

N40003.AR.002214  
PUERTO RICO NS  
5090.3a

LETTER TRANSMITTING CHANGED PAGES FOR DRAFT PHASE I RESOURCE  
CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION REPORT SOLID  
WASTE MANAGEMENT UNIT 62 FORMER BUNDY DISPOSAL AREA NAVACT PUERTO  
RICO  
10/29/2009  
MICHAEL BAKER JR., INC.

October 29, 2009

Airsides Business Park  
100 Airside Drive  
Moon Township, PA 15108  
Office: 412-269-6300  
Fax: 412-375-3995U.S. Environmental Protection Agency - Region II  
290 Broadway – 22<sup>nd</sup> Floor  
New York, New York 10007-1866Attn: Mr. Adolph Everett, P.E.  
Chief, RCRA Programs BranchRe: Contract N62470-07-D-0502  
IQC for A/E Services for Multi-Media  
Environmental Compliance Engineering Support  
Delivery Order (DO) 0002  
U.S. Naval Activity Puerto Rico (NAPR)  
EPA I.D. No. PR2170027203  
Final Phase I RCRA Facility Investigation Report for SWMU 62

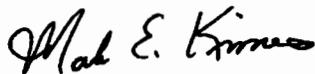
Dear Mr. Everett:

Michael Baker Jr., Inc. (Baker), on behalf of the Navy, is pleased to provide you with one hard copy of the replacement pages for the Draft Phase I RCRA Facility Investigation Report for SWMU 62, Naval Activity Puerto Rico, for your review and approval. These replacement pages make up the Final Phase I RCRA Facility Investigation Report for SWMU 62. Directions for inserting the replacement pages into the Draft Phase I RCRA Facility Investigation Report for SWMU 62 are provided for your use. Also included with the copy of the replacement pages is one electronic copy provided on CD of the Final Phase I RCRA Facility Investigation Report for SWMU 62, Naval Activity Puerto Rico.

This document is being submitted in accordance with EPA comments dated February 6, 2009 and PREQB comments dated March 4, 2009. The Navy responses to these comments are attached for your review.

If you have questions regarding this submittal, please contact Mr. Mark Davidson at (843) 743-2124. Additional distribution has been made as indicated below.

Sincerely,

**MICHAEL BAKER JR., INC.**Mark E. Kimes, P.E.  
Activity CoordinatorMEK/lp  
Attachmentscc: Ms. Debra Evans-Ripley, BRAC PMO SE (letter only)  
Mr. David Criswell, BRAC PMO SE (letter only)  
Mr. Mark E. Davidson, BRAC PMO SE (1 hard copy and 1 CD)  
Mr. Pedro Ruiz, NAPR (1 CD)  
Ms. Bonnie P. Capito, NAVFAC Atlantic – Code EV32 (1 hard copy for Admin Record)  
Mr. Tim Gordon, US EPA Region II (1 hard copy and 1 CD)  
Mr. Carl Soderberg, US EPA Caribbean Office (1 hard copy and 1 CD)  
Mr. Felix Lopez, US F&WS (1CD)  
Mr. Anthony Scacifero, TechLaw, Inc. (1 CD)  
Ms. Willmarie Rivera, PREQB (1CD)  
Ms. Gloria Toro, PREQB (1 hard copy and 1 CD)

**NAVY RESPONSES TO USEPA COMMENTS DATED AUGUST 21, 2009 AND PREQB  
COMMENTS DATED MARCH 4, 2009**

**EPA AND PREQB COMMENTS ON THE DRAFT PHASE I RCRA FACILITY  
INVESTIGATION REPORT FOR SWMU 62 – FORMER BUNDY DISPOSAL AREA  
DATED FEBRUARY 6, 2009**

**EPA COMMENTS DATED AUGUST 21, 2009**

(EPA Comments are provided in italics, while Navy responses are provided in plain text.)

