

The Baker logo consists of the word "Baker" in white, sans-serif font, centered within a solid blue rectangular background.**Baker Environmental, Inc.***A Unit of Michael Baker Corporation*

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January 25, 2008

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

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

Re: Contract N62470-02-D-3052  
Navy CLEAN, District III  
Contract Task Order (CTO) 0121  
U.S. Naval Activity Puerto Rico (NAPR)  
Revised Final Phase I RCRA Facility Investigation Report for SWMU 27  
Revised Final Phase I RCRA Facility Investigation Report for SWMU 29  
Revised Final Phase I RCRA Facility Investigation Report for SWMU 42  
Naval Activity Puerto Rico  
EPA I.D. No. PR2170027203

Dear Mr. Everett:

Baker Environmental, Inc. (Baker), on behalf of the Navy, is pleased to provide you with one hard copy of the replacement cover and spine, inside cover, and text for the Final Phase I RCRA Facility Investigation Report for SWMU 27, Naval Activity Puerto Rico, the Final Phase I RCRA Facility Investigation Report for SWMU 29, Naval Activity Puerto Rico, and the Final Phase I RCRA Facility Investigation Report for SWMU 42, Naval Activity Puerto Rico, for your review and approval. These replacement pages make up the Revised Final Phase I RCRA Facility Investigation Report for SWMUs 27, 29, and 42. Directions for inserting the replacement pages into the Final Phase I RCRA Facility Investigation Report for SWMUs 27, 29, and 42 are provided for your use. Also included with the copy of the replacement pages is one electronic copy provided on CD of the Revised Final Phase I RCRA Facility Investigation Report for SWMUs 27, 29, and 42, Naval Activity Puerto Rico.

This document is being submitted in accordance with the EPA comments dated January 7, 2008 on the Final Phase I RCRA Facility Investigation Report for SWMU 27 dated November 9, 2007, the Final Phase I RCRA Facility Investigation Report for SWMU 29 dated November 9, 2007, and the Final Phase I RCRA Facility Investigation Report for SWMU 42 dated November 20, 2007, and the results of the January 22, 2008 Conference Call between the Navy, EPA Region II, Baker and TechLaw, inc. The Navy responses to EPA comments dated January 7, 2008 reflecting the results of the January 22, 2008 conference call are attached for your review.

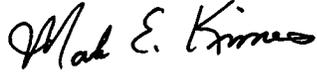
**ChallengeUs.**

Mr. Adolph Everett, P.E.  
U.S. Environmental Protection Agency, Region II  
January 25, 2008  
Page 2

If you have questions regarding this submittal, please contact Mr. Mark E. Davidson at (843) 743-2135. Additional distribution has been made as indicated below.

Sincerely,

**BAKER ENVIRONMENTAL, INC.**



Mark E. Kimes, P.E.  
Activity Manager  
MEK/lp  
Attachments

cc: Ms. Jean Mann, NAVFAC Atlantic – Code AQ119 (letter only)  
Mr. David Criswell, Navy BRAC PMO SE (letter only)  
Mr. Jeffrey G. Meyers, Navy BRAC PMO SE (letter only)  
Mr. Mark Davidson, Navy BRAC PMO SE (1 hard copy and 1 CD)  
Mr. Pedro Ruiz, NAPR (1 hard copy and 1 CD)  
Ms. Bonnie Capito, NAVFAC Atlantic – Code EV42 (1 hard copy)  
Mr. Tim Gordon, US EPA Region II (1 hard copy and 1 CD)  
Mr. Andrew Dorn, TechLaw Inc. (1 CD)  
Mr. Carl Soderberg, US EPA Caribbean Office (1 CD)  
Mr. Manny Vargas, PR EQB (1 hard copy and 1 CD)  
Ms. Josefina Gonzalez, PR EQB (1 hard copy and 1 CD)  
Mr. Felix Lopez, U.S. F&WS (1 CD)  
Mr. John Swenfurth, CH2M Hill Tampa Bay (1 CD)

**NAVY RESPONSES TO EPA COMMENTS DATED JANUARY 7, 2008 ON THE  
NOVEMBER 9, 2007 RESPONSES TO EPA COMMENTS and REVISED PHASE I RFI  
REPORTS FOR SWMUs 27, 28, and 29**

