



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

DEC 11 2007

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Mark E. Davidson
US Navy
BRAC PMO SE
4130 Faber Place Drive
Suite 202
North Charleston, SC 29405

Re: Naval Activity Puerto Rico (NAPR), formerly Naval Station Roosevelt Roads,
EPA I.D. Number PRD2170027203,

- 1) October 10, 2007 Navy Responses to EPA Comments on Draft Monitored Natural Attenuation Work Plan for AOC F;
- 2) October 9, 2007 Semi-Annual Groundwater Monitoring Report for SWMU 3, Base Landfill
- 3) November 9, 2007 Final Additional Data Collection Work Plan for Ecological Risk Assessments of SWMU 14

Dear Mr. Davidson:

This letter is addressed to you as the Navy's designated project coordinator pursuant to the January 29, 2007 RCRA Administrative Order on Consent ("the Consent Order") between the United States Environmental Protection Agency (EPA) and the U.S. Navy (the Navy). EPA Region 2 has completed its reviews of the above documents, which were submitted on behalf of the Navy, pursuant to the requirements of the Consent Order. Based upon our reviews, EPA has several comments, which are discussed below. Additional comments are given in the enclosed Technical Reviews prepared by our consultant, TechLaw, Incorporated.

Responses to EPA Comments and Revised Monitored Natural Attenuation Work Plan for AOC F

EPA has completed its review of the Responses and Revised Work Plan submitted on October 10, 2007 by Baker Environmental on behalf of the Navy. Those Responses and the Revised Work Plan were submitted to address EPA's August 9, 2007 Comments on the Draft Monitored Natural Attenuation Work Plan for AOC F.

While available historical information has been provided in the Work Plan, there is an inadequate evaluation of this data to demonstrate that contaminant concentrations are decreasing at each site so as to achieve clean-up in "a reasonable time-frame". Such a finding is required pursuant to EPA's 1999 guidance on "Use of Monitored Natural Attenuation (MNA) at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites" (OSWER Directive 9200.4-17P). The Navy's Response to EPA Comment 2 states that "...the decision to place all these sites into an MNA program...had been made several years ago"; however, please note that the "decision" does not appear to have been made fully in compliance with EPA's 1999 MNA guidance, nor the 2007 Consent Order, which requires "estimates of the time required to achieve...clean-up..at each of the sites constituting AOC F.." (see paragraph 21.E of the Consent Order). Also, please note that according to the 1999 MNA guidance a "reasonable" timeframe for a remedy relying on natural attenuation is generally a "...timeframe comparable to that which could be achieved through active restoration." The Navy has not demonstrated that the monitored natural attenuation (MNA) remedy will achieve the cleanup objectives for the various AOC F sites in a "reasonable" timeframe.

To support the Navy's contention that MNA will achieve clean-up of the AOC F sites in a reasonable timeframe, and to confirm that is in-fact occurring, EPA requests that the following additions and/or modifications to the MNA Work Plan be provided.

- Estimated Constituents of Concern (COC) Isopleth Maps and associated discussions.
- Electron Acceptor/Metabolic Byproduct/Water Quality Parameter Isopleth Maps and associated discussions.
- Graphical representation of statistical trends supported by statistical analysis.
- Prior to elimination of constituents from the sampling plan, assure that seasonal conditions have been accounted for and are addressed. For example, sampling for MTBE should be sampled in more than one sampling event to account for seasonal groundwater fluctuations.
- Periodic confirmation sampling of all monitoring wells including those delisted from the sampling plan. It is suggested that this periodic confirmation sampling take place in conjunction with the submittal of the 5-year Work Plans to determine if stability continues, migration of the plume occurs, or reduction in the plume occurs.

Also, the Navy has included additional text and clarifications in its Responses and the Revised Work Plan to address certain of EPA's August 9, 2007 comments. However, the actions specified in the Responses either have not been implemented, or not even fully specified in the Work Plan itself. For example, the Navy's Response to EPA Comment #4 indicates that the well screen elevations will be evaluated during the well re-development work proposed in the Work Plan, to determine if the MNA wells are screened appropriately to detect free product. However, the work plan does not describe what steps will be taken if the well's screen elevation is determined during well re-development to be not appropriately positioned to detect and/or recover any free product present.