**EPA TECHNICAL REVIEW COMMENTS**

**EPA COMMENT NO. 1:**

1. *It does not appear that the data collected as part of the Phase I RFI investigation have been accurately presented, summarized, and interpreted throughout the text and tables of the Draft Phase I RFI Report. Specific examples noted during the review are delineated below:*
  - *Based on a review of Table 6-2, Summary of Detected Laboratory Results – Subsurface Soil, it appears that a few constituents were detected at concentrations exceeding one or more of the screening levels presented in Table 6-2, but were not marked as such. For example, it appears that the concentration of beryllium detected in the soil sample collected from 62SB06-03 exceeded the NAPR basewide background concentration; however it was not identified as an exceedance. Please review and revise Table 6-2 in its entirety to ensure that all exceedances are properly identified.*
  - *It does not appear that the collected data have been accurately summarized in Sections 6.2, Surface Soil, and 6.3, Subsurface Soil. Furthermore, it is unclear why references are made to certain screening level exceedances and not others. For example, Section 6.2 states that detected concentrations of arsenic at three locations exceed the background screening level; however, no statement is made regarding the arsenic detections which also exceeded the Regional Screening Levels (RSLs) for residential and industrial soil. No discussion regarding the beryllium exceedances noted in Table 6-2 is included in Section 6.3. Section 6.3 indicates that detected cobalt concentrations exceeded the RSL for residential soil, but no statement is made regarding the exceedance of ecological surface soil screening values at 62SB06-01. Please revise Sections 6.2 and 6.3 to include complete and accurate discussions of the collected data and associated exceedances identified as part of the Phase I RFI investigation.*
  - *According to Section 7.1, Conclusions: "...a few samples have resulted in elevated concentrations above ecological surface soil and NAPR basewide background screening values namely barium (62SB04-00 and 62SB07-00) and tin (62SB09-00) in the surface soil and barium and copper (62SB06-01) in the subsurface soil." This statement appears to be inaccurate. According to Table 6-2, the concentration of copper detected in the sample collected from 62SB06-01 did not exceed the NAPR basewide background screening value. Please revise Section 7.1 to eliminate this discrepancy between the text and Table 6-2.*

- *Section 7.1 notes that arsenic concentrations were detected above RSLs for residential soil and NAPR basewide background screening levels at borings 62SB06-00 and 62SB09-00. According to Table 6-1, arsenic was also detected above both criteria in sample 62SB08-00D. In fact, arsenic was detected above the RSL for industrial soil at all three locations. For completeness and transparency in the interpretation of the collected data, please revise Section 7.1 to address all known exceedances of arsenic and comment on their significance with respect to the conclusions reached in the Phase I RFI investigation.*
- *Section 7.2, Recommendations, states “The full RFI investigation should focus around Phase I RFI sample locations 62SB04, 62SB06, 62SB07, and 62SB09.” Given that Sections 6.2, 6.3, and 7.2 present only a limited and, at times, inaccurate discussion of the collected data and its significance, the basis for focusing the full RFI investigation on these four sampling locations is unclear. Please provide a rationale for this conclusion, including a discussion of why these locations were selected and not others.*

**Navy Response to EPA Technical Comment 1:** The text, tables and figures for Sections 6 and 7 will be reviewed and revised.

- Tables 6-1 and 6-2 were reviewed and revised as follows. For Table 6-1, the ecological surface soil screening value for tin should be 50 mg/kg rather than 3.76 mg/kg and the NAPR basewide background screening value for selenium should be 1.48 mg/kg. Additionally, the regional screening level (RSL) for residential and industrial soil for 2-methylnaphthalene should be 310,000 ug/kg and 4,100,000 ug/kg, respectively. The RSL for residential and industrial soil for benzo(k)fluoranthene should be 1,500 ug/kg and 21,000 ug/kg, respectively. As a result of these changes, the detected tin concentration in sample 62SB09-00 (4.5 J mg/kg) no longer exceeds the ecological surface soil screening value.

