



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
CARIBBEAN ENVIRONMENTAL PROTECTION DIVISION  
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6/13/05-02434

June 13, 2005

Mr. Jeffrey Harlow  
Western Vieques Remedial Project Manager  
Installation Restoration Section  
Environmental Programs Branch  
Environmental Division  
NAVFAC ATLANTIC Code 1822  
Naval Facilities Engineering Command  
1510 Gilbert Street  
Norfolk, VA 23511-2699

Re: Review of the Draft Remedial Investigation/Feasibility Study Work Plan for AOC R at the Former US Naval Ammunition Support Detachment (NASD) Vieques Island, Puerto Rico

Dear Mr. Harlow:

The U.S. Environmental Protection Agency (EPA) and the Puerto Rico Environmental Quality Board (EQB) have completed the review of the Draft Remedial Investigation/Feasibility Study Work Plan for AOC R dated January 2005. Enclosed you will find our comments.

If you have any questions or comments, please contact me at (787) 741-5201.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Daniel Rodriguez".

Daniel Rodriguez  
Remedial Project Manager  
Enforcement and Superfund Branch

Enclosures (2)

cc: Yarissa Martinez, EQB, w/ encl.  
Felix Lopez, FWS, w/ encl.  
Oscar Diaz, FWS, w/encl.  
Brett Doerr, CH2M Hill, w/encl.

**EPA's Comments**  
**RI/FS Work Plan for AOC-R**  
**Former Naval Ammunition Support Detachment**  
**Vieques Island, Puerto Rico**  
**January 2005**

1. The copy of the document EPA received indicated that the RI/FS work plan was a final document. The RI/FS work plan still a draft document, please correct.
2. Executive Summary, page iii: In the fourth paragraph, the text suggests that the groundwater will be analyzed for explosives. Please clarify if this includes perchlorate.
3. Executive Summary, page iii: Please note that due to the proximity of this site to an ephemeral stream we are recommending that surface soil samples be collected from the top 0-24" to take into account the potential exposure to the land crab.
4. Executive summary: a) For clarity, please refer to "continuous sampling" only when samples will be logged at all horizons. It is used here in reference to both this approach and to sampling every 5 feet. b) The screened intervals for all wells need to be logged continuously.
5. Section 2, Site Background and Physical Setting, page 2-1: The opening paragraph should clearly indicate that this document is addressing only one site, rather than two.
6. Section 2.3, Previous Investigations, page 2-2: Based upon our March 7<sup>th</sup> -8<sup>th</sup> meeting, it may not be appropriate to use the UTL for inorganics in background, as sampling conducted may not meet appropriate statistical requirements. As indicated in comments to the technical meeting notes, it may be more appropriate to screen against the range of background data, or the lowest value collected for each contaminant.
7. Section 2.3.2.4, Surface Soil Results, page 2-7: As previously indicated, surface soil data should be screened against values protective of ecological receptors and should be discussed.
8. Table 2-1: In the revision of the document, please consider using a lighter shade of gray for the table. The current shade is difficult to read.
9. Section 2.3.2.6, SVOCs, page 2-8: The last sentence in this section indicates that "VOCs, pesticides, and PCBs either were not detected or were detected at concentrations below applicable screening criteria." However, as noted above, as data were not screened against values protective of ecological receptors, this statement may not be accurate. Further, it should be noted whether detection levels are below screening values. This may need to be addressed in the uncertainty section of the screening level ecological risk assessment.

In addition, the text of the document again uses language that says contaminants were either not detected or detected below screening criteria. This is not appropriate. Indicate all anthropogenic compounds which were detected, and note which compounds or classes were non-detect. All detections should also be included on a figure, flagging those above criteria. This comment has been made on every work plan and report and it is time to change this practice.

