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

JAN 15 2009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. David Criswell
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) Draft Corrective Measures Study Final Report for SWMU 68, dated Oct. 28, 2008

2) Responses to Comments and Revised Final II of the MNA Work Plan for AOC F, dated November 21, 2008;

3) Responses to Comments on Year 6 Quarter 1 MNA Report for AOC F, dated November 21, 2008;

4) Responses to Comments on Year 6 Quarter 2 MNA Report for AOC F, dated December 3, 2008;

5) Responses to Comments and Addendum to the Step 6 and 7 of the BERA for SWMU 45, dated November 21, 2008;

6) Draft Corrective Measures Study Report for SWMU 56, dated September 26, 2008; and

7) Draft Corrective Measures Study Final Report for SWMU 69, dated September 12, 2008.

Dear Mr. Criswell:

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 Region 2 has completed its reviews of the above documents, which were submitted by Baker Environmental on behalf of the Navy, pursuant to the requirements of the Consent Order. Based upon our reviews, EPA has the following comments on these documents:

1) Draft Corrective Measures Report for SWMU 68

EPA requested that our consultant, TechLaw Inc., review the October 28, 2008 CMS Report. Based on that review, EPA has a number of concerns with the risk evaluation performed as part of the CMS. These are discussed in the enclosed Technical Review (dated December 8, 2008). In addition, EPA believes that the vertical extent of the contamination has not been acceptably defined as soil samples in the area of contamination were only collected to one foot below ground surface. Also, EPA has concerns with the proposal to not collect confirmatory samples following the proposed soil excavation. These are discussed in more detail in the enclosed Technical Review dated December 8, 2008. In addition, the PR Environmental Quality Board (PREQB) in its letter dated December 22, 2008 made extensive comments on the SWMU 68 CMS report. My records indicate that you received a copy of that letter and comments directly from PREQB.

Based on the above Technical Reviews and PREQB comments, modifications to the CMS Report are needed to address the issues raised. Within 45 days of your receipt of this letter, please submit a revised CMS which acceptably addresses the comments in the enclosed Technical Review dated December 8, 2008, and those given with PREQB's December 22, 2008 letter.

2) Revised Final II of the MNA Work Plan for AOC F

EPA requested that our consultant, TechLaw Inc., review the November 21, 2008 Revised MNA Work Plan and Navy responses to comments made in Attachments to EPA's letter of October 3, 2008. Based on that review, EPA has determined that the Revised Final II MNA Work Plan and Responses are mostly acceptable, except for the continued assertion in Section 4.6 (Follow-up to Recommendations, Year 6 Sampling Even) of the Work Plan that "due to their low and decreasing concentrations" PAHs should be dropped from future sampling at these sites. The Navy has provided Table 4-5, Comparison of Analytical Results Between September 2006 and May 2008, Site 731, 734, & 735, as part of the Revised Final II Work Plan. However, while the comparison of PAH results between September 2006 and May 2008, as depicted in Table 4-5 show PAH levels below the available target levels (i.e., EPA Region IX Tap Water Screening Criteria), estimated levels of several PAHs have stayed relatively static in wells 735SB10-08B and 735SB11-08B, and were not analyzed for in other site 735 wells, prior to May 2008. The data shown in Table 4-5 do not adequately support the assertion in Section 4.6 that the PAH Concentrations are "...approximately half those quantified in the September 2006 sampling event...".

EPA requests that, within 45 days of your receipt of this letter, the Navy either provide additional evidence supporting the elimination of PAHs from the planned future sampling at Site 735, or to better support your assertions, include additional PAH sampling rounds in future Year 6 sampling events at Site 735, especially at new downgradient wells 735MW05 and 735MW06.