For Table 6-2, all of the NAPR basewide screening values for metals were replaced with revised values. Additionally, the RSL for industrial soil for carbon disulfide should be 3,000,000 ug/kg. As a result of these changes, the arsenic and beryllium concentrations in 62SB06-03 are no longer flagged as exceeding background.

- The focus of Sections 6.2 and 6.3 is identification of exceedances of human health and/or ecological screening criteria and the basewide background screening values. The fourth through sixth paragraphs of Section 6.2 – Surface Soil will be revised to read as follows:

Arsenic exceeded the regional screening level for residential soil at all nine surface soil sample locations; arsenic also exceeded the regional screening level for industrial soil at five of the nine locations. However, arsenic only exceeded the background screening level at three locations, 62SB06, 62SB08 and 62SB09. Barium exceeded the NAPR basewide background concentration at three locations; barium also exceeded the selected ecological surface soil screening values at two of these locations, 62SB04 and 62SB07. Beryllium was detected at a concentration in excess of background at one location (62SB08); beryllium did not exceed any of the other screening criteria. Cobalt was detected in excess of the regional screening level for residential soil at eight of the nine surface soil sample locations and exceeded the selected ecological surface soil screening

values at two locations. Cobalt was not detected in any of the surface soil samples at concentrations in excess of its background screening value. Copper was detected in one sample at a concentration in excess of the selected ecological surface soil screening value; however, this detection did not exceed the background screening value for copper. Tin was detected in one sample (62SB09-00) at a concentration in excess of its background screening value. Tin was not detected above the other human health or ecological screening criteria. Vanadium exceeded the selected ecological surface soil screening value at all nine sample locations. Vanadium also exceeded the regional screening level for residential soil at four of the nine sample locations. None of the vanadium detections exceeded the background screening value. Cadmium, chromium, lead, mercury, nickel, selenium and silver did not exceed any of the screening criteria or background. Figure 6-1 presents the locations of inorganic parameters that exceeded ecological or human health screening criteria and NAPR basewide background value for the 2008 Phase I RFI data.

Based on the exceedances of background and regulatory screening criteria in the surface soil, it appears that metals contamination (primarily arsenic and barium) may have occurred in the surface soil due to past activities at SWMU 62. Information obtained to date indicates that the lateral extent of contamination has not been fully defined.

- The fifth paragraph of Section 6.3 – Subsurface Soil will be revised to read as follows:

Arsenic exceeded the regional screening level for residential soil at all nine subsurface soil sample locations; arsenic also exceeded the regional screening level for industrial soil at four of the nine locations. However, arsenic did not exceed the background screening level at any of the locations. Barium exceeded the NAPR basewide background concentration at four locations; barium also exceeded the selected ecological surface soil screening value at one location, 62SB06, at a depth of 1 to 3 feet bgs (note that the ecological soil screening values are not applicable to samples collected from depths greater than 3 feet bgs). Beryllium was detected at a concentration in excess of background at two locations (62SB03 and 62SB09); beryllium did not exceed any of the other screening criteria. Cobalt was detected in excess of the regional screening level for residential soil at all nine subsurface soil sample locations and exceeded the selected ecological surface soil screening values at one location (62SB06). Cobalt was not detected in any of the subsurface soil samples at concentrations in excess of its background screening value. Copper was detected in one sample at a concentration in excess of the selected ecological subsurface soil screening value; however, this detection did not exceed the background screening value for copper. Vanadium exceeded the selected ecological surface soil screening value at all nine sample locations. Vanadium also exceeded the regional screening level for residential soil at three of the nine sample locations. None of the vanadium detections exceeded the background screening value. Cadmium, chromium, lead, mercury, nickel, selenium and silver did not exceed any of the screening criteria or background. Figure 6-2 presents the locations of inorganic parameters that exceeded ecological screening criteria and the NAPR basewide background value for the 2008 Phase I RFI data.