10. Figure 2-5, AOC R Surface Soil Detections Above Screening Criteria and Background: This figure should be revised to show exceedances of ecological screening values. Further, based on recent discussions concerning use of background data, data exceeding background values may also be revised.
11. Section 3.1.2, Soil, page 3-1: Please include EPA soil screening values (<http://www.epa.gov/ecotox/ecossl/>). Further, although the two references for Efroymsen are correct, please add the following document which contains a table (Table 4) which compares the benchmarks for three types of organisms (wildlife, plants, and soil invertebrates) and uses the lowest available preliminary remedial goal (PRG). The reference is as follows: Efroymsen, R.A., G.W. Suter II, B.E. Sample, and D.S. Jones. 1997. **Preliminary Remediation Goals for Ecological Endpoints**, Oak Ridge National Laboratory, Oak Ridge, TN. 50 pp (ES/ER/TM-162/R2. [http://www.esd.ornl.gov/programs/ecorisk/contaminated\\_sites.html#reports](http://www.esd.ornl.gov/programs/ecorisk/contaminated_sites.html#reports)
12. Section 3.2, Conceptual Site Model, page 3-2: As discussed during the October technical meeting, and as identified in Figure 2-2 (orange line), there is an ephemeral stream west of the site which may be impacted by site activities and needs to be assessed. This is also noted in the response to PREQB comment # 49, which indicates that the vegetated area to the west of the site is an ephemeral stream. While it may be true that there are no surface water bodies on site, there may be surface water bodies off site which are impacted by AOC R.
13. Section 3.3, Preliminary Remedial Action Objectives and Goals, page 3-2: Please refer to the ecological risk assessment as a screening level ecological risk assessment (SLERA) rather than a “baseline risk assessment.” It appears contradictory to discuss AWQC for the protection of ecological receptors if surface water is not a media of concern.
14. Figure 3-1, Conceptual Site Model for AOC R: Former Construction Staging Area and AST: Please note that subsurface soil is usually not considered a pathway of concern for ecological receptors (as noted in Section 5.3.1.1 Screening Level Problem Formulation, contaminant fate and transport, page 5-5). A surface pathway and a groundwater pathway to surface water and sediment should be added as appropriate.
15. Table 4-1, Previously Conducted Sampling at AOC R as Reported in Expanded PA/SI Report: Please note that ecological values were not used for screening and therefore the actual list of COCs may be underestimated.

16. Section 4.1, Data Quality Objectives, page 4-2: The second to last sentence in the first paragraph indicates “. . . this work plan includes a sampling plan to further investigate the extent of the PAHs and metals.” As a risk assessment has not been conducted, it may not be appropriate at this time to narrow the scope of analysis. It is recommended that a full TAL/TCL analysis be conducted.
17. Section 4.3.1, Munitions Identification, Removal and Avoidance Survey, page 4-3: The text references an MEC identification Form 2-1 in Appendix C. Is this meant to reference for Form 2-5 in Appendix G? The nature of the MEC should be described in the report, including all information as to what chemical components would have been included in the item. This will document that soil sampling targeted all likely contaminants.
18. Section 4.3.2, Monitoring Well Installation, page 4-4: Wells MW-3 and MW-4 should be installed right next to the pad rather than 100 feet away. This will target the area where release is most likely to have occurred. MW-7 should be moved approximately 50 feet south and 25 ft west, placing it just at the northern edge of where existing samples were collected. The location of MW-1 was altered during the May 5, 2005 site visit so as to be located further upgradient. This should be reflected on the revised work plan.
19. Section 4.3.2, Monitoring Well Installation, page 4-5: As noted in the comment on the executive summary, all wells should be continuously logged. If in rock, each one should be cored (or logged by a similarly robust method), not just 3 of the wells.
20. Section 4.3.2.1, Groundwater Sampling and Analysis, page 4-5: The intended data use for the TDS analyses of groundwater is unclear. Please give the rationale or consider omitting the analyses. Also, indicate that samples will not be collected until 2 weeks after installation and development.
21. Tables 4-3 and 4-4: Please clarify that thallium will also be analyzed by graphite furnace atomic absorption spectroscopy.
22. Section 4.3.2.3, Surface and Subsurface Soil Sampling and Analysis, page 4-7: As this site is adjacent to an ephemeral stream, it is our recommendation that surface soil samples encompass the top 0-24". Further, surface soil samples should be collected from any surface runoff pathways. Sediment and surface water samples should be collected as necessary.
23. As determined during the May 5, 2005 site visit, three sediments/soil samples in the ephemeral stream will be added to the work plan. These locations were noted in the field and included sampling locations downstream of the ordnance item, right at the ordnance location, and upstream of the ordnance. It was further agreed that if standing water pools were present at or near these locations at the time of sampling, the water will also be sampled. Please modify Section 4.3, Field Investigation, to include discussion of the sediment and potential surface water sampling and analysis.

