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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
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March 6, 2006

Mr. Jeffrey Harlow  
Western Vieques Remedial Project Manager  
Commander Atlantic Division  
Naval Facilities Engineering Command  
6506 Hampton Boulevard  
Norfolk, VA 23508-1278

Re: Review of the Draft Work Plan Removal Action for SWMU 6, SWMU 7, AOC J and 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 Work Plan Removal Action for SWMU 6, SWMU 7, AOC J and AOC R dated November 2005. Enclosed you will find our comments.

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

Sincerely yours,

Daniel Rodriguez  
Remedial Project Manager  
Enforcement and Superfund Branch

Enclosures (2)

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

**EPA Comments**  
**Draft Work Plan for Removal Actions at**  
**SWMU 6, SWMU 7, AOC J and AOC R**  
**Former Naval Ammunitions Support Detachment (NASD) Superfund Site**  
**Vieques, Puerto Rico**

**General Comments:**

1. The most significant concern with this document is the selection of analytes in the confirmatory soil sampling data. No information is provided on how the analytes (Table 3-2 and Appendix C, Sampling and Analysis Plan, Table 2-1) were selected. It is noted that confirmatory soil samples collected from SWMU 6, SWMU 7 and AOC J will be analyzed for the presence of chemicals of potential concern (COPCs). However as the RI's for these documents have not been finalized, and a lists of COPCs for each site have not been approved. Justification for the selection of these analytes must be provided.
2. This iteration of the work plan was developed by a new consultant. As a result, much of the detail from past sampling activities that was presented in the first iteration is not included. This is important because it focuses any work presented in the removal work plan on the results from past investigations.
3. Site Figures: The term "ephemeral stream" rather than "water filled ditch" or "ditch" should be used, and all streams should be clearly identified.

**Page-Specific Comments:**

4. Figure 2: AOC R should be clearly identified in this Site figure.
5. Section 2.3.1, FSSI/Shaw Responsibilities, page 2-2: Please note that representatives from the Department of the Interior, Unites States Fish and Wildlife Service will be participating in these meetings, rather than the "Department of Fish and Wildlife Service".
6. Section 3.1, Overview of Proposed Approach and Rationale, page 3-1: Please note that the restoration effort indicated here (backfilling with clean fill material, compacting with field equipment, etc.) may not be appropriate for removal in a wetland/stream area or mangrove area.
7. Section 3.2.3, Permits, page 3-2: Please note that this plan does not include work to be conducted at SWMU 4. Please note whether any wetland areas at AOC J and SWMU 6 will be impacted by site activities.
8. Section 3.3.6, Waste Characterization Sampling, page 3-3: The waste characterization sampling is detailed in Table 3-1. Please provide a discussion on how these analytes were selected and why these analytes do not match those proposed for the soil sampling (see above).

9. Section 3.4.2, Excavate Soils and Debris, pages 3-4 and 3-5: The removals at SWMUs 6 and 7 are proposed to extend to a depth of up to 3 feet below ground surface, but the depth of excavation at AOCs J and R is only proposed to 1 foot bgs. Clarify how the depth of excavation was determined for each of the 4 areas. Please clarify that the ultimate depth of excavation will be driven by the extent of the debris and/or contamination.
10. Section, 3.4.1, SWMU 6, page 3-4 and Appendix C, Sampling and Analysis Plan, page 2-2: Please indicate whether any excavation will occur in the sediment areas of SWMU 6.
11. Section 3.4.3, Confirmatory Sampling and Analysis, page 3-5: EPA does not accept composite sampling. Samples should be collected from discreet locations to ensure compliance with target soil cleanup goals. The Navy should propose a sampling plan that adequately characterizes the post-removal and post-excavation area so that EPA can determine if the removal was adequate. Although discussion on composite sampling took place at a technical subcommittee conference call on November 9, 2005, no final agreement was reached on this subject.
12. Section 3.4.3, Confirmatory Sampling, page 3-6: It is indicated that the confirmatory sampling data will be used to prepare a risk assessment to verify that there is no risk to human health and the environment. However, justification for selecting the chemicals of potential concern identified in Table 3-2 must be provided to ensure that the risk calculations encompass all contaminants which may be associated with risk to receptors.
13. Table 3-2, Summary of Chemicals of Potential Concern, page 3.6: Please state how the list of contaminants in Table 3-2 was identified. EPA recommends analyzing all post-removal and post-excavation samples for full TAL/TCL analysis. This is especially important since no previous samples have ever been collected beneath the debris piles, and no prior data exist to limit the analysis. Also, since it is likely that the Navy may request that these sites are candidates for No Further Action once the removals are complete, having full TAL/TCL data will allow EPA to evaluate this request with additional confidence that all likely contaminants of concern have been analyzed. Finally, this table should also present the target soil cleanup goals that will be used to determine if the removal action is sufficient.