Based on the exceedances of background and regulatory screening concentrations in the subsurface soil, it appears that barium (sample 62SB06-01) contamination may have occurred in the subsurface soil due to past activities at SWMU 62.

- The second paragraph of Section 7.1 will be revised to read as follows:

The analysis of samples obtained during the Phase I RFI investigation indicates that surface and subsurface soil has been impacted from past activities at SWMU 62. Arsenic was detected in surface soil samples (62SB06-00, 62SB08-00 and 62SB09-00) at concentrations in excess of human health screening values (regional screening levels for residential or industrial soil) and background. A preliminary risk evaluation was conducted for arsenic. The low carcinogenic and noncarcinogenic risk levels calculated demonstrate that arsenic in soil would not indicate a health risk if a baseline human health risk assessment was conducted. Barium was also detected in surface and shallow subsurface soil samples (62SB04-00, 62SB06-01 and 62SB07-00) at concentrations exceeding the selected ecological soil screening values and background.

As indicated in the previous bullet, Section 7.1 will be revised to include a discussion of arsenic occurrence in the surface soil.

- Arsenic was detected in excess of screening criteria and background at three surface soil sample locations (62SB06, 62SB08 and 62SB09). Similarly, barium was detected in excess of screening values and background at three surface and shallow subsurface soil locations (62SB04, 62SB06 and 62SB07). Based on this, the first three sentences of Section 7.2 – Recommendations will be revised to read as follows:

Impact to the environment appears to have occurred at SWMU 62. While the contamination appears to be limited, a Full RFI Investigation is recommended to characterize the nature and extent of site contamination in the surface and subsurface soil. The Full RFI Investigation should focus around Phase I RFI sample locations 62SB04, 62SB06, 62SB07, 62SB08 and 62SB09.

Figure 7-1 and Table 7-1 will be revised to reflect these five locations.

#### **EPA COMMENT NO. 2:**

2. *According to Section 6.2, “Based on the exceedances of background and regulatory screening concentrations in the soil, it appears that metals contamination (primarily arsenic, barium, and tin) may have occurred in the surface soil at SWMU 62 due to human activities on site.” It is unclear how it was concluded that the three aforementioned metals are the primary contaminants when other detected metals concentrations, such as those for vanadium and cobalt, also exceeded regulatory screening concentrations. Please provide the basis for this conclusion.*

**Navy Response to EPA Technical Comment 2:** Both arsenic and barium had at least one detection that was greater than their respective background screening values and at least one of the human health or ecological screening values. Vanadium, cobalt and copper concentrations may have exceeded some of the human health or ecological screening criteria in the surface soil samples; however, none of the surface soil vanadium, cobalt or copper results exceeded background. Consequently, arsenic and barium are identified as the primary contaminants

because detected concentrations in the surface soil exceeded the human health/ecological screening criteria as well as the background screening value. Note that, based on a revised ecological screening value; tin did not exceed human health or ecological screening criteria, although it did exceed background in one sample. Refer to the response to comment 1 for revisions to Section 6.2.

**EPA COMMENT NO. 3:**

3. *According to the Revised Final Phase I RCRA Facility Investigation Work Plan, dated April 17, 2008, "two subsurface soil samples [one to three feet bgs and just above the water table interface] will be collected from each boring location, if site topography and terrain will allow (see SOP F102 in Baker, 1995)." According to Table 4-1 of the Draft Phase I RFI Report, no soil samples were collected at one to three feet bgs from borings 62SB01, 62SB04, and 62SB08. In addition, according to Section 5.2.2, groundwater was not encountered during the installation of the borings, and no indication of the depth of the water table interface was made on the soil boring logs. As a result, the rationale for selecting the sampling depth at all borings appears to be unclear. Please discuss the rationale behind the sampling depth selections and provide a justification for the noted deviations from the Work Plan.*