3) Responses to Comments on Year 6 Quarter 1 MNA Report for AOC F, dated November 21, 2008;

EPA requested that our consultant, TechLaw Inc., review the November 21, 2008 Responses to comments made in Attachments to EPA's letter of October 3, 2008, commenting on the September 2008 Quarter 1 Report. Based on that review, there are several comments, one of which concerns the need for future PAH sampling, similar to the above comment on the Revised Final II Work Plan. EPA requests that as an addendum to your Responses, within 45 days of your receipt of this letter, the Navy also submit responses addressing comments in the enclosed Technical Review (dated January 13, 2009).

4) Responses to Comments on Year 6 Quarter 2 MNA Report for AOC F, dated December 3, 2008;

EPA requested that our consultant, TechLaw Inc., review the December 3, 2008 Year 6 Quarter 2 MNA Report. Based on that review, there are several comments, which are discussed in the enclosed Technical Review (dated January 13, 2009). EPA requests that as an addendum to the Year 6 Quarter 2 Report, the Navy also submit, within 45 days of your receipt of this letter, revisions to the Year 6 Quarter 2 Report and/or responses addressing comments in the enclosed Technical Review (dated January 13, 2009).

5) Draft Steps 6 and 7 of Baseline Ecological Risk Assessment (BERA), SWMU 45

EPA has completed its review of the November 21, 2008 Responses to EPA's October 3, 2008 comments on the Steps 6 and 7 of the Baseline Ecological Risk Assessment (BERA) report. Based on our review and a review by our consultant, TechLaw Inc., EPA has determined that the November 21, 2008 responses adequately addressed the issues raised, and the July 11, 2008 Steps 6 and 7 of the BERA, as modified by the November 21, 2008 Addendum, is acceptable.

6) & 7) Draft Corrective Measures Study Final Reports for SWMU 56 and 69

EPA notes that in his letter dated December 3, 2008 Mr. Mark Kimes of Baker Environmental, requested, on behalf of the Navy, that the CMS Reports for SWMUs 56 and 69, submitted respectively on September 26, 2008 and September 12, 2008, be withdrawn pending revisions of both documents. Nevertheless, EPA had previously requested our consultant, TechLaw Inc., to review those two draft CMS reports. TechLaw's comments on the two draft CMS reports are given in their Technical Reviews dated October 24 and 15, 2008, respectively. Those two technical reviews had been transmitted to you previously by my Emails of October 27 and October 22, 2008 respectively. In addition, the PR Environmental Quality Board (PREQB) made extensive comments on the SWMU 69 CMS report. My records indicate that a copy of PREQB's comments on the SWMU 69 CMS were transmitted to you by my Email of October 22, 2008.

EPA requests that when the Navy develops the revised draft CMS reports for SWMUs 56 and 69, those revised CMS reports should, among other changes, address comments given in the October 27 and October 22, 2008 Technical Reviews, and any applicable comments made by PREQB. It should be noted that, based on the revised schedule transmitted by letter dated December 3, 2008 from Mr. Mark Kimes of Baker Environmental, on behalf of the Navy, the revised draft CMS Reports for SWMU 56 and 69 are planned to be submitted by February 10, 2010 and August 17, 2009, respectively.

If you have any questions on the above or enclosed comments, please telephone me at (212) 637-4167.

Sincerely yours,

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

Enclosures (2)

cc: Ms. Wilmarie Rivera, P.R. Environmental Quality Board, w/encls.
Mr. Julio I. Rodriguez Colon, P.R. Environmental Quality Board, w/encls.
Mr. Mark Kimes, Baker Environmental, w/encls.
Mr. Michael Smith, TechLaw Inc, w/o encls.

REPA4R2-002-ID-105

TECHNICAL REVIEW OF THE DRAFT CORRECTIVE MEASURES STUDY FINAL REPORT SWMU 68 DATED OCTOBER 28, 2008

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.
One Penn Plaza, Suite 2509
New York, NY 10119

EPA Task Order No.	002
Contract No.	EP-W-07-018
TechLaw TOM	Michael S. Smith
Telephone No.	678-765-0815
EPA TOPO	Timothy Gordon
Telephone No.	212-637-4167

December 8, 2008

TECHNICAL REVIEW OF THE
DRAFT CORRECTIVE MEASURES STUDY FINAL REPORT SWMU 68
DATED OCTOBER 28, 2008

The following comments were generated based on review of the *Draft Corrective Measures Study Final Report SWMU 68* (Draft CMS Report), Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico.