24. There are two sections numbered 4.3 in the work plan. There is a Section 4.3, Field Investigation, page 4-3, and another Section 4.3, Sampling and Equipment Decontamination, page 4-8. Please correct. Also, correct the Table of Content.
25. Section 4.3.1, Electronic Deliverable File Format, page 4-8: Requests have been made in the past to coordinate electronic formats used by CH2M Hill with those being implemented at EPA. This effort has not moved forward and should be pursued to transition work on Vieques into EPA's formats.
26. Figure 4-2, AOC R Surface Soil Sample Locations: The ephemeral stream should be clearly identified in this figure. It is indicated in Figure 2-4 that there is an MEC area to the west of the site. Additional surface soil samples will be collected from this area (Figure 4-2). These sample location should be numbered as appropriate. As there is an ephemeral stream in this area, surface pathways to the stream from this area should be sampled, as appropriate.

Also, No soil samples are proposed to be collected and analyzed for explosives in the areas where MEC items were found. According to the Figure, only two samples are proposed to be collected and analyzed for explosives near the light vehicle maintenance area. Samples for explosives and perchlorate analyses should be added in these MEC areas.

27. Figures 4-2 and 4-3: The keys on the figures do not match the text or Table 4-4. It is presumed that the text and table is correct and the figure needs to be amended. The clarification is important in that it is not clear what analyses are intended.
28. Section 5.2, Human Health Risk Assessment Approach, page 5-1: Please delete the reference to RAGs Volume II, *Environmental Evaluation Manual*, as this has been replaced by *Ecological Risk Assessment Guidance for Superfund, Process for Designing and Conducting Ecological Risk Assessments* (ERAGS), as noted in Section 5.3 Ecological Risk Assessment Approach, and included in the References (page 9-2).
29. Section 5.2.3, Toxicity Assessment, page 5-4: Please revise this section to more accurately reflect the toxicity database hierarchy established in the December 2003 "Human Health Toxicity Values in Superfund Risk Assessments" (OSWER Directive 9285.7-53).
30. Section 5.3.1.2, Screening-Level Ecological Effects Evaluation, page 5-5: The soil ecotoxicity values described here should match those discussed in Section 3.1.2. Soil (page 3-1) and include a reference to EPA's soil screening values.
31. Section 5.3.2.1, Screening Level Exposure Estimates, page 5-6: There is a discussion regarding detected concentrations in surface water and sediment. This discussion should match that in Figure 3-1 Conceptual Site Model. As noted above and in previous discussions, it is our recommendation that any potential impacts to

the ephemeral stream are addressed; which may include the collection of sediment and surface water samples.

32. Section 5.3.3.1, Step 3a - Refinement of Preliminary Constituents of Concern, page 5-7: The last sentence in the first paragraph is incomplete. Specifically, “. . . HQs near or below . . .” should include a numerical reference.
  - a. in the second bullet specify that contaminant concentrations will be compared to background inorganics.
  - b. in the fourth bullet please indicate why only values used by Region 4 will be considered.
33. Table 5-1, Exposure Factors for Soils, page 5-10:
  - a. Please revise the Dermal Absorption Factor for the Residential Adult to 0.7 mg/cm<sup>2</sup>. The reference for this is Exhibit 3-5 in RAGS Part E.
  - b. The Particulate Emission Factor presented in the table is the default value based on data for a 0.5 acre property in Minneapolis. Please develop a site-specific PEF value that is more consistent with the size and soil characteristics of AOC R. Please use the Q/C values in Table 3 (page 27) of the “Soil Screening Guidance: Technical Background Document” (May 1996; EPA Publication 9355.4-17A) and select an appropriate comparison city and property size for the calculation of the PEF.
  - c. It is unclear why exposure times are provided for the non-residential populations but not for the residential adult and child. Please clarify how these ET values will be used.
34. Table 5-2, Exposure Factors for Groundwater, page 5-11:
  - a. Please clarify why there is no exposure time value for the industrial worker.
  - b. Please remove the reference to EPA Region 4 policy in footnote “\*”.
35. Section 7, Remedial Investigation/Feasibility Study Report, page 7-2: Please indicate that Section 5.2 should be entitled, “Screening Level Ecological Risk Assessment” rather than “Ecological Risk Characterization.”
36. Section 9, Project Management, page 9-1: The section only identifies the Project Manager. The roles and responsibilities for all personnel involved in this particular project should be described. The Master Work Plan describes the overall project management, however, these roles and responsibilities should be defined for each individual project.
37. An Organization Chart, was not included in the Work Plan. This chart should be included before finalizing the document.