**AUGUST 31, 2007 DRAFT FULL RFI WORK PLANS FOR SWMUs 27, 28, and 29**

**NOVEMBER 20, 2007 RESPONSES TO EPA COMMENTS and REVISED PHASE I RFI  
REPORTS FOR SWMUs 16, 42, and AOC A**

**EPA GENERAL COMMENT**

**Responses to EPA Comments and Revised Phase I RFI Final Reports for SWMUs 27, 28,  
and 29**

*EPA has completed its review of the Responses and Revised Phase I RFI Reports submitted on November 9, 2007 by Baker Environmental on behalf of the Navy. Those Responses and the Revised Phase I RFI Reports were submitted to address EPA's June 28 and September 24, 2007 Comments on the Draft Phase I RFI reports. Except for three specific comments given in the enclosed Technical Review, the revised Phase I RFI Reports and the Responses to Comments are acceptable. You may address those three specific comments in an addendum to the Phase I RFI Reports rather than re-submitting those documents. Subject to you addressing those three specific comments, the November 9, 2007 Revised Phase I RFI Reports for SWMUs 27, 28, and 29 are acceptable.*

**Navy Response to EPA General Comment No. 1 for Revised Phase I RFI Final Reports for SWMUs 27, 28, and 29:** The three technical review comments will be addressed below and replacement pages will be prepared and submitted.

**Draft "Full RFI" Work Plans for SWMUs 27, 28, and 29**

*EPA has completed its review of the Full RFI Work Plan for these three SWMUs which was submitted on August 31, 2007 by Baker Environmental on behalf of the Navy. As you know, this work plan for a "Full RFI" was developed prior to the Navy responding to EPA's June 28, 2007 comments on the Draft Phase I RFI Reports for SWMUs 27, 28, and 29. Therefore, EPA will conditionally approve the "Full RFI" Work Plan; however, that approval is subject to the Navy acceptably addressing EPA's comments (see above) on November 9, 2007 Navy Responses. If in those Responses, it is determined that the "Full RFI" Work Plan should be modified, please submit the modified "Full RFI" Work Plan concurrently with your Responses to EPA's comments discussed above, i.e., within 45 days of your receipt of this letter.*

*Subject to the Navy proposing no modification to the August 31, 2007 "Full RFI" Work Plan (as a result of addressing EPA's above comments on the Navy's November 9, 2007 Responses), implementation of the "Full RFI" shall proceed pursuant to the schedule given in Figure 5-1 of the Work Plan (i.e., field work should commence by April 8, 2008).*

**Navy Response to EPA General Comment No. 1 for Draft "Full RFI" Work Plans for SWMUs 27, 28, and 29:** The Navy will submit the replacement pages needed to satisfy the conditional approval of the Revised Final Phase I Reports and Full RFI Work Plans for SWMUs 27 and 29. Implementation of the field work will be coordinated to begin before the April 8, 2008 proposed schedule date.

**Responses to Comments and Revised Phase I RFI Reports for SWMUs 16, SWMU 42, and  
AOC A**

*EPA has completed its review of the Response to Comments and Revised Phase I RFI Reports submitted on November 20, 2007 by Baker Environmental on behalf of the Navy. Those Responses and the Revised Phase I RFI Reports were submitted to address EPA's September 24, 2007 letter commenting on the Navy's July 20, 2007 Responses to EPA's (original) May 29, 2007 Comments on the Draft Phase I RFI reports for SWMUs 16 and 42, and AOC A.*

*With regard to November 20, 2007 revised Final Phase I RFI Report for SWMU 16, EPA has determined that it is acceptable.*

*With regard to revised Final Phase I RFI Report for SWMU 42, EPA has determined that the Recommendation given in Section 6.2 of the November 20, 2007 Report for a Corrective Action Complete without Controls is not fully acceptable, for two reasons. Firstly, while the risk assessment performed for SWMU 42, which is given in Appendix D of the Phase I RFI Report is acceptable for screening purposes, the exposure scenarios evaluated do not include a residential land use. Therefore, that risk evaluation is not sufficient to support any future unrestricted land use. Accordingly this SWMU would require a land use restriction, unless potential risks due to possible future residential exposures are fully evaluated and found to be below acceptable thresholds.*

