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November 9, 2007

U.S. Environmental Protection Agency - Region II
290 Broadway – 22nd 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)
Final Phase I RCRA Facility Investigation Report for SWMU 27
Final Phase I RCRA Facility Investigation Report for SWMU 28
Final Phase I RCRA Facility Investigation Report for SWMU 29
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, text, and tables for the Draft Phase I RCRA Facility Investigation Report for SWMU 27, Naval Activity Puerto Rico, the Draft Phase I RCRA Facility Investigation Report for SWMU 28, Naval Activity Puerto Rico, and the Draft Phase I RCRA Facility Investigation Report for SWMU 29, Naval Activity Puerto Rico, for your review and approval. These replacement pages make up the Final Phase I RCRA Facility Investigation Report for SWMUs 27, 28, and 29. Directions for inserting the replacement pages into the Draft Phase I RCRA Facility Investigation Report for SWMUs 27, 28, and 29 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 SWMUs 27, 28, and 29 Naval Activity Puerto Rico.

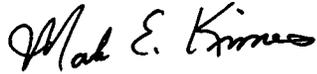
This document is being submitted in accordance with the EPA comments dated September 24, 2007. This comment requested the Navy to provide responses to the EPA comment letter dated June 28, 2007 on the Draft Phase I RCRA Facility Investigation Report for SWMU 27 dated April 6, 2007, the Draft Phase I RCRA Facility Investigation Report for SWMU 28 dated March 26, 2007, and the Draft Phase I RCRA Facility Investigation Report for SWMU 29 dated April 6, 2007, and the results of the September 20, 2007 Conference Call between the Navy, EPA Region II, Baker and TechLaw, inc. The Navy responses to EPA comments dated June 28, 2007 reflecting the results of the September 20, 2007 conference call discussing the June 28, 2007 comments are attached for your review.

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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 JUNE 28, 2007 ON THE
DRAFT PHASE I RCRA FACILITY INVESTIGATION REPORT FOR SWMU 27
DATED APRIL 6, 2007
DRAFT PHASE I RCRA FACILITY INVESTIGATION REPORT FOR SWMU 28
DATED MARCH 26, 2007
DRAFT PHASE I RCRA FACILITY INVESTIGATION REPORT FOR SWMU 29
DATED APRIL 6, 2007**

EPA GENERAL COMMENT

Based upon our reviews, EPA has the following general comment: The Recommendations (Section 6.2) of each of the above draft reports states that a Phase II RFI is recommended. While EPA agrees that additional investigation work is warranted, the requirements of the January 2007 Consent Order and EPA guidance do not describe a Phase II RFI. Therefore, please modify the proposal to refer to it as an RFI, or a "Full RFI" as indicated in Paragraph 25.H (Contingent Investigation and Corrective Action Requirements for SWMUs 27, 28, and 29) of the Consent Order. The work plan for the RFI or a "Full RFI" should be consistent with the scope of work included as Attachment III of the January 2007 Consent Order, or as discussed in Chapter III of the EPA guidance document "RCRA Corrective Action Plan" dated May 31, 1994 (OSWER Directive #9902.3-1 a).

Navy Response to EPA General Comments (regarding use of Phase II RFI): Section 6.2 of the Draft RFI Reports for SWMUs 27, 28, and 29 will be revised to eliminate reference to a Phase II RFI. For consistency with the January 2007 Consent Order and EPA guidance, the additional investigations recommended in Section 6.2 of each report will be referred to as a "Full RFI". The work plans for each RFI will be consistent with the scope of work included in Attachment III of the January 2007 Consent Order.

Additional comments are given below.

Draft RFI Report for SWMU 27 (Sludge Drying Beds at Capehart Waste Water Treatment Plant)

Section 6.2 (Recommendations) states that "impact on the environment was found ... to the northeast of the sludge drying beds." and that additional investigation is recommended "... to delineate the site contamination....in surface and subsurface soil". While EPA concurs that additional investigations are warranted for surface and subsurface soils, EPA does not concur that the additional investigations be limited to those media. EPA notes that the volatile constituent 1,1,1,2-Tetrachloroethane was measured above its risk-based Region IX PRG (preliminary remediation goal) for tap water in two of the 4 groundwater samples (i.e., 27TW01 and 27TW02), and that the inorganic constituent barium was measured above its PRG level in those same two groundwater samples. In addition, barium also exceeded both its MCL level and groundwater background criteria in groundwater sample 27TW01. Those groundwater detections were recorded in wells located along the north and east flanks of the sludge drying beds, and the source area for those release is not apparent. In addition, vanadium was measured in the groundwater above its tap water PRG in all 4 of the groundwater samples, but below its basewide background criteria established in the October 2006 "Summary Report for Environmental Background Concentrations of Inorganic Compounds" (the Background Report). Also, since the vanadium concentration of 410 ug/L in sample 27TW02 is more than twenty times greater than the concentrations in the other 3 groundwater samples at SWMU 27, there appears to be a release at that location. As discussed in my May 29 and June 11, 2007 letters, EPA has concerns about the validity of the basewide background criteria for vanadium established in the October 2006 Background Report.