**Navy Response to EPA Technical Comment 3:** No soil samples were collected from the 1 to 3 foot depth interval from borings 62SB01 and 62SB04. The first subsurface soil sample from boring 62SB01 was collected from the 5 to 7 foot depth interval rather than from the 1 to 3 foot interval specified in the work plan to characterize black staining noted in the subsurface soil column from 6.4 to 8.7 feet bgs. The first subsurface soil sample from boring 62SB04 was collected from the 5 to 7 foot depth interval rather than from the 1 to 3 foot interval specified in the work plan to characterize the saprolite encountered below four feet bgs. Subsurface soil samples were collected from the 1 to 3 foot bgs depth interval from remaining borings as specified in the Work Plan.

Collection of the second, deeper subsurface soil samples from the borings was controlled by site conditions other than the occurrence of groundwater (the only observance of groundwater at SWMU 62 was in boring 62SB04 at a depth of 14.4 feet bgs). For boring 62SB05, 62SB07, 62SB08 and 62SB09 the deeper subsurface soil sample was collected from the 3 to 5 foot bgs interval because of shallow refusal of the sampling tools. For borings 62SB02 and 62SB06 the deeper subsurface soil samples were collected from the 5 to 7 foot bgs depth interval to characterize lithologic changes in the soil column. For borings 62SB01, 62SB03 and 62SB04, the deeper subsurface soil sample was collected from the 9 to 11 foot depth interval because 10 feet is the maximum depth typically considered for a potentially complete human health exposure pathway.

**EPA COMMENTS NO. 4:**

4. *According to Table 6-1, Summary of Detected Laboratory Results – Surface Soil, the laboratory reporting limits for tin are listed at concentrations above the selected ecological surface soil screening value and the NAPR basewide background level. Therefore, it is unclear whether tin is present at SWMU 62 above the screening levels. Please include a discussion as to how this issue will be addressed.*

**Navy Response to EPA Technical Comment 4:** On review of Table 6-1, it was determined that the Ecological Screening Value for tin should be 50 mg/kg rather than 3.46 mg/kg. The

laboratory detection limits are below the applicable human health and ecological screening criteria. Table 6-1 will be revised accordingly.

#### **PREQB COMMENTS DATED MARCH 4, 2009**

##### **PREQB COMMENT NO. 1:**

1. *The first sentence of section 2.2 located SWMU 62 at the southeastern portion of the base and referred to Figure 2-2. According to the mentioned figure the "Former Bundy Disposal Area" is really located at the southwestern portion of the base. Please revise the text and correct as appropriate.*

**Navy Response to PREQB Comment 1:** The referenced text will be revised to indicate that SWMU 62 is located in the southwestern portion of the base.

##### **PREQB COMMENT NO. 2:**

2. *Some of the QA/QC samples associated with SWMU 62 were share with other SWMUs that were investigated during the same period of time. Please provide more detailed information regarding the sample identification and preparation. For example, it is not clear how a Field Blank, collected on May 2, 2008 could be related to samples taken on May 31, 2008 and June 1, 2008. For future activities the frequency of the QA/QC samples should be clearly noted along with how the quality samples will be taken and share for concurrent site activities.*

**Navy Response to PREQB Comment 2:** Field blank FB01 was collected at the beginning of a multi-site field investigation (i.e., SWMUs 56, 61, 62, 69, 71, 74, and 78). The field blank was collected using the same batch of laboratory-grade deionized water that was used to collect equipment rinse blanks specific to each SWMU. Since FB01 was not collected at SWMU 62 during the sampling event, it is acknowledged that the results of FB01 only address laboratory sources of contamination and not the ambient conditions encountered in the field. For future multi-site field investigations at NAPR, field blanks will be collected at each SWMU at the time samples are being collected. Additionally, it should be noted that trip blank QATB01 also was collected on May 2, 2008 and accompanied the sample shipment containing FB01. As such QATB01 is not associated with any environmental samples collected at SWMU 62.