*Secondly, the recommendation in Section 6.2 of the November 20<sup>th</sup> RFI Report states that the Corrective Action Complete recommendation should include a "...stipulation that the sediment [in the lagoons] be removed and disposed of properly in the event that the plant ceases operation." Such a stipulation constitutes a "Control", pursuant to EPA's February 2003 Final Guidance on Completion of Corrective Action Activities at RCRA Facilities. Therefore, please revise the Phase I RFI Report to include either a Corrective Action Complete recommendation With Controls (rather than Without Controls) and describe the control (the current description that the sediment [in the lagoons] be removed and disposed of properly in the event that the plant ceases operation is adequate), or a revised risk assessment that evaluates any future exposure scenarios resulting from residential land use of the SWMU site.*

**Navy Response to EPA General Comment No. 1 for SWMU 42:** The recommendation in Section 6.2 of the Phase I RFI Report for SWMU 42 will be revised to address land use controls related to future residential exposures and potential sediment removal. The recommendation in Section 6.2 will be reworded as Corrective Action Complete with Controls. The stipulation that the sediment in the lagoons will be removed and disposed of properly when the plant ceases operation will remain. In addition, the site will be restricted from residential use until the sediment is removed. Replacement pages will be prepared and submitted.

*With regard to revised Final Phase I RFI Report for AOC A, except for two specific comments, given in the enclosed Technical Review, the November 20, 2007 Revised Phase I RFI Report is acceptable.*

**Navy Response to EPA General Comment No. 1 for AOC A:** The two technical review comments will be addressed below and replacement pages will be prepared and submitted.

**TECHLAW SPECIFIC COMMENTS ON THE NAVY RESPONSES TO EPA COMMENTS  
DATED JUNE 28, 2007 (SWMU NOS. 27, 28, AND 29)**

**TECHLAW SPECIFIC COMMENT NO. 1**

*Navy Response to EPA Comment No. 1 for SWMU 27: The Navy response appears to address the first part of the comment in that there is agreement that the north and east flanks of the sludge drying beds must be addressed through the Full RFI. However, the portion of this comment requesting that the investigations define the likely source area for those releases and the potential for unacceptable risks to human health and/or the environment was not specifically addressed in the Navy response.*

**Navy Response to TechLaw Specific Comment No. 1:**

The following sentences will be added to the last paragraph of Section 6.2: “Therefore, the Full RFI will include further investigation of VOCs and metals along the northern and eastern flanks of the sludge-drying beds, define the likely source area(s) and, to determine the potential for unacceptable risk to human health and/or environment.”

**TECHLAW SPECIFIC COMMENT NO. 2**

*Navy Response to EPA Comment No. 2 for SWMU 27: The descriptive statistics are helpful; however, the explanation for several populations is incomplete. There are additional explanations for multiple populations, including contamination, that are not presented here. In addition to a statistical explanation, the text should explain why the interpretation of multiple populations is due only to physical characteristics, and not other factors including different sampling analyses, differing sample times, or contamination.*

*In addition, the statement “the absence of data points above the predicted quantile lines for each distribution at the upper concentration ranges of the data is not indicative [of] a contaminated population” does not identify whether there is or is not contamination. The quantile line is merely a best fit line for the data and does not provide an indication of the presence or absence of contamination. Concentrations above the 95% upper confidence limit (UCL) are shown however, for example in Figure 1-B. This probability plot shows four data points exceeding the 95% H-UCL of 194.57 mg/kg from Table 1C. If the Chebyshev approach is used, there are three data points that exceed 231.58 mg/kg. The other distributions show similar results. These four data points appear to be potential hot spots in the background data and should be further evaluated as the site moves forward.*