GENERAL COMMENTS

1. A majority of the figures (e.g., Figures 2-5, 2-6, 2-7, 3-1, 3-2, 5-1) depict color-coded polygon features from 1961 and 1964. It is unclear what these polygon features signify. Revise the Draft CMS Report to include an explanation of the polygon features shown on the figures.

2. Several figures (most notably Figures 2-4, 2-5, and 3-1) depict a drainage feature extending from the western-most 1961 polygon feature. It is not clear that the extent of potential contamination in this drainage area was characterized at the time of the Phase I/Phase II Environmental Condition of Property (ECP) or Phase I RCRA Facility Investigation (RFI). Revise the Draft CMS Report to explain how any contaminated runoff was previously characterized.

3. Carcinogenic risk of 1.2E-06 and 2.8E-6 were calculated for future adult residents and future child residents, respectively. Both of these risk values exceed 1E-06, the lower bound of the U.S. Environmental Protection Agency's (EPA's) risk range. However, various sections of the Draft CMS Report (e.g., Section 3.1.1, CAO Development for Human Receptors) indicate that the preliminary risk values do not exceed the lower bound of EPA's risk range. Revise the Draft CMS Report to correct these inaccurate statements. In addition, because this property is being transferred out of federal control, land use controls should be implemented to prevent residential exposures. The exceedances of the lower bound of EPA's risk range indicate that SWMU 68 is not appropriate for unrestricted use. Revise the Draft CMS Report to discuss specific land use controls that will be enacted for SWMU 68.

4. Section 5.1 indicates that post-excavation confirmatory sampling will not be required. While four "clean" sample locations have been used as the basis for determining the extent of lateral excavation in each area of contamination, given the size of the excavation areas, additional sampling should be conducted to confirm that all contamination has been removed. Revise the Draft CMS Report to include collection of confirmatory surface soil samples as follows:

    - In the area of excavation surrounding sample location 14E-01, a confirmatory surface soil sample should be collected from each corner of the excavation and two additional surface soil samples should be taken from each 100-foot long wall.

- In the area of excavation surrounding sample location 14E-03, a confirmatory surface soil sample should be collected from each corner of the excavation.

In addition, the vertical extent of contamination has not been defined as soil samples in the areas of contamination were only collected to a depth of one foot below ground surface (as indicated in the Final Phase I RFI Report). Given that the property may be redeveloped and there is a potential that soils could be excavated and re-disturbed in the future, it will be necessary to confirm that all contamination has been removed from the bottom of the excavation. Thus, the Draft CMS Report should propose the collection of a representative number of confirmation samples from the base of the excavation.

5. Inorganic compounds detected above residential or industrial health-based screening criteria were eliminated as chemicals of potential concern (COPCs) in the preliminary screening process when detections did not exceed background levels. For example, vanadium was not carried forward in the human health risk evaluation even though concentrations exceeded health-based screening criteria in surface soil, subsurface soil, and groundwater. In addition, while soil exposures from arsenic were evaluated quantitatively because detections exceeded both human health risk-based screening criteria and background levels, groundwater exposures were not evaluated quantitatively because only risk-based levels were exceeded (and not background levels). This methodology is appropriate in a residual risk analysis, but is generally not acceptable, unless site-specific approval is obtained from the governing administrative authorities.