##### **PREQB COMMENT NO. 3:**

3. *Using the provided web address at the References on Section 8.0 the Regional Screening Levels Table could not be accessed.*

**Navy Response to PREQB Comment 3:** The website for the EPA Regional Screening Level Table has moved to the following address: [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm). The references in Section 8 will be revised to reflect this change.

##### **PREQB COMMENT NO. 1:**

4. *Preliminary Risk Calculations for surface soils are not being discussed on Section 6.2. It appears that a general discussion for all the detected concentrations (surface and subsurface soils) were included as part of section 6.3. This type of organization leads to confusion; please clarify if the discussion presented is intended for both sections or only for section 6.3.*

*If it is a general discussion, it should be presented in a manner that include both sections or discuss the calculations of each section in a separate way.*

**Navy Response to PREQB Comment 4:** The preliminary risk calculations for surface soil should be presented in Section 6.2. Sections 6.2 and 6.3 will be revised accordingly.

**PREQB COMMENT NO. 5:**

- 5. On the fourth paragraph of Section 6.2, at page 6-3, two soil sampling locations were identified as been from SWMU 68. Please revise and correct.*

**Navy Response to PREQB Comment 5:** The sample locations 68SB06-00 and 68 SB08-00 should be labeled as 62SB06-00 and 62SB08-00. The text will be revised to reflect this correction.

**PREQB COMMENT NO. 6:**

- 6. On Section 6.3, the fifth paragraph discusses the metals that exceeded screening levels. This discussion included the soil sample identification but omits the depth interval from where the samples came from. Please revise and correct in order to include the complete sample identification number.*

**Navy Response to PREQB Comment 6:** The referenced paragraph discusses the inorganic results with respect to the soil boring location and the identifications given refer to the soil boring location. See the Navy's Response to EPA Comment No. 1 for revisions to the text of Section 6.3.

**PREQB COMMENT NO. 7:**

- 7. Baker, on behalf of NAPR submitted on February 26, 2009 a table with the Revised Human Health Risk Assessment Summary of Receptors and Exposure Parameters. The preliminary Human Health Risk Calculations presented in Appendix D should be revised to reflect the changes according to the new table.*

**Navy Response to PREQB Comment 7:** The exposure parameters presented in the Summary of Receptors and Exposure Parameters Table submitted on February 29, 2009 were used in the preliminary Human Health Risk Calculations presented in Appendix D. Therefore, no revisions to the calculations are required.

**PREQB COMMENT NO. 8:**

- 8. The document makes reference to NAPR base wide background surface soil screening value (upper limit of the means concentrations [mean plus two standards deviation]) for Subsurface Soil Background Fine Sand/Silt Table 3-5 (Baker, 2008). The referenced document is not available at the NAPR Project Team Website for comparison. The only document available (which is the same document that is available at PREQB files) is dated October 17, 2006, please made available the most recent base wide background summary.*

**Navy Response to PREQB Comment 8:** It is confirmed that the referenced document is available on the NAPR Project Team Website. Under the Document Library/Document Database Search Criteria enter "NAPR" for the SWMU/AOC name. The search will yield approximately

35 results. Click on the document date column to sort by date and scroll to the "2/29/2008" date to find the Revised Final II Background Report. Table 3-5 of the Background Report provides the positive detections for the subsurface soil background, for fine sand and silt. Table 3-7 in the Background Report provides the descriptive statistics, including the upper limit of the means.

**PREQB COMMENT NO. 9:**

9. *The report did not mention management of investigation derived waste (IDW). The approved RFI Work Plan revised on December 20, 2007 and made final on April 17, 2008 did mention, on Section 3.3.2 at page 3-4 below other field activities, the procedures for the management of IDW. The report should included information regarding IDW, if any were generated.*

**Navy Response to PREQB Comment 9:** IDW management will be discussed in Section 4.4 – Decontamination and Investigation Derived Waste of the report. The waste disposal manifest for the IDW will be included in Appendix A.