**Navy Response to TechLaw Specific Comment No. 2:**

The background surface soil data set was generated from surface soil samples collected in 1999, 2000, and 2004. Each background surface soil sample was collected from the same depth interval (0-1 foot below ground surface [bgs]). Furthermore, each background sample was analyzed for vanadium using the same analytical method (SW-846 6010). Therefore, the appearance of several subpopulations within the NAPR background surface soil data set for vanadium is not likely caused by factors such as sampling methodology, sampling times, or analytical methodology. In addition, island-wide background data reported by the United States Geological Survey (USGS), discussed in the Navy responses (dated November 9, 2007) to EPA comments (dated September 24, 2007) on the SWMUs 14 and 68 RFI reports, indicate that the NAPR background surface soil data set is not indicative of a contaminated population. Specifically, the NAPR background surface soil data set falls within the range of vanadium concentrations reported by the USGS. As vanadium is a trace metal present in igneous rocks, the high

vanadium concentrations naturally-occurring island-wide can be attributed to the volcanic rocks prevalent throughout the island (see the Navy responses dated November 9, 2007 to EPA comments dated September 24, 2007 on the SWMUs 14 and 68 RFI reports for supporting documentation). For these reasons, the Navy believes that the appearance of several subpopulations within the NAPR background surface soil data set is not a result of contamination. The most likely explanation for the appearance of subpopulations within the NAPR background surface soil data set is low sample size and variations in the physical characteristics of the soil as the NAPR background surface soil data for inorganics are lumped into a single data set with no consideration given to physical characteristics such as grain size.

The Navy disagrees that quantile lines are merely a best fit line for data and do not provide an indication of the presence or absence of contamination. As outlined in Navy guidance documents for environmental background analysis (NFESC, 2002, 2003, and 2004), probability plots can serve three functions: (1) evaluation of population distributions; (2) identification of outliers; and (3) identification of background ranges. Data points that are not near the line may represent contamination (NFESC, 2004).

A review of the quantile plot for vanadium in NAPR background surface soil (Figure 1-B) clearly shows the presence of five subpopulations with more than one data point. Each subpopulation with multiple data points falls near the predicted quantile line. Furthermore, individual data points within a given subpopulation represent multiple sampling locations. For example, the subpopulation with the highest vanadium concentrations (2SB01-00, 9BGSS02, and BGMW01-00) represent data for surface soil samples collected at SWMU 2, the SMWU 9 background location, and the background location adjacent to Boxer Road (Baker, 2006). Based on the presence of data points from three separate locations and the fact that each data point falls near the predicted quantile line, this subpopulation may represent the upper range of background concentrations within NAPR surface soil data set. The single data point above this subpopulation (270 mg/kg in 9BGSS01D) falls near the predicted quantile line. However, given that this data point is isolated from other data points, there is uncertainty associated with its inclusion within the background data set. Based on this uncertainty, the Navy proposes to eliminate this data point, as well as the data point for the original sample (250 mg/kg in 9BGSS01), from the background surface soil data set and recalculate the NAPR background screening value (upper limit of the mean). The EPA concurred with the Navy proposal to omit the 9BGSS01 and 9BGSS01D vanadium analytical data from the background surface soil data set during a conference call between the EPA and Navy on January 22, 2008. It is noted that removal of these vanadium data points from the background surface soil data set does not represent an admission by the Navy that contamination is present at this location.

The upper limit of the mean concentration for vanadium in surface soil following omission of the 9BGSS01 and 9BGSS01D analytical data is 259 mg/kg. This value is less than the NAPR background screening value previously calculated for this metal (287 mg/kg; Baker, 2006). To determine if the lower screening value impacts conclusions from recent investigations or recommendations for future investigations, existing surface soil analytical data for AOC A and SWMUs 16, 27, 28, 29, 57, 59, 60, 61, 62, 69, 70, 73, 74, 75, 76, and 78 were compared to the revised upper limit of the mean concentration for vanadium. With the exception of SWMU 73, vanadium was not detected above the revised background screening value for sites with existing surface soil data. Therefore, omission of the 9BGSS01 and 9BGSS01D analytical data from the background vanadium data set has no impact on recent investigations or work plans describing future investigations at AOC A and SWMUs 16, 27, 28, 29, 57, 59, 60, 61, 62, 69, 70, 74, 75, 76, and 78. Vanadium was detected in a single surface soil sample collected at SWMU 73 during the Phase II ECP field investigation at a concentration greater than human health screening criteria and the revised NAPR background surface soil value. Therefore, the Draft Corrective Measures Study Work Plan for SWMU 73 will be revised to address the elevated vanadium detection.

References:

Baker Environmental, Inc. (Baker). 2006. Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds, Naval Activity Puerto Rico, Ceiba, Puerto Rico. October 17, 2006.