In addition, Section 12.0 (Schedule) of the Work Plan and Figure 12-1 need to be revised to:

- a) include a discussion, along with footnotes to Figure 12-1, clarifying why certain of the AOC F sites will have a report submitted only once a year, while other sites will have a report submitted every three months; and
- b) make clear that the Schedule shown in Figure 12-1 is not limited to one year, but will be ongoing until achievement of the clean-up standards is completed.

Please submit within 60 days of your receipt of this letter, a revised MNA work plan, addressing comments given above and in the enclosed Technical Review dated November 2, 2007

Semi-Annual Groundwater Monitoring Report for SWMU 3, Base Landfill

EPA has completed its review of the "Second Semi-Annual Groundwater Monitoring Report March 2007 Sampling Event, Base Landfill" submitted on October 9, 2007 by Tetra Tech NUS on behalf of the Navy.

Based on our review, EPA has determined that the recommendation given in the Conclusions and Recommendations of the Semi-Annual Report to revise Section 4.0 of the 1999 Sampling and Analysis Plan (SAP) for the Base Landfill to "provide consistency in describing background concentrations" and to enlarge the background data base for the Landfill to "allow a statistical plan to be followed that is compound specific when background concentrations (upper limit of the means) are exceeded during detection monitoring" are not fully acceptable.

The Semi-Annual Report does not provide any details on how the 1999 SAP will be altered to provide consistency in the background concentrations, nor does it describe the statistical method(s) that are being considered. In the enclosed Technical Review, General Comment 1 addresses these, and other issues concerning proposed revision to the approved SAP. EPA understands that such revisions to the SAP are to be used to evaluate data in future sampling rounds. However, since the 1999 SAP was incorporated into the 2007 Consent Order by reference, any revisions to the SAP, including Section 4.0, must be submitted to EPA for review and approval, prior to being implemented.

If the Navy wishes to utilize a revised SAP for future groundwater sampling at the Base Landfill (SWMU 3) under the 2007 Consent Order, please submit within 60 days of your receipt of this letter, for EPA's review and approval, any proposed revisions the Navy wishes to make to the 1999 SAP.

In addition, there are several specific items discussed in the enclosed Technical Review, where a relatively minor clarification and/or correction are required in the current Semi-Annual report. Please submit within 60 days of your receipt of this letter, revised pages or figures, addressing the specific comments given in the enclosed Technical Review dated November 2, 2007.

Final Additional Data Collection Work Plan for Ecological Risk Assessments of SWMU 14

EPA has completed its review of this document submitted on November 9, 2007 by Baker Environmental on behalf of the Navy. The work plan was submitted to address EPA's comments given in our letter of September 24, 2007. As part of our review, EPA had our contractor, TechLaw Inc., review the document. Several comments regarding the Additional Data Collection Work Plan are discussed in the enclosed Technical Review dated December 7, 2007. The most significant regards the need to develop an updated Conceptual Site Model (CSM) to include potential receptors and exposure pathways for the drainage ditch and freshwater wetland discharge areas. However, to facilitate expeditious completion of the ecological risk evaluations, the need for an updated CSM and other comments in the enclosed Technical Review may be addressed in the revised Screening-Level Ecological Risk Assessment (SERA) and the Step 3a Baseline Ecological Risk Assessment (BERA), which are to be developed following collection and analysis of the additional data. Subject to development of an acceptable CSM and addressing the other comments in the enclosed Technical Review as part of the revised SERA and Step 3A of BERA, EPA will approve the November 7, 2007 Additional Data Collection Work Plan. Implementation should be pursuant to the schedule given in Figure 5-1 of the Work Plan, with the field work targeted to commence in mid-February 2008. Pursuant to that schedule, the Draft Phase II (Full) RFI Report, which is to include the revised SERA and Step 3a of the BERA, shall be submitted to EPA by July 1, 2008.