38. Appendix C, Screening Criteria: Ecological Soil Screening values should be included in addition to the Region 9 PRGs, along with freshwater sediment and surface water screening values (Persaud, D., J. Jaagumagi and A. Hayton. 1993 Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario. Ministry of Environment and Energy, Toronto. PIBS 1962. 24p.). Also, please revise this table to include the most recent EPA Region 9 PRG values.



*Customer-Focused Solutions*

April 12, 2005

Yarissa Martinez  
Puerto Rico Environmental Quality Board  
P.O. Box 11488  
431 Avenida Juan Ponce De Leon  
Hato Rey, P.R. 00910

TRC Reference Number: 36036-0010

**Subject:** Technical Evaluation of Navy Responses to EQB Comments, Draft RI/FS Work Plan for Area of Concern (AOC) I and AOC R, Former Naval Ammunition Support Detachment, Vieques Island, Puerto Rico, contained in Final RI/FS Work Plan for AOC R, dated January 2005.

Yarissa:

TRC is submitting to you a technical evaluation of the Navy Responses to EQB Comments that were provided regarding the Draft Remedial Investigation Work Plan for AOC R. The Navy Responses were contained in Final RI/FS Work Plan for AOC R, dated January 2005.

If you have any questions, please contact me at (978) 656-3568.

Sincerely,

Andrew Smyth, P.G.  
Senior Project Manager

Enclosure:

## **Technical Evaluation of Response to Comments**

***Draft Remedial Investigation/Feasibility Study Work Plan  
Area of Concern (AOC) R  
Former Naval Ammunition Support Detachment  
Vieques Island, Puerto Rico  
January 2005***

### **I. INTRODUCTION**

EQB has reviewed and provides the attached Evaluation of Response to Comments regarding the Draft Remedial Investigation/Feasibility Study Work Plan for Area of Concern (AOC) R.

The Navy provided Responses to the June 2004 EQB Comments to the April 2004 Draft RI/FS Work Plan for AOC I and AOC R. The responses were provided in Appendix F of the Final Remedial Investigation/Feasibility Study Work Plan for AOC R, dated January 2005. The January 2005 Final Work Plan comprises AOC R only. The Draft RI/FS Work Plan presented the proposed RI/FS sampling activities at AOC I and AOC R.

This evaluation summarizes significant issues identified with the Navy's Response to Comments regarding the RI/FS Work Plan.

Please note that this evaluation considers responses to AOC R although the initial draft RI/FS Work Plan comprised AOC I and AOC R. The Navy's Response to Comments included both AOC I and AOC R. Work at AOC I was presented in Draft Interim RI for AOC I, dated January 2005. Comments to the AOC I Draft Interim RI were provided in February 2005. Additional evaluation of Responses and/or issues pertaining to AOC I may be provided during the review of the future documents.

### **II. PAGE-SPECIFIC COMMENTS**

**PREQB Comment 5, Page ES-2, Paragraph 4** – Borings for monitoring wells should be logged continuously, rather than every five feet, over which the screen interval is to be emplaced.

**Response:** Past experience of drilling and logging of boreholes in west Vieques indicates that the water table is found at the top of or within the saprolite/bedrock unit. Subsequent monitoring wells locations will be sampled at 5-ft intervals until the saturated zone is encountered, then continuous sampling will begin. Continuous samples will be collected through the screened interval using either split-spooning or coring. Bedrock coring will be accomplished on three borings for monitoring well installation at each site, all other borings will be drilled using the air hammer method and cuttings will be logged. An alternate to coring is video logging the screened interval.

***Evaluation of Response:***

Two borings (suggested MW-2 and MW-5) should be advanced using continuous split-spoon sampling in order to obtain a continuous subsurface profile across the site. Split spoon sampling at five-foot intervals during the advancement of the remaining borings will be sufficient to verify subsurface strata. Subsurface soil should be field screened.

**PREQB Comment 18**

Section 3.1.2 – Section 5.2.2 states that a default residential land use will be assumed for each site. Therefore, only residential screening criteria should be used. Eliminate Industrial screening criteria from the list. Also, the migration to groundwater screening criteria should be based on a dilution factor of 1, not 20. The use of a DAF factor of 20 must be supported by site-specific data that demonstrates that this DAF is appropriate (i.e., hydraulic conductivity, hydraulic gradient, size of impacted area and depth of aquifer mixing zone). The hydrology of the sites has not been evaluated.