Therefore, the proposed additional investigations should include not only a program to define the extent of the impacted surface and subsurface soils, but also investigations to define: a) the nature and extent of the organic and inorganic contamination impacting the groundwater along the north and east flanks of the sludge drying beds, b) the likely source area for those release, and c) the potential for unacceptable risks to human health and/or the environment.

Navy Response to EPA Comment No. 1 for SWMU 27: The Navy agrees that the extent of 1,1,1,2-tetrachloroethane and barium in groundwater along the north and east flanks of the sludge drying beds should be defined by an RFI investigation. Section 6.2 of the Draft Phase I RFI will be revised to include groundwater as a medium requiring additional evaluation. The following sentence will be added as the last sentence of Section 6.2: "The Full RFI should also include further investigation of VOCs and metals along the northern and eastern flanks of the sludge-drying beds". A draft work plan describing surface soil, subsurface soil, and groundwater sampling activities, including sample locations and analytical parameters, was submitted to the EPA on August 31, 2007.

The Navy agrees that the vanadium concentration in 27TW02 is high relative to 27TW01 and 27TW03. Groundwater samples collected as part of the full RFI field investigation discussed above will be analyzed for total recoverable and dissolved Appendix IX metals because of the following reasons: (1) detected concentrations of barium greater than EPA Region IX tap water preliminary remediation goals (PRGs), EPA maximum contaminant levels (MCLs), and/or the basewide background screening value in 27TW01 and 27TW02; and (2) the high concentrations of several metals (including vanadium) in the 27TW02 groundwater sample relative to concentrations detected in the 27TW01 and 27TW03 groundwater samples. In addition to metals, all groundwater samples collected during the recommended RFI field investigation will be analyzed for Appendix IX VOCs.

In addition, vanadium was found above its industrial and/or residential risk-based PRG in all surface and subsurface soil samples at SWMU 27, but below the basewide background criteria established in the October 2006 Background Report. However, as discussed in my May 29 and June 11, 2007 letters, EPA is concerned about the validity of the basewide soil background criteria for vanadium as established in the Background Report. Therefore, with regards to vanadium in the surface and subsurface soils, EPA does not concur with the Recommendation in Section 6.2 of the Draft Phase I RFI Report that the additional investigations be limited to delineating "... the site contamination above background levels ...". Rather, pending submission of additional data on validity of the natural background concentrations for vanadium in soils as established in the Background Report, EPA requests that the additional investigations at SWMU 27, include vanadium as one of the inorganic constituents to be further investigated in surface and subsurface soils at that SWMU.

Navy Response to EPA Comment No. 2 for SWMU 27: As indicated above, the EPA has previously expressed concern regarding the basewide surface and subsurface soil criteria established for vanadium in the Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds (Baker, 2006) in comment letters dated May 29, 2007 (SWMUs 14 and 68) and June 11, 2007 (SWMUs 16, 42, and AOC A). The Navy responded to EPA concerns in response letters dated July 20, 2007 (SWMUs 14 and 68) and August 2, 2007 (SWMUs 16, 42, and AOC A). Based on EPA comments on the Navy response letters, the Navy requested a conference call to further discuss issues related to the vanadium background criteria, which was held on September 20, 2007.

The Navy believes that background vanadium concentrations in surface soil and subsurface soil are representative of background conditions. Descriptive statistics summary reports (see Tables 1-A and 1-B), generated using NCSS statistical software, show that the NAPR background vanadium surface soil data set follows a normal and lognormal distribution (based on the Shapiro-Wilk test; non-transformed data were used to test if data are normally distributed, while log-transformed data were used to test if data

are lognormal). USEPA ProUCL Version 3.00.02 software calculations (included as Table 1-C) also show that the NAPR background vanadium surface soil data set follows a normal and lognormal distribution, as well as a gamma distribution. Based on a review of the probability plots for each distribution (Figure 1-A for normal distribution, Figure 1-B for lognormal distribution, and Figure 1-C for Gamma distribution), the data appear to fit either a normal or gamma distribution the best.