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 (3)

cc: Ms. Josefina Gonzalez, P.R. Environmental Quality Board, w/encls.
Mr. Julio I. Rodriguez Colon, P.R. Environmental Quality Board, w/encls.
Mr. Pedro Ruiz, Naval Activity Puerto Rico, w/o encls.
Mr. David Criswell, US Navy, BRAC PMO, w/o encls.
~~Mr. Mark Kimes, Baker Environmental, w/encls.~~
Mr. Andrew Dorn, TechLaw Inc., w/o encls.
Mr. Felix Lopez, USF&WS, w/o encls.

REPA4R2-002-ID-039

**EVALUTATION OF THE NAVY'S OCTOBER 10, 2007,
RESPONSES TO EPA'S AUGUST 9, 2007 COMMENTS ON THE
DRAFT MONITORED NATURAL ATTENUATION WORK PLAN FOR AOC F
DATED JUNE 13, 2007**

**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	Andrew Dorn
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November 2, 2007

**EVALUTATION OF THE NAVY'S OCTOBER 10, 2007,
RESPONSES TO EPA'S AUGUST 9, 2007 COMMENTS ON THE
DRAFT MONITORED NATURAL ATTENUATION WORK PLAN FOR AOC F
DATED JUNE 13, 2007
NAVAL ACTIVITY PUERTO RICO**

The following comments were generated based on TechLaw's evaluation of the Navy's October 10, 2007, Responses to EPA's August 9, 2007 Comments on the Draft Monitored Natural Attenuation (MNA) Work Plan for AOC F, dated June 13, 2007 (Work Plan). The evaluation was conducted to ensure that the responses to EPA's comments are technically adequate, and to ensure that any associated document revisions will address the comments. Only the responses that do not appear adequate or which require further action are addressed below.

1. **Evaluation of the Response to TechLaw General Comment 3:** The response states that appropriate notes have been added to Tables 2-4 and 8-2 to clarify that wells designated for no further monitoring (NFM) will be sampled every 5 years to determine if a new release has occurred at Site 124 due to ongoing activities at this site. While text has been added to the notes section of Table 2-4, no additional language has been added to Table 8-2. In addition, the response states that text has already been included in Sections 2.5, 3.5, 4.5, 5.5 and 6.5 to clarify that groundwater elevation gauging at all wells, including those designated as NFM, will occur. However, text has only been added to Sections 4.5 and 6.5. Revise Table 8-2 and Sections 2.5, 3.5 and 5.5, as necessary.

2. **Evaluation of the Response to TechLaw General Comment 5:** While all available historical information has been provided in the Work Plan, an evaluation of this data to demonstrate that contaminant concentrations are decreasing at each site has not been provided. In an effort to support the Navy's demonstrations that the current monitored natural attenuation (MNA) remedy will reach the cleanup objectives in a reasonable amount of time the following minor additions are suggested.
 - Estimated Constituents of Concern (COC) Isopleth Maps and associated discussions.
 - Electron Acceptor/Metabolic Byproduct/Water Quality Parameter Isopleth Maps and associated discussions.
 - Graphical representation of statistical trends supported by statistical analysis.
 - Prior to elimination of constituents from the sampling plan, assure that seasonal conditions have been accounted for and are addressed. For example, sampling for MTBE should be sampled in more than one sampling event to account for seasonal groundwater fluctuations.
 - Periodic confirmation sampling of all monitoring wells including those delisted from the sampling plan. It is suggested that this periodic confirmation sampling take place in conjunction with the submittal of the 5-year Work Plans to determine if stability continues, migration of the plume occurs, or reduction in the plume occurs.

These additions should increase the overall level of confidence associated with MNA as an appropriate remedy.