**Response to PREQB Comment 18**

**All the surface soil data have been screened against residential PRGs for soil. All the subsurface soil samples have been screened against industrial PRGs. Chemicals identified as COPCs were evaluated for residential and industrial scenarios. Therefore, both residential and industrial PRG values were listed in Section 3.1.2. At the completion of the RI, the site conditions will be evaluated to determine whether a DAF of 20 is appropriate. Total organic carbon (TOC) and bulk density data will be obtained at both sites. These data may be used to calculate a site specific SSL, if required.**

***Evaluation of Response:***

The evaluation of the DAF based on site-specific data at the end of the RI is acceptable. However, please note that if a more conservative DAF should be used, then soils should be re-screened at the lower SSL. Further investigation may be required if COPCs are identified based on site-specific SSLs that were excluded from analysis in the RI.

**PREQB Comment 24**

Figures 3-1 and 3-2 - The conceptual site models should show all receptors and exposure pathways considered and should include the rationale for eliminating receptors and exposure pathways from consideration for each site as required by US Environmental Protection Agency (EPA) Risk Assessment Guidance for Superfund (RAGS) Part D guidance (which is listed in Section 5.2 as a reference for conducting the human health risk assessment).

**Response to PREQB Comment 24**

**The following rationale has been added: “No surface water bodies are present on either site; therefore, the aquatic, surface water, and sediment pathways are not considered.”**

***Evaluation of Response relating to Figure 3-2:***

As requested in PREQB's original comment, please include all considered exposure pathways and a rationale for eliminating receptors and exposure pathways from further evaluation, as required by EPA RAGS Part D guidance.

#### **PREQB Comment 25**

A construction worker should be added to the conceptual site models unless both sites will have institutional controls that eliminate future construction activities. The ingestion of home-grown vegetables exposure pathway should be included in the CSMs. Once the chemicals of potential concern have been identified in soils from 0 to 3 feet bgs, an evaluation of whether this pathway is a potentially complete pathway can be conducted. It should be noted that MADEP has guidance for quantifying this exposure pathway. Sampling depths should be consistent with root depths for produce grown in this region.

#### **Response to PREQB Comment 25**

**Construction worker is assumed to be represented by the utility worker scenario included in the work plan. If site operations-related chemicals are identified in site media, and these chemicals have bioaccumulation potential, then secondary exposure pathways such as ingestion of home-grown produce will be considered. As part of this phase of investigation at the end of the RI, if the team identifies this indirect pathway is a potential exposure pathway of interest, then it will be evaluated at that time. The exposure quantification will be consistent with other RI sites already evaluated for the Former NASD, and reviewed by PREQB. The surface soils are collected from 0 to 6 inches below surface consistently across all sites investigated thus far. This work plan will be consistent with the previous investigations.**

#### ***Evaluation of Response:***

Due to the nature of known historic activities that took place on the concrete pad (carpenter shop), please include VOCs in the suite of analysis for surface and subsurface soil and groundwater samples. Due to the volatility of VOCs, it is unlikely that they would be detected in shallow surface soil if present due to historic releases. The only quantitative data available is from surface soil samples collected from 0 to 6 inches bgs. The only information available related to VOCs in subsurface soil is OVM readings taken from soil 6 to 12 inches bgs. Therefore, PREQB requests that surface soil samples be collected from 6 to 24 inches in areas where there is information indicating that shallow surface soil has been reworked (e.g., grading, vegetation removal) and from 0 to 24 inches elsewhere. Please include a discussion of whether historic information, including historic photographs discussed in the Environmental Baseline Survey report, show reworking of soils at this site in the past. This type of information is helpful in determining the appropriate depth for surface soil samples to ensure that the data quality objectives for human and ecological risk assessment are met.

Please note that it is irrelevant whether surface soil sample depths for this site are consistent with other investigations. Surface soil sample depths should be based on the nature and history of releases.

**PREQB Comment 30**

Section 4.3.2, paragraph 1 - The hydrology of the site has not been determined. Therefore, it is unknown whether groundwater impacts are present 100 feet away from potential source areas. A monitoring well should be placed adjacent to and downgradient from concrete pad in the vicinity of the former carpentry shop. A monitoring well should be placed adjacent and downgradient from the former mechanics shop. Please correct location of MW03 and MW04. The text refers to MW05 located to the northwest and MW06 located to the northeast; however, figure 4-3 is not consistent with this description.