Naval Facilities Engineering Service Center (NFESC). 2002. Guidance for Environmental Background Analysis. Volume I : Soil. UG-2049-ENV

NFESC. 2003. Guidance for Environmental Background Analysis. Volume II: Sediment. UG-2059-ENV.

NFESC. 2004. Guidance for Environmental Background Analysis. Volume III: Groundwater. UG-2059-ENV.

**TECHLAW SPECIFIC COMMENT NO. 3**

*Navy Response to Technical Comment No. 3 for SWMU 29: The revised text in Section 6.1 of the Draft Phase I RFI Report, which includes the identification of chemicals exceeding human health and/or ecological screening criteria, is still inaccurate. This section now states “Arsenic exceeding its human health screening levels at all locations in subsurface soil, although concentrations were less than its background level. Chromium, cobalt, copper, vanadium, and zinc exceed their respective ecological screening values in the shallow subsurface soil only at 29SB03-01.” In addition, this section notes that “Arsenic, copper, zinc, and mercury all exceed screening criteria and background levels at location 29SB01-00 in the surface soil.”*

*A review of Table 5-1, Summary of Detected Results – Surface Soil, and Table 5-2, Summary of Detected Results – Subsurface Soil, indicates that these statements are both incomplete and inaccurate. For example, similar arsenic and barium contaminations are noted in sample 29SB05-00. Furthermore, vanadium contamination was also detected above human health and ecological screening criteria in all of the surface soil samples presented in Table 5-1. In addition to the examples noted here, please further modify Section 6.1, Conclusions, of the Draft Phase I RFI Report to conform to the data collected at this site.*

**Navy Response to TechLaw Specific Comment No. 2:**

The conclusions in Section 6.1 of the Final Phase I RFI Report for SWMU 29 will be revised to fix inaccuracies in the data description. Although, there are no changes proposed for the recommendations Section 6.2 for SWMU 29. Replacement pages will be prepared and submitted.

**TECHLAW SPECIFIC COMMENTS ON THE NAVY RESPONSES TO EPA COMMENTS  
DATED SEPTEMBER 24, 2007 (SWMU NOS. 16, 42, AND AOC A)**

**DRAFT PHASE I RCRA FACILITY INVESTIGATION REPORT FOR AOC A**

**SPECIFIC COMMENTS**

*8. Section 5.5.2 STL Savannah SDG 22098-2: The Navy’s response has addressed Specific Comment 8. For future sampling events, please adhere to Section 3.4.1 of EPA’s Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Manual (SW-846) and EPA Region 3 fact sheet on quality control blanks dated November 15, 2001, for information on quality control tools (available at: [www.epa.gov/region3/esc/OA/Blanks\\_OC\\_Tools.pdf](http://www.epa.gov/region3/esc/OA/Blanks_OC_Tools.pdf)).*

**Navy Response to Technical Comment for AOC A:** Future sampling events will adhere to Section 3.4.1 of EPA’s Test Methods for Evaluating Solid Waste, Physical/Chemical Methods Manual (SW-846) and EPA Region 3 fact sheet on quality control blanks dated November 15, 2001.

*10. Tables: The Navy’s response has partially addressed Specific Comment 10. Equipment blank concentrations in sample 2006ER05 resulted in qualifying the detected concentrations of toluene in samples AOCACC02 and AOCACC06 as estimated values, while the detected concentration in sample AOCACC05 was rejected. Table 5-2 indicates that toluene was undetected in samples AOCACC02 and AOCACC06. Revise Table 5-2 to resolve this apparent discrepancy.*

**Navy Response to Technical Comment for AOC A:** Page 3 of the Data Validation Summary for SDG# NAPR 22098-2 in Appendix C states that sample 8, 12, and 13 are to be qualified “U” due to toluene in equipment rinsate 2006ER05. AOCACC02 corresponds to EDS ID 8 and sample AOCACC06 corresponds to EDS ID 13 as listed on the last row of the trip, field, equipment blank table beginning on page 2 and ending on page 3. The row in question from this table has been duplicated below for your use.

Blank ID	Compound	Conc. Ug/l	Action Level ug/kg	Qualifer	Affected Samples
2006ER05 (SDG022060-3)	Toluene	3.0	30	U	8, 12, 13