As evidenced by the attached descriptive statistics summary reports generated using NCSS statistical software (see Tables 2-A and 2-B), the NAPR background vanadium subsurface soil data set (clay soil type) follows a normal and lognormal distribution (based on Shapiro-Wilk test; non-transformed data are used to test if data are normally distributed [Table 2-A], while log-transformed data are used to test if data are lognormal [Table 2-B]). USEPA ProUCL Version 3.00.02 software calculations (included as Table 2-C) also show that the NAPR background vanadium surface soil data set follows a normal and lognormal distribution, as well as a gamma distribution. Probability plots assuming a normal distribution (Figure 2-A for non-transformed data and Figure 2-B for log-transformed data) and the probability plot assuming a gamma distribution (Figure 2-C) indicate that the NAPR background subsurface soil data set is best described by a lognormal distribution.

The surface soil probability plots shown in Figures 1-B and 1-C, as well as the subsurface soil probability plot shown in Figure 2-B, exhibit what appears to be a mixture of several different populations (as evidenced by multiple inflection points). For surface soil, when a break (i.e., inflection point) occurs within the data set, you do not see a segment with a gradual slope followed by a segment with a much steeper slope (i.e., the slope of each segment with multiple data points are either similar to the preceding segment or more gradual than the preceding segment). In this case, the inflection points should not be considered background delimiters (NFESC, 2003 and 2004). The observed patterns may be attributed to the relatively low sample size of the NAPR background vanadium surface and subsurface soil data sets (n = 19 for each data set). It is noted that background data sets can be composed of multiple natural subpopulations due to factors such as variations in physical characteristics of the soil (for example, the NAPR background surface soil data set for inorganics are lumped into a single data set with no consideration given to physical characteristics such as grain size). Therefore, the appearance of the surface soil probability plots depicted in Figures 1-B and 1-C also may be explained by the presence of multiple natural subpopulations within the NAPR background vanadium surface soil data set. Regardless of the reason for the appearance of several subpopulations within the surface and subsurface soil data sets, all data points within each apparent subpopulation fall near or on the predicted quantile lines (see Figures 1-B, 1-C, and 2-B). The absence of a segment with all data points above the predicted quantile line for each data set at the upper concentration range of the data is not indicative of a contaminated population. Based on this discussion, the Navy does not believe that additional data are necessary to validate the existing background vanadium surface and subsurface soil data sets.

Surface and subsurface soil samples collected as part of the RFI field investigation recommended in Section 6.2 of the Draft Phase I RFI Report will be analyzed for total recoverable Appendix IX metals because detected concentrations of several metals (i.e., arsenic, mercury, and zinc) exceeded ecological, human health, and/or background screening criteria.

References:

Naval Facilities Engineering Service Center (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.

Draft RFI Report for SWMU 28 (Sludge Drying Beds at Bundy Waste Water Treatment Plant)

Section 6.2 (Recommendations) states that "impact on the environment was found ...in areas to the south and east of the sludge drying beds. A Phase II Investigation is recommended ... in both surface soil and groundwater.... ". While EPA agrees that additional investigation work is warranted, the recommendations do not describe the scope of the proposed additional investigations. PCBs were detected in 4 of the 9 surface soil samples, and exceeded residential PRG in sample 28SB02-00. In addition, lead and mercury concentrations were measured in the surface soils at sample 28SB02-00 and 28SB03-00 above their residential risk-based PRGs and their corresponding basewide surface soil background criteria. Also, barium exceeded its residential PRG and background criteria in the surface soil sample 28SB01-00.

Navy Response to EPA Comment No. 1 for SWMU 28: Surface soil samples collected as part of the RFI field investigation recommended in Section 6.2 of the Draft Phase I RFI Report will be analyzed for Appendix IX metals and PCBs (aroclor compounds). A draft work plan describing the proposed surface soil sampling activities, including sample locations and analytical parameters was submitted to the EPA on August 31, 2007.

It is important to note that the human health screening criteria shown in Tables 5-1 and 5-2 of the Draft Phase I Report for lead are incorrect. The criteria will be corrected to 400 mg/kg (residential) and 800 mg/kg (industrial) on these tables. When compared to the corrected criteria, none of the lead concentrations detected in SWMU 28 surface soil samples exceed the USEPA residential and industrial soil Action Levels. Therefore, Tables 5-1 and 5-2 of the Draft RFI Report will be revised to reflect the correct USEPA Region IX soil PRG values and the text of Section 5.2 will be corrected to delete lead from the inorganic parameters that exceeded its screening level.