**Response to PREQB Comment 30**

**The location of the former carpentry shop is unknown. There is no known former mechanics shop at the site. Figure 4-3 has been revised to re-locate the monitoring well locations.**

***Evaluation of Response:***

The response does not address the rationale for placing monitoring wells 100 feet downgradient from the concrete pad.

Please provide further discussion on the rationale for installing MW-3 and MW-4 100 feet downgradient from the concrete pad. It is unclear that these locations will provide information on groundwater quality within the likely source area.

Please specify the distance from the former AST to the proposed upgradient monitoring well location. Please clarify if the proposed location for MW-1 is also upgradient from the possible location of the AST indicated by the current location of the tank supports.

Please provide further discussion on the purpose for MW-7.

**PREQB Comment 32**

Section 4.3.2.2, paragraph 1 - Appropriate TPH analysis should be included in the analytical suite to provide data to evaluate potential risks associated with petroleum contamination.

**Response to PREQB Comment 32**

**There are no known petroleum storage tanks at the proposed sampling locations. Therefore, TPH analysis will not be performed at this time.**

***Evaluation of Response:***

TPH analysis should be conducted to determine if historic activities have resulted in petroleum impacts to groundwater. Please include appropriate TPH fraction analysis (to be determined by EPA) in the analytical suite.

**PREQB Comment 33**

Section 4.3.2.4, paragraph 1 - The analytical suite for the AST should include metals, PCBs and pesticides unless historical records are available that indicate what the contents of the AST were. The analytical suite for surface and subsurface soil samples in the vicinity of the concrete pad should include VOCs due to historical use of the pad as a carpentry shop. Appropriate TPH and VOC analysis should be included for surface and subsurface soil samples collected in the former mechanics shop (vehicle maintenance) area.

The purpose of the sampling is to characterize impacts associated with historic releases at this site. Past uses include a mechanics shop and carpentry shop. These types of shops typically use and dispose of various volatile organic compounds (VOCs). Historic uses should be considered in determining appropriate analytical methods. Therefore, VOCs should be included in the list of analyses for soil.

#### **Response to PREQB Comment 33**

**Metals, pesticides, and PCBs have been added to the parameter list for the soil samples around the AST. In Section 4.3.2.4, paragraph 1, sentence 1, will read: "Four surface soil and four subsurface soil samples will be collected around the former AST south of Highway 200 and analyzed for metals, TPH, VOCs, SVOCs, Pesticides and PCBs." Samples from a total of 24 sample locations around the concrete pad were analyzed for VOCs during the Expanded PA/SI. Results indicated that VOCs were either not detected or were detected at concentrations below applicable screening criteria. Therefore, soil samples from around the concrete pad will not be analyzed further for VOCs. No mechanics shop is known to have existed at the site. A total of 10 sample locations in the vehicle maintenance area were analyzed for VOCs during the Expanded PA/SI. Results indicated VOCs were either not detected or were detected at concentrations below applicable screening criteria. However, to further characterize the area, seven surface soil samples and four subsurface soil samples will be analyzed for VOCs and SVOCs in the vehicle maintenance area.**

#### ***Evaluation of Response:***

Please add VOCs and appropriate TPH fraction analysis (to be determined by EPA) to the analytical suite for surface and subsurface soil samples since previous samples were collected from 0 to 6 inches, a depth at which VOCs from historic releases are unlikely to be detected. Therefore, PREQB is requesting the additional surface soil samples representing soils from 6 to 24 inches below grade be collected adjacent to the concrete pad.

Also, please use field screening using headspace analysis to determine the depth at which subsurface soil samples will be collected. If field screening does not indicate the presence of subsurface impacts, the default depth should then be 4 to 6 feet bgs.

#### **PREQB Comment 34**

Table 4-8 - The TPH method listed is 314. Please provide documentation for this method prior to conducting field sampling. As stated previously, the TPH analyses should be appropriate for the

risk assessment methodology to be used to evaluate potential risks associated with petroleum contamination.

**Response to PREQB Comment 34**

**The TPH analysis will be conducted by SW846 Method 8015M – GRO/DRO to be consistent with previous data collected during the RI. Risks will be evaluated using VOC and SVOC data. Table 4-8 has been revised.**

***Evaluation of Response:***

EPA has provided toxicity criteria for TPH fractions. Therefore, analysis and risk evaluations for human health should be consistent with this new approach.