   Consistent with EPA's *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites* (2002), all chemicals detected above the most relevant health-based screening criteria are to be retained as COPCs and assessed under total risk baseline conditions. While it is acknowledged that the human health evaluation presented in the Draft CMS Report does not represent a baseline human health risk assessment (BHHRA), to aid risk management decisions, total risk should be based on any exceedances of health-based screening criteria. If necessary, following the determination of total risk and hazard, the total expression of risk may be refined into three components to support corrective action objectives (CAOs): total risk, background risk, and residual (or site-related) risk. Therefore, it is recommended that the Draft CMS Report include inorganic compounds in the quantification of risk and hazard when health-based criteria are exceeded, and that a refined risk evaluation be conducted subsequently. Vanadium in soil and arsenic in groundwater should be included in the quantitative evaluation presented in Appendix C, Preliminary Human Health Risk Calculations for Arsenic. Revise the Draft CMS Report to include estimates of total risk, and present background risk and residual risk to facilitate risk management decisions and support CAOs.

6. Appendix C, Preliminary Human Health Risk Calculations for Arsenic, lacks sufficient information to verify calculations. It is suggested that the following bulleted items be addressed:

   - The toxicity values used to calculate risk and hazard are not provided. Revise Appendix C to provide the toxicity values used to calculate risk and hazard for

arsenic exposures. Note that the most current oral cancer slope factor (SF_o) and oral noncancer reference dose (RfD_o) for arsenic are 1.5 $(mg/kg\text{-}day)^{-1}$ and 3.0E-04 mg/kg-day, respectively, and that the most current inhalation unit risk factor (URF_i) and inhalation reference concentration (RfD_i) for arsenic are 4.3E-03 $(\mu g/m^3)^{-1}$ and 3.0E-05 (mg/m^3), respectively. Ensure all calculations reflect the most current toxicity values.

- The exposure parameters are based on default values. Consider using reasonable maximum exposure (RME) activity-specific surface area weighted soil adherence factors for adult and child residents (e.g., gardening for adults and playing in wet soil for children) rather than default values. These values are more representative and, in most cases, more protective.

- For evaluating exposures from fugitive dust, a particulate emission factor (PEF) of 1.32E+09 m^3/kg was used. However, the use of this PEF has not been justified in the risk evaluation. Revise the risk evaluation to discuss the appropriateness of using a PEF of 1.32E+09 m^3/kg to calculate chronic daily intakes (CDIs). Note that EPA's current default PEF for use in residential and generic industrial settings is 1.36E+09 m^3/kg.

- See the previous general comment regarding the inclusion of additional inorganics in the calculation of risk and hazard (e.g., vanadium in soil and arsenic in groundwater). Revise Appendix C accordingly.

7. Include, in addition to total soil, a risk and hazard calculation for exposure to surface soil only (e.g., 0-1 foot below ground surface [bgs]) for future residents. This is the depth of soil residents would be expected to encounter. While it may not significantly impact the conclusions of the Draft CMS Report (e.g., CAOs), it should be included for accuracy and completeness. Alternatively, if a risk and hazard calculation for exposure to surface soil is not conducted and included in the revised version of the CMS Report, provide multiple lines of evidence supporting the use of total soils for the evaluation of residential exposures. For example, it should be demonstrated that the exposure point concentrations (EPCs) for total soil (0-10 ft bgs) do not differ significantly from those based on surface soil (0-1 ft bgs) (i.e., demonstrate risk and hazard results would not differ from those reported in the Draft CMS Report if EPCs were based on surface soil). Further support could be provided if it can be demonstrated that the establishment of a residential population at the site would require disturbing the soil, resulting in a redistribution of subsurface contamination. Revise the Draft CMS Report to address this issue.

SPECIFIC COMMENTS

1. **Table 3-2 Corrective Action Objectives for Copper, Lead, and Zinc in Surface Soil:** Table 3-2 indicates that a CAO for the American robin is not calculated for Copper (Cu) or Zinc (Zn). The stated reason is that Cu and Zn do not present an unacceptable risk to terrestrial avian omnivore populations. This observation is insufficient evidence for not

deriving CAOs. Note that the EPA has derived Ecological Soil Screening Levels (Eco SSLs) for both Cu and Zn. Calculate a CAO for Cu and Zn and amend Table 3-2 accordingly.