In addition, vanadium was found above its residential risk-based PRG in all surface and subsurface samples, but below the basewide background criteria established in the October 2006 Background Report. However, as discussed in my May 29 and June 11, 2007 letters, EPA has concerns about the validity of the basewide background criteria for vanadium. Therefore, with regards to vanadium in the surface soils, EPA does not concur with the Recommendation in Section 6.2 of the Draft Phase I RFI Report that the additional investigations be limited to delineating "... the site contamination above background levels ...". Rather, pending submission of additional data on validity of the natural background concentrations for vanadium as established in the Background Report, EPA requests that the additional investigations include vanadium as one of the inorganic constituents to be further investigated in surface soils at SWMU 28.

Navy Response to EPA Comment No. 2 for SWMU 28: EPA's concerns regarding the basewide background concentrations of vanadium were discussed in a conference call on September 20, 2007. Please see Navy's response to EPA Comment No. 2 for SWMU 27 (above) for a discussion of the background vanadium surface and subsurface soil data sets.

Surface soil samples collected as part of the RFI field investigation recommended in Section 6.2 of the Draft Phase I RFI Report will be analyzed for Appendix IX metals based on detected concentrations of several metals in each medium exceeding ecological, human health, and/or background screening criteria (arsenic, barium, chromium, cobalt, copper, lead, tin, vanadium, zinc, mercury, and sulfide in surface soil and arsenic, barium, chromium, and vanadium in subsurface soil).

The groundwater sample 28TW01, on the southeast side of the sludge drying beds had elevated concentrations of a number of inorganic constituents which exceeding their corresponding MCL levels and/or tap-water PRGs, and the corresponding basewide background criteria, established in the October 2006 Background Report. These groundwater exceedances in sample 28TW01 included 9 inorganic

constituents (arsenic, barium, beryllium, chromium, lead, nickel, vanadium, zinc, and mercury). In addition, groundwater sample 28TW03, on the east side of the sludge drying beds, had inorganic concentrations exceeding the corresponding MCL levels or tap-water PRGs for arsenic, barium, lead, and vanadium, but not the corresponding base-wide background criteria. Although Section 6.1 of the report indicates that well 28TW01 was the only well drilled into bedrock, it is not clear what the relationship of groundwater encountered in TW01 is to groundwater in TW03, or the relationship of inorganic exceedances in those two wells. Therefore, the proposed additional investigations for groundwater should include a program to define: a) the extent of the above inorganic contaminants, b) the direction and relationship of groundwater flow in the bedrock and overlying aquifer formation, and c) the likely source for the contamination impacting the groundwater in the bedrock and overlying aquifer formation.

Navy Response to EPA Comment No. 3 for SWMU 28: The Navy believes that based on the lack of water encountered during drilling within the bedrock, the groundwater sampled at well 28TW01 had accumulated from the unconsolidated materials and the interface between the bedrock and unconsolidated materials. The groundwater sampled at this well is not believed to be representative of a bedrock water-bearing zone. Furthermore, the elevated metals concentrations found in groundwater at well 28TW01 are believed to be the result of the ground-up bedrock created during drilling and collected in the groundwater sample, which was collected from an open borehole without development. However, the groundwater sample from well 28TW03 is expected to have been from the interface between the bedrock and the unconsolidated materials, which appears to be the first water-bearing zone. Therefore, the proposed monitoring wells to be installed during the full RFI at SWMU 28 will attempt to straddle this interface between the bedrock and the overlying unconsolidated materials. In addition, (to avoid the previously encountered sample quality at 28TW01), the proposed permanent wells at SWMU 28 will be screened across the bedrock interface, installed with a sand pack and annular seal, developed, and sampled using low flow techniques.

Additional text has been added to Section 5.4 regarding the quality of groundwater sample collected from 28TW01. Text has also been added in Sections 6.1 and 6.2 to reflect the conclusion regarding the quality of the sample, and the recommendation for the permanent wells noted above.