**PREQB Comment 46**

Page 4-9, Section 4.3.2.4, Table 4-8 –

- a.) The laboratory must use the most current CLP SOW for SVOCs and metals, as is being done for the VOC method for groundwater and the metals method for AOC I in Table 4-4. Therefore, OLC02.1 must be changed to OLC03.2 for SVOCs and ILM04.0 must be changed to ILM05.2 for metals. It should be noted that the SVOC list in OLC03.2 contains additional compounds in comparison to OLC02.1.
- b.) The current method listed for TPH is 314, which is a perchlorate method. This should be revised to be SW-846 8015B, assuming this is intended to measure TPH-DRO and TPHGRO. This was not clearly addressed in the text as it was for AOC I.
- c.) The number of field duplicates for metals must be increased from two to three to meet the frequency requirement of 1/10 samples.
- d.) The number of field duplicates for SVOCs must be increased from two to four to meet the frequency requirement of 1/10 samples.

**Response to PREQB Comment 46**

- a.) **Table 4-8 has been revised to include the most current methods that will be used for this project.**
- b.) **SW846 Method 8015M – GRO/DRO will be used to characterize TPHs.**
- c.) **The number of field duplicates for metals has been changed from two to four.**
- d.) **The number of field duplicates for SVOCs has been increased from two to four.**

***Evaluation of Response:***

- a.) The methods in revised Table 4.4 must be updated to the current methods:  
SVOCs – OLM04.3  
Pest/PCBs/VOCs – OLC03.2
- b.) EPA will provide the appropriate analytical method for evaluation TPH fractions.
- a.) The revised text indicates that the number of field duplicates for metals has been changed from two to five.

- b.) The revised text indicates that the number of field duplicates for SVOCs and VOCs has been increased from two to five.

### III. PREQB COMMENTS NOT INCLUDED IN THE NAVY RESPONSE TO COMMENTS PROVIDED IN APPENDIX F

Pages 4-7 and 4-8, Section 4.3.2.2 – Provide the rationale for installing thirty and fifty foot wells to investigate pesticides and PCBs, and other relatively immobile constituents, in the context of the basic fate and transport characteristics of these compounds, the type of release event(s) known or presumed to have occurred at AOC-R (e.g., sudden high volume releases over a short period of time, small incidental releases over a long period of time, subsurface injection, etc., as applicable), and the properties of the overburden (e.g., fine grained and highly organic or highly permeable). A fraction of the cost and level of effort associated with the installation of the wells could be used to evaluate the potential for deep subsurface migration of low-mobility contaminants.

Section 5 - The method for evaluating petroleum contamination in the HHRA should be included in the HHRA work plan. The PA/SI Phase II report indicates that petroleum contamination above 100 mg/kg "...is an indicator of a petroleum release, but does not serve as a risk-based criterion to assess risk to human health..." This statement indicates that petroleum data will be evaluated in the human health risk assessment. If that is the case, the method for evaluating petroleum data should be provided in the HHRA and appropriate analytical methods should be employed to ensure that the data reported is consistent with the toxicity values and chemical and physical parameter values used in the risk assessment to evaluate exposure to petroleum hydrocarbon contamination. (Note that this comment has been reproduced herein for completeness' sake as it was excluded from the Navy's responses to comments. However, the new approach for evaluation TPH based on EPA's PPRTVs for TPH fractions supersedes this comment.)

In accordance with EPA RAGS Part D, each section should identify the tables that will be provided as interim deliverables for regulatory review and a schedule should be provided that identifies the timeframe for submittal of these interim deliverables.

Section 5.2, paragraph 1 - This section should include EPA's RAGS Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim EPA/540/R/99/005 (September 2001) and EPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (November 2002).

EPA's *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments (1997)* document supersedes the *Environmental Evaluation Manual (1989)*. Please use this reference in conducting the ecological risk assessment and replace the outdated reference in this section.

Section 5.2, paragraph 2 - The CSMs should present all receptors and exposure pathways considered and the rationale for exclusion, as required by EPA RAGS Part D.

Section 5.2.2, paragraph 2 - It should be noted that the use of land uses other than residential will require institutional controls restricting activities and uses of the sites.

