Please include the Method Performance Limits and Methods for analysis of the composite waste sample for the hazardous wastes characteristics requirements (TCLP and IRC).

The asterisks quote at the foot of the table is not complete. Please revise.