REPA4R2-002-ID-038

**TECHNICAL REVIEW OF THE OCTOBER 9, 2007, SEMI-ANNUAL
GROUNDWATER MONITORING REPORT ON THE MARCH 2007
SAMPLING EVENT FOR SWMU 3, BASE LANDFILL
NAVAL ACTIVITY PUERTO RICO**

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

Submitted to:

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

Submitted by:

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**EPA Task Order No.
Contract No.
TechLaw TOM
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Andrew Dorn
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November 2, 2007

**TECHNICAL REVIEW OF THE OCTOBER 9, 2007, SEMI-ANNUAL
GROUNDWATER MONITORING REPORT ON THE MARCH 2007
SAMPLING EVENT FOR SWMU 3, BASE LANDFILL
NAVAL ACTIVITY PUERTO RICO**

The following comments were generated based on the technical review of the October 9, 2007, Semi-Annual Groundwater Monitoring Report on the March 2007 Sampling Event for SWMU 3, Base Landfill (Report).

GENERAL COMMENT

1. The Report indicates in the second paragraph of Section 4.0 that “the Navy is proposing to revise Section 4.0 of the SAP in order to provide consistency in describing background concentrations over the Base and at the Landfill.” Section 4.0 of the Report also states that, “the Navy is proposing to enlarge the background data base for the Landfill to include the first eight rounds of monitoring. This increase in data will allow a statistical plan to be followed...” Section 4.0 of the Sampling and Analysis Plan (SAP) provides a general description of the approach for the statistical analyses of the data. This includes a seven page flowchart that summarizes the statistical procedures to be used for evaluating site data. However, it is not clear from the Report where the data from the monitoring program currently falls in the flowchart, how the SAP will be altered to present more consistent information regarding the background concentrations over the Base and at the Landfill, and which statistical method(s) are/is being pursued by the Navy. Revise the Report to clarify what information will be amended in the SAP and indicate how this information will be used for future groundwater monitoring sampling events. In addition, revise the Report to describe the place in which the current monitoring results fall in Figure 4-1 of the SAP and identify the statistical approach intended for evaluating the groundwater monitoring data at SWMU 3.

A revised SAP, including the issues discussed above, should be provided to EPA Region 2 for review. The revised SAP should provide detailed supporting information, including calculation procedures and mathematical rationale, for all proposed statistical analysis methods and the background data expansion. No modifications to the current monitoring program should be implemented until EPA approves the revised SAP.

SPECIFIC COMMENTS

1. **Section 3.4, Criteria Comparison and Statistical Analyses, Page 3-2:** The last full sentence on the page states “Background groundwater quality data includes the upper limit of the mean and the upgradient concentrations as found during the landfill background monitoring events.” The meaning of this statement is unclear. Please clarify the definition of the “upper limit of the mean” (does this mean the 95% confidence level?) and explain how the mean values and distribution (upper limits) were obtained.

2. **Figure 2-2, Groundwater Contour Map dated March 14, 2007:** The fourth contour from the top of Figure 2-2 is 101 feet. However, the elevation on the right side of the same contour line is 100 feet. Revise the contour label on the left side of the figure to 100 feet.

3. **Figure 2-2, Groundwater Contour Map dated March 14, 2007:** The text in Section 2.2 of the Report indicates that the groundwater elevations from well R7GW04R were not used in drawing the contours. However, Figure 2-2 shows a groundwater elevation for the well. As in Figure 2-1, revise Figure 2-2 to indicate "Not Used" next to the groundwater elevation for well R7GW04R.

REPA4R2-002-ID-041

**TECHNICAL REVIEW OF THE FINAL ADDITIONAL
DATA COLLECTION WORK PLAN IN SUPPORT OF THE
ECOLOGICAL RISK ASSESSMENT AT SWMU 14
NAVAL ACTIVITY PUERTO RICO**

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

Submitted to:

**U.S. Environmental Protection Agency
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EPA Task Order No.

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EP-W-07-018

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December 7, 2007

**TECHNICAL REVIEW OF THE FINAL ADDITIONAL
DATA COLLECTION WORK PLAN IN SUPPORT OF THE
ECOLOGICAL RISK ASSESSMENT AT SWMU 14
NAVAL ACTIVITY PUERTO RICO**

A review of the Final Additional Data Collection Work Plan in Support of the Ecological Risk Assessment of SWMU 14 (WP) was performed to ensure that all of the requested EPA revisions (August 22, 2007) were included, and that this WP thoroughly addressed all of the potential ecological risks at SMWU 14. The review indicated that most of the EPA comments were properly addressed. The few outstanding comments are discussed below.