Section 5.2, paragraph 7 - It is not acceptable to restrict the evaluation of a residential exposure scenario to one ½-acre area. The extent of each source area identified at each AOC should be used as the exposure area for all exposure scenarios. The only reference to ½-acre exposure areas is provided in EPA's Soil Screening Guidance User's Manual and EPA points out that this size was used to represent a standard suburban residential lot. Unless it is known that these sites will be developed into ½-acre lots, the exposure area should represent each release area at each AOC. The maximum or 95% UCL concentration for each COPC should be used for all exposure scenarios. Furthermore, EPCs should be calculated using data representative of the exposure scenario and pathway. An industrial worker will likely be exposed to contaminants in surface soil. A construction worker will be exposed to surface and subsurface soil. EPCs should be calculated using datasets comprised of samples collected at appropriate sample depths.

Section 5.2.3, paragraph 1 - EPA considers HEAST a Tier III reference. The appropriate hierarchy is (1) IRIS, (2) provisional values obtained from EPA, and then (3) then other values, including HEAST values. Refer to EPA's Memorandum entitled "Human Health Toxicity Values in Superfund Risk Assessments" dated December 5, 2003. Toxicity criteria should be provided as an interim deliverable for regulatory review as required by RAGS Part D.

The EPA-recommended adherence factor for a child playing outdoors is 0.4. Please revise the table accordingly.

For dermal exposure to soil, EPA considers impact to be associated with a monolayer adhered to the skin. Therefore, exposure time should reflect at least 8 hours, since it is unlikely that a child or youth would immediately take a bath to remove a residual monolayer after leaving the site. Dermal contact continues until the skin is washed.

Please clarify why the exposure frequency for a youth is 45 days and the exposure frequency for a child is 50 days.

For those values that are footnoted with note "b," please provide supporting documentation that shows how the value was adapted from data presented in the Exposure Factors Handbook.

Please clarify what size site was used in calculating the PEF for this site.

As previously commented, the EPA-recommended showering time for an RME exposure scenario is 0.58 hour for an adult and 1 hour for a child.

#### **IV. NEW COMMENTS BASED ON NEW TEXT OR DISCUSSIONS IN TECHNICAL MEETINGS**

Section 5.2.1 - Maximum Contaminant Levels are not risk-based, in some cases, and are not appropriate for use as screening criteria. EPA Region 9 tap water PRGs should be used to screening groundwater. In the second sentence of the second paragraph, please replace the word “monitoring” with “characterization.” Also, please include a discussion of indirect exposure pathways that will be evaluated in the human health risk assessment. A discussion of whether the ingestion of home-grown vegetables is of concern should be addressed.

Section 5.2.2, paragraph 7 - Please clarify why only soil within the upper most 6 feet will be evaluated for direct exposure during excavation.

Section 5.2.2, paragraph 8 - The presence or absence of VOCs at this site still needs to be determined. Previous sampling is not sufficient to conclude that VOCs are not of concern for soil below 6 inches bgs. Therefore, the evaluation of VOCs should be quantitative unless the results of this more thorough investigation demonstrate that VOCs are not present at the site.

Section 5.3.1.2 - As requested in other work plans, please use EPA’s Eco-SSLs as screening criteria unless adequate justification is provided for using Region 4 values. Screening criteria for surface water and sediment should also be provided in this section, since it has yet to be determined whether historical activities have impacted the stream located adjacent to the boundary of the site. This section should be consistent with other sections, such as Section 5.3.2.1, which refer to concentrations of chemicals detected in surface water and sediment and upper trophic level receptors.

Please include a list of proposed references for ecotoxicity criteria (or the development of ecotoxicity criteria) for upper trophic level receptors.

Section 5.3.3.1 - Please use literature sources approved by EPA Region 2.

Section 5.4 - In accordance with the National Contingency Plan, a 1E-06 cancer risk level is the starting point for cleanup actions, modified by site-specific or remedy-specific factors such as exposure factors, uncertainty factors and technical factors applied as the agencies deem appropriate. Therefore, at this stage in the cleanup process, the remedial goal options should be estimated based on an excess cancer risk of 1E-06. This value may be modified by the agencies based on an assessment of land uses, technical remediation considerations and other factors that may result in a less stringent overall cancer risk. Please revise this section to reflect the more appropriate cancer risk level and the discussion of such modifying factors that may result in a less stringent cleanup level.

Section 5.4.2 - The text should clarify the term “low risks.”

Table 5-1 - The EPA-recommended ingestion rate for a construction worker is 330 mg/day. Since the Navy has indicated that the construction worker and utility worker represent the same

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exposure scenario, please revise the ingestion rate to reflect current EPA guidance on evaluating construction worker exposure. The EPA-recommended skin surface area is 5,700 cm<sup>2</sup>. Please revise the table accordingly.