2. **Table 3-2 Corrective Action Objectives for Copper, Lead, and Zinc in Surface Soil, footnote (3) and (4):** Footnote (3) refers to the CAO for terrestrial invertebrates and plants for lead (Pb). The Pb CAO (120 mg/kg) refers to plants in the referenced EPA Eco SSL (OSWER Directive 9285.7-70), even though the footnote states that this value is an Eco SSL for terrestrial invertebrates. The CAO for Zn (120 mg/kg) refers to soil invertebrates in the referenced EPA Eco SSL (OSWER Directive 9285.7-73); even though footnote (4) states that this value is an Eco SSL for plants. Correct footnotes (3) and (4) to reference the correct receptor group.

3. **Section 3.1.4 Extent of Surface Soil Contamination, Page 3-4:** The depth of contamination requiring mitigation at each of the contaminated sites is limited to the top one foot of soil because adverse ecological impacts are not expected to occur below that depth. Plants in dry climates can grow long tap roots in search of water which can extend well beyond one foot in depth. This adaptation could expose plants to possible soil contamination that has not been removed. Confirm that the northeastern corner of Puerto Rico gets enough annual rain fall to not be considered a dry climate, unlike certain regions along the southern coast of the island.

4. **Section 5.1.1, Required Planning Documents, Page 5-2:** Section 5.1.1 indicates that the Site-Specific Field Sampling and Analysis Plan (FSAP) (part of a Corrective Action Project Plan) will provide laboratory information, sample handling and analysis requirements, and quality assurance/quality control (QA/QC) requirements. Typically, this information is documented in a stand-alone, site-specific or project-specific quality assurance project plan (QAPP). Revise the Draft CMS Report to indicate whether a QAPP will be prepared for the proposed corrective measures. If not, explain how the QA/QC requirements for the corrective measures implementation project will be documented.

REPA4R2-002-ID-111

EVALUATION OF THE RESPONSE TO TECHNICAL REVIEW OF THE DRAFT MONITORED NATURAL ATTENUATION AOC F YEAR 6 1ST QUARTER ANNUAL REPORT, SEPTEMBER 8, 2008 DATED NOVEMBER 21, 2008

and

TECHNICAL REVIEW OF THE DRAFT MONITORED NATURAL ATTENUATION AOC F - YEAR 6 QUARTER 2 REPORT DATED DECEMBER 3, 2008

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:

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EPA Task Order No.	002
Contract No.	EP-W-07-018
TechLaw TOM	Michael S. Smith
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January 13, 2009

EVALUATION OF THE RESPONSE TO TECHNICAL REVIEW OF THE DRAFT MONITORED NATURAL ATTENUATION AOC F YEAR 6 1ST QUARTER ANNUAL REPORT, SEPTEMBER 8, 2008 DATED NOVEMBER 21, 2008

Evaluation of the Response to Specific Comment 1: The response does not appear to be adequate. Section 1.2 indicates that the Target Levels are based on EPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (September 2008) and that Target Levels are presented in Table 1-1, Summary of MNA Quantitative Objectives. However, the Target Levels listed in Table 1-1 are based on EPA Region 9 Preliminary Remediation Goals (PRGs). The RSLs are higher than the Region 9 PRGs for acenaphthene and fluorene, but the carcinogenic-based RSL value for naphthalene is an order of magnitude lower than the Region 9 PRG. It is suggested that groundwater detections be compared to RSLs in future Annual Reports, and that Table 1-1 be revised to reflect the September 2008 RSLs.

Evaluation of the Response to Specific Comment 5: The response does not appear to be adequate. It appears that the monitoring wells (with the exception of the temporary well) were present at the time of the Draft MNA Work Plan, and additional data are still required to assist in determining groundwater flow at Site 1738. All of the monitoring wells being gauged are located in a north-south orientation. So that the groundwater flow can be determined, water levels in 1738MW04 and 1738MW06 should be gauged for a 1-year period. This will establish any east-west components of groundwater flow. Ensure 1738MW04 and 1738MW06 are gauged for water levels for a period of 1 year starting at the next quarterly event.