#### **UFP-QAPP Guidance Specific Comments:**

##### **1. Work Plan (WP)**

- 1.1. The Signature and Approvals page should include the signatures of the Lead Contractor and Agency as well as the approval Agency. See Section 2.1 of the UFP-QAPP Manual and UFP-QAPP Worksheet # 1 for the information required as well as definitions of Lead Contractor and Agency. This guidance can be found at: <http://www.epa.gov/fedfac/documents/qualityassurance.htm>.
- 1.2. QAPP Worksheet # 2 should be used to provide all of the Work Plan and QAPP identifying information, including a crosswalk of where the information required by

the UFP-QAPP guidance is located in the WP. It is recommended that a document control number be used to track changes and versions of the Work Plan.

- 1.3. QAPP Worksheet # 7 should be used to document personnel roles, responsibilities and qualifications of all project personnel.
- 1.4. A distribution list should be included in the QAPP as described in Section 2.3.1 of the UFP-QAPP Guidance and QAPP Worksheet #3. Assigning a document control number would facilitate tracking the copies that are distributed.
- 1.5. A Project Personnel Sign-Off Sheet distribution list should be included in the QAPP as described in Section 2.3.2 of the UFP-QAPP Guidance and QAPP Worksheet #4.
- 1.6. A Project Organizational Chart that shows reporting relationships between all organizations involved in the project, including the lead organization and all contractors and subcontractors should be provided. See Section 2.4.1 of the UFP-QAPP Manual and QAPP Worksheet # 5 for guidance.
- 1.7. As described in Section 2.4.2 of the UFP-QAPP Manual, communication pathways and modes of communication (faxes, newsletters, electronic mail, and reports) should be documented in the WP. QAPP Worksheet # 6 should be used.
- 1.8. Section 2.3.6, Page 2-4 of the WP – It is stated here that the Site QC Manager is responsible for the day to day coordination of technical activities. This appears to be in conflict with the position's oversight role. The WP should describe how the independence of the QC Manager will be assured.
- 1.9. Section 3.4.2 of the WP – The WP should describe what will be done with the debris and waste from the various sites within this project if the materials turn out to be hazardous.
- 1.10. Section 4.1 of the WP – It is stated here that results for PCBs, TPH and BTEX in addition to TCLP be compared to the TCLP Maximum Contaminant Concentrations. The applicability of TCLP action levels to PCBs, TPH and BTEX results should be explained.
- 1.11. Section 4.2 of the WP – The standards that will be used to confirm that all contamination has been removed should be described as well as the process to be used for comparing sampling results with these standards. Since composite samples are to be used, the decision statement should be stated in terms of average concentration. Composite sampling is appropriate for indicating average values.
- 1.12. Section 5.1.1 – “DQO Levels” are no longer used for defining Data Quality. The WP should describe the systematic planning process that was used to determine the sampling design that will provide data of sufficient quality to answer the projects principal questions. Please refer to Section 2.5.1, Section 2.6.1 and Figures 9, 10, 11 and 13 of the UFP-QAPP Manual for information on what should be considered to be appropriate documentation of the systematic planning process. Also, UFP-QAPP

Worksheets # 9, #10 and #11 should be included in the Work Plan. It should be noted that EPA's preferred systematic planning approach is the 7-step DQO process, which is explained in *Guidance for the Data Quality Objectives Process (QA/G-4)*, August 2000. This document is available at [http://www.epa.gov/quality1/qa\\_docs.html](http://www.epa.gov/quality1/qa_docs.html). Additional guidance on the DQO process can also be found at: <http://www.hanford.gov/dqo/>.

## 2. Appendix C, Field Sampling and Analysis Plan (SAP)

2.1. The signature page should be signed by the Quality Assurance Officer (QAO) or the equivalent position, in addition to the lead and investigative agencies as defined in the UFP-QAPP guidance. The QAO should be independent of the organization in the project responsible for obtaining or handling environmental data. The independence of the QAO should be documented in the SAP. This information does not need to be duplicated if it is the same as for the Work Plan. See comments 1.1-1.7 above.

### 2.2. Section 2.1 of the SAP

2.2.1. In addition to the excavation and sampling tasks presented here, all of the information required by Section 2.8.1 of the UFP-QAPP guidance should be provided. Worksheet # 14 should be used to present this information.

2.2.2. It is stated that "...The chemicals of concern for AOC R are in the process of being determined..." Since AOC R is part of this submission, the Work Plan/SAP cannot be considered complete without this information.