Draft RFI Report for SWMU 29 (Sludge Drying Beds at Industrial Area Waste Water Treatment Plant)

While Section 6.2 (Recommendations) states that "A Phase II RFI investigation is recommended to delineate the site contamination above background levels in surface and subsurface soil...", no further details are given. Arsenic in surface soil samples 29SB01-00 and 29SB05-00 exceeded the corresponding residential and industrial PRGs, and the background criteria established in the October 2006 Background Report. Cadmium in sample 29SB01-00 exceeded the corresponding residential PRG, and the background criteria. EPA interprets the above statement to include those two constituents. EPA recommends the Navy also consider including silver and vanadium in the future surface soil samples, since they exceeded their corresponding residential PRGs, but not the background criteria established in the October 2006 Background Report in one or more surface soil samples.

Navy Response to EPA Comment No. 1 for SWMU 29: Surface soil samples collected as part of the RFI field investigation recommended in Section 6.2 of the Draft Phase I RFI Report will be analyzed for Appendix IX metals.

Also, since the concentrations of several inorganic constituents (barium, chromium, copper, and zinc) in subsurface soils exceeded their background criteria as established in the October 2006 Background Report, EPA interprets the above statement to include those constituents, even though they did not exceed their residential or industrial PRGs. In addition, since arsenic exceeded the human health residential and industrial PRGs at 4 of the 8 subsurface soil sample locations at SWMU 29 (i.e., at 29SB01-02, SB04-02, SB05-02, and SB06-02); while vanadium exceeded both its residential and industrial PRGs at 7 of the 8

subsurface soil sample locations, please include both constituents as constituents of concern for the subsurface soil investigations, even though they did not exceed their background criteria as established in the October 2006 Background Report.

Navy Response to EPA Comment No. 2 for SWMU 29: Subsurface soil samples collected as part of the RFI field investigation recommended in Section 6.2 of the Draft Phase I RFI Report for SWMU 29 will be analyzed for Appendix IX metals.

In addition, the statement in Section 6.1 (Conclusions) of the report that "The subsurface soil did not exhibit any exceedances of the human health or ecological screening criteria" is not correct and needs revised. Although below their background criteria as established in the October 2006 Background Report, arsenic exceeded the human health residential and industrial PRGs at 4 of the 8 subsurface soil sample locations at SWMU 29 (i.e., at 29SB01-02, SB04-02, SB05-02, and SB06-02); while vanadium exceeded both its residential and industrial PRGs at 7 of the 8 subsurface soil sample locations and was above its residential PRG (7.82 mg/kg) in all 8 subsurface soil samples collected at SWMU 29. Ecological screening criteria were exceeded for at least 5 inorganic constituents (chromium, cobalt, copper, nickel, and vanadium) in 1 or more of the subsurface soil samples. Therefore, the above statement in Section 6.1 needs to be modified.

Navy Response to EPA Comment No. 3 for SWMU 29: Section 6.1 of the Draft Phase I RFI Report for SWMU 29 will be revised to include identification of chemicals in subsurface soil exceeding human health and/or ecological screening criteria.

Furthermore, EPA has concerns about the validity of the basewide background criteria for vanadium, as discussed in my May 29 and June 11, 2007 letters. Therefore, with regards to vanadium in the surface soils, EPA does not concur with the Recommendation in Section 6.2 of the Draft Phase I RFI Report that the additional investigations be limited to delineating "... the site contamination above background levels ...". Rather, pending submission of additional data to support the validity of the natural background concentrations for vanadium as established in the Background Report, EPA requests that the additional investigations at SWMU 29, include vanadium as one of the inorganic constituents to be further investigated in surface and subsurface soils at SWMU 29.

Navy Response to EPA Comment No. 4 for SWMU 29: EPA's concerns regarding the basewide background concentrations of vanadium were discussed in a conference call on September 20, 2007. Please see Navy's response to EPA comment No. 2 for SWMU 27 (above) for a discussion of the background vanadium surface and subsurface soil data sets.

As discussed in the Navy Response to EPA Comment No.1 and 2 above, surface and subsurface soil samples collected as part of the RFI field investigation recommended in Section 6.2 of the Draft Phase I RFI report will be analyzed for Appendix IX metals.

Within 60 days of your receipt of this letter, please submit either individual draft Work Plans or a single combined Work Plan for completing a "Full RFI" for each of the 3 SWMUs, that meets the requirements discussed above and in Paragraph 25.H (Contingent Investigation and Corrective Action Requirements for SWMUs 27, 28, and 29) of the Consent Order.

Navy Response to EPA Comment No. 5 for SWMU 29: The Draft Full RCRA Facility Investigation Work Plan-SWMU 27, 28, and 29 was submitted to the EPA for review and comment on August 31, 2007.