Evaluation of the Response to Specific Comment 7: The response does not appear to be adequate. As part of the Revised Final II Monitored Natural Attenuation Work Plan: AOC F, a formal analysis of polynuclear aromatic hydrocarbon (PAH) concentrations at Site 735 was conducted. However, technical review of the information presented in the work plan document indicated that the analysis did not support elimination of PAHs from annual sampling. PAHs should continue to be sampled on an annual basis until this issue is resolved.

TECHNICAL REVIEW OF THE
DRAFT MONITORED NATURAL ATTENUATION AOC F – YEAR 6
QUARTER 2 REPORT
DATED DECEMBER 3, 2008

The following comments were generated based on review of the Draft Monitored Natural Attenuation AOC F - Year 6 Quarter 2 Report (Quarter 2 Report), Naval Activity Puerto Rico (NAPR), Ceiba, Puerto Rico.

GENERAL COMMENTS

1. Source/release areas for each site are not clearly indicated on the figures presented in the Quarter 2 Report. As such, the upgradient, sidegradient, plume, sentinel, and other monitoring well locations relative to the source/release locations at each site are not clearly identified. To demonstrate that the current well networks are adequate for detecting potential plume movement, provide information on the relative location of monitoring wells and source/releases. It is suggested that source/release areas be depicted on the appropriate figures with the locations (e.g., downgradient) of the monitoring wells relative to source/release areas provided in tabular form. Note that this comment was previously made on the Draft Monitored Natural Attenuation AOC F – Year 6, 1st Quarter Annual Report (1st Quarter Annual Report), and the Navy agreed that this additional information should be included on the monitoring report figures.

2. It does not appear that stabilization criteria for turbidity were achieved at several wells (2842BMW06, 1738MW01, 1738MW03). According to the EPA Region 2 Low Flow Groundwater Sampling Protocol, of all groundwater quality parameters, turbidity usually requires the longest period of time to achieve stabilization. For future monitoring events, it is suggested that purging be conducted for a longer period of time in an effort to achieve stable turbidity.

SPECIFIC COMMENTS

1. **Section 2.2, Surface Water Sampling, Page 2-1:** Section 2.2 indicates three surface water samples were collected from the mangrove marsh located north of Site 1738. The 1st Quarter Annual Report recommends that surface water samples be collected from the creek north of Site 1738 (and south of the mangrove). It is unclear why the samples were collected in the mangrove area as opposed to the creek. Please provide a rationale for the selection of the mangrove marsh sampling locations.

2. **Section 3.2, Free Product Detection, Page 3-1:** Section 3.2 references that free product was detected at Sites 124/2842B in May 2008. However, no discussion is presented regarding free product detection or lack thereof at the time of the August 2008 sampling event. In addition, no clarification is made of the fact that only one well (124MW02) was gauged at Site 124 during this sampling event as opposed to gauging all wells. Revise this

section to identify or reference the free product sampling locations for August 2008 and include a discussion of free product detection during the August 2008 event.

3. **Section 3.2, Free Product Detection, Page 3-1:** It is unclear why Section 3.2 makes specific reference to historical free product detection at well 2842BMW01, what the significance of this reference is, and why no reference is made to the historical free product detections at wells 124MW05 and 2842BMW05. Revise Section 3.2 to include a discussion of the significance of the historical free product detection at well 2842BMW01. Furthermore, address the significance of historical free product detections at wells 124MW05 and 2842BMW05 and/or explain why free product detection is no longer of significance at these wells.

4. **Table 2-1, Sampling Summary:** According to Section 3.4, wells 2842BMW01 and 2842BMW06 were analyzed for MTBE; however, this is not indicated on Table 2-1. Revise the table to address this discrepancy.