2.2.3. Once a laboratory has been chosen, the laboratory's quality assurance plan (LQAP) should be submitted for review. In addition, the laboratory should submit current copies (within the past six months) of laboratory certification provided from either a State or Federal Agency which conducts certification. The certification should be applicable to the matrix/analyses which are to be conducted. If the laboratory does not currently participate in the EPA Contract Laboratory Program (CLP) then they must submit the results of PE samples for the constituents of concern from within the past six months or they must complete PEs for the matrices and analyses to be conducted. All results must be submitted with the LQAP.

2.3. Section 3.0 of the SAP – If the Worksheets that include Project Organization and Responsibilities information are provided in the Work Plan (see comments 1.1-1.7) there is no need to repeat this information, just refer to the Work Plan.

2.4. Section 3.4 of the SAP – Personnel Qualifications and Training should include the information required by the UFP-QAPP Manual Sections 2.4.3 and 2.4.4 and UFP-QAPP Worksheets # 7 and # 8.

2.5. Table 4-2 – In addition to the items shown in this table, columns showing concentration level, analytical and preparation method/SOP reference, and sample

- volume (in addition to sample container) should be provided. Please refer to Section 3.1.1 of the UFP-QAPP Manual and UFP-QAPP Worksheet # 19.
- 2.6. Section 4.4 – Sample custody and documentation procedures should be documented as shown on UFP-QAPP Worksheets # 26 and 27. Also see Sections 3.3.2 and 3.3.3. of UFP-QAPP Manual.
- 2.7. Section 5.0 of the SAP – The information provided is not sufficient to adequately understand the sampling design and rationale in a way that will satisfy EPA requirements. Chapter 3.1 of the UFP-QAPP Manual should be used for guidance.
- 2.7.1. The sampling process design and rationale should be described. See Section 3.1.1 and UFP-QAPP Worksheet # 17 and #18 for the required information. Table A-1 of the SAP provided some of this information and could be modified to accommodate the rest.
- 2.7.2. In addition to the information provided in Table A-1, the SAP should describe the rationale for selecting the number and locations of field QC samples. UFP-QAPP Worksheet # 20 should be used for guidance.
- 2.7.3. All applicable sampling SOPs should be provided as an attachment and listed as shown on UFP-QAPP Worksheet # 21. Please refer to Section 3.1.2 of the UFP-QAPP Manual for these requirements.
- 2.7.4. Identify all field equipment and instruments (other than analytical instrumentation) that require calibration, maintenance, testing, or inspection and provide the SOP reference number for each type of equipment. The required information is described by Section 3.1.2.4 of the UFP-QAPP Manual and Worksheet # 22.
- 2.7.5. The SAP should describe the sampling supply inspection and acceptance processes as well as the field documentation procedures to be followed under this project as required by Sections 3.1.2.5 and 3.1.2.6 of the UFP Manual.
- 2.8. In addition to the analytical methods, the QAPP should contain a list of the analytical SOPs that the laboratory will use and should provide these SOPs as an appendix. Section 3.2.1 of the UFP Manual and Worksheet # 23 of the UFP-QAPP should be used for guidance.
- 2.9. Table A-1
- 2.9.1. QC sampling information should be provided in a separate table which includes the information required by Section 3.4 of the UFP-QAPP Manual and UFP-QAPP Worksheet # 28.
- 2.9.2. The column titled “QC Level” should be removed.

## 2.10. Table A-2

2.10.1. The information provided by this Table should be presented by using UFP Worksheet # 12 for measurement performance criteria and Worksheet # 15 for reference limits and evaluation.

2.10.2. The QAPP should provide definitions for the Quality Control parameters described in this table as well as the method used to calculate these parameters. See Section 2.6.2 (including all subsections) of the UFP-QAPP Manual and UFP-QAPP Worksheet # 12.

2.10.3. A large number of parameters do not have a defined action level. Without an action level, it is not understood how decisions will be made or how analytical methods chosen for these parameters can be evaluated as relevant and appropriate.

2.10.4. Explain why action levels for water are included when only soil and sediment samples will be taken.

### 3. The following required information was not included in this submission:

3.1. The QAPP should include a description for the use of secondary data. See Section 2.7 of the UFP-QAPP and Worksheet # 13 for the required information.

3.2. The document should provide a description of the analytical instrument calibration procedures. Guidance on what is required is provided by Section 3.2.2 of the UFP-QAPP Manual. Worksheet # 24 should be used to document these procedures.

3.3. The QAPP should describe the procedures and documentation activities that will be performed to ensure that all analytical instrumentation and equipment are available and in working order when needed as required by Section 3.2.3 of the UFP-QAPP Manual and UFP-QAPP Worksheet #25.