GENERAL COMMENT

1. The drainage ditch area will be addressed in the revised Screening Level Ecological Risk Assessment (SERA) using existing surface and subsurface soil analytical data, as well as data collected for use in the Baseline Ecological Risk Assessment (BERA). An updated Conceptual Site Model (CSM) needs to be developed since a new area is being evaluated. The 1997 EPA Ecological Risk Assessment Guidance for Superfund (EPA 540-R-97-006) states that an exposure pathway evaluation is a primary task of a screening level ecological characterization. It is important that all of the potential receptors and exposure pathways for the drainage area are included in the updated CSM. It is suggested that the updated CSM be included as a table or figure in this WP.

SPECIFIC COMMENTS

1. **Section 4.2, Step 3a of the Baseline Ecological Risk Assessment, bullet 1, Page 4-3:** This bullet stated that, "refined risk estimates will be derived using average (arithmetic mean) chemical concentrations." Using an arithmetic mean does not comply with the Navy Guidance (Navy, 2003) which states that exposure point concentrations may be based on a concentration other than the maximum, such as the 95% Upper Confidence Limit (UCL) of the mean. Free software, called Pro UCL 4.0.01, is available at <http://www.epa.gov/esd/tsc/software.htm> to calculate 95% UCLs. It is important that the data sets have less than 70% non-detects and a minimum of eight detected values before using Pro UCL 4.0.01 to calculate the 95% UCL. The 95% UCL value is considered unreliable if the data set does not meet both of these conditions. It is suggested that this bullet be revised in order to comply with the Navy Guidance.
2. **Section 4.2, Step 3a of the Baseline Ecological Risk Assessment, bullet 5, Page 4-4:** This bullet described how site data would be statistically compared to background data. The last sentence in this bullet stated, "for a given medium, the background data to be used in the statistical evaluation will be the background data set presented and discussed in the *Revised Final Summary Report for Environmental Background Concentrations of Inorganic Compounds*." It is suggested to clearly state in the first sentence of this bullet that only inorganic site data will be statistically compared to inorganic background data.
3. **Section 4.2, Step 3a of the Baseline Ecological Risk Assessment, Pages 4-4 to 4-5:** This section described the steps involved in reevaluating the list of Ecological Chemicals of Potential Concern (COPCs) with less conservative, but more realistic assumptions regarding

exposure. Both the Navy Guidance (Navy, 2003) and Parker and McDermott (2003) include frequency of detection as a potential reason for removing a particular COPC. This refinement step was not included in Section 4.2. All of the following conditions must be met in order to remove a COPC based on low frequency of detection:

- The COPC must have been detected in less than 5% of the samples. If fewer than 20 samples have been taken, this refinement activity cannot be used.
- The total number of detects plus the total number of laboratory reported detection limits exceeding the screening value must be less than 5% of the total samples.
- The detected constituent concentrations and spatial distribution must not be indicative of a potential “hot spot” or localized release.

It is suggested that this additional step for refining the COPC list be added to Section 4.2.

4. **Section 4.2, Step 3a of the Baseline Ecological Risk Assessment, Pages 4-4 to 4-5, third bullet:** The third bullet stated that, “central tendency estimates (e.g., mean, median, midpoint) for body weight and food ingestion rate will be used to develop exposure estimates for upper trophic level receptors rather than the minimum body weights and maximum food ingestion rates used in the SERA.” It is suggested to include a table showing the updated BERA input variables since these variables are different from those used in the SERA.

REFERENCES

Navy 2003. Navy Guidance for Conducting Ecological Risk Assessments. Available at <http://web.ead.anl.gov/ecorisk/process>.

Parker, N. and G. McDermott. 2003. U.S. Navy Ecological Screening and COPC Refinement for Sediment, Soil, and Surface Water. Available at <http://www.ead.gov/ecorisk/issue>.