3.4. All documents and records that will be generated for all aspects of the project including, but not limited to, sample collection and field measurement, on-site and off-site analysis, and data assessment should be identified. See UFP-QAPP Manual Section 3.5.1 and UFP-QAPP Worksheet # 29.

3.5. All laboratories or organizations that will provide analytical services for the project should be identified as specified by Section 3.5.2.3 of the UFP-QAPP Manual and UFP-QAPP Worksheet # 30.

3.6. The QAPP should describe the procedures for recording and correcting data, including examples of data reporting forms and checklists as appropriate. See UFP-QAPP Manual Section 3.5.3.

3.7. A description of the procedures used for tracking data from the time it is generated to final use and storage should be provided. UFP-QAPP Manual Sections 3.5.4 and 3.5.5

should be followed.

- 3.8. No information was provided on the type and frequency of internal and external assessment and oversight activities to be performed on the project. Planned Assessments should be described as required by Section 4.1.1 of the UFP-QAPP Manual and Worksheet # 31. Assessment findings and corrective actions should be reported as described in Section 4.1.2 of the UFP-QAPP manual and Worksheet # 32.
- 3.9. The QAPP should also identify the frequency and type of planned QA Management Reports, the project delivery dates, the personnel responsible for report preparation, and the report recipients as required by Section 4.2 of the UFP-QAPP Manual and Worksheet # 33.
- 3.10. The documents submitted do not provide a description of the procedures to be taken for review, validation and usability assessment of the data produced by this project. Section 5 of the UFP-QAPP Manual defines three steps that need to be taken to evaluate whether the data meets the project's needs: Verification, Validation and Usability Assessment. All three steps should be described in the QAPP. The information in Section 5 of the UFP-QAPP Manual and Worksheets # 34, 35 and 36 should be included in the QAPP.
- 3.11. A completed QAPP completeness checklist should accompany the revised Work Plan/QAPP in order to facilitate EPA review and approval. Attached is the preferred format for this checklist.
- 3.12. It is recommended that the attached QA/QC Completeness Checklist be completed to insure that the project has complied with the minimum QA/QC requirement as documented in: "Part 2B Quality Assurance Quality/Quality Control Compendium: Minimum QA/QC Activities (505-B-04-900B)" which can be located at:  
<http://www.epa.gov/fedfac/documents/qualityassurance.htm>.

**EQB Comments**  
***Draft Work Plan Removal Actions***  
***Solid Waste Management Unit (SWMU) 6, SWMU 7 Area of Concern (AOC) J, and AOC R***  
***Former Naval Ammunition Support Detachment***  
***Vieques Island, Puerto Rico***  
***August 2005***

**I.GENERAL COMMENT**

1. The Executive Summary and Section 3.4.2 should be expanded to clearly indicate that the anticipated total tonnage for removal (11,050 tons) is an estimate based on available information and that actual tonnage may be more or less, depending on site conditions encountered. The Work Plan should specify that excavation will continue until contamination exceeding applicable regulatory criteria is removed. The Work Plan should present techniques (visual or olfactory observation, jar-headspace screening, and XRF field testing) that will be used during excavation to determine that contamination has been removed.
2. The sampling procedures should be revised for consistency with U.S. Navy Human Health Risk Assessment Guidance (December 2001). Consistent with Section 6.2.3, page 6-4, confirmatory sampling should comprise discrete samples, not composite samples. Paragraph 2 of Section 6.2.3 states: "In general, discrete samples are preferable because they provide more information about the nature (including variability) and extent of contamination."

**II.PAGE-SPECIFIC COMMENTS**

1. Page iv, second paragraph - The goals of the removal actions should be expanded to include "reduce or eliminate potential contaminant sources" as indicated on page v of the Engineering Evaluation/ Cost Analysis (EE/CA) (December, 2005)
2. Page v, Field Activities – Waste characterization sampling (first bullet) should occur after the excavation and segregation of soil and debris (fifth bullet). A complete understanding of the nature and quantity of waste is unlikely until the excavation is complete. Additionally, results from samples obtained after waste segregation (e.g., screening) would be more representative than in-situ sample results. In-situ samples for estimating the extent of waste required for removal is acceptable. However, the in-situ sample results should not be used to characterize waste that has been removed and segregated. As indicated in other comments below, waste characterization sampling should be performed at a pre-determined frequency based on volume. The current approach of one sample per area is insufficient to adequately characterize material anticipated to be heterogeneous. A frequency of one composite sample per 100 tons of material is recommended. Each composite sample should consist of 5 discrete samples from separate sections of the soil pile.
3. The plan should expand on the preservation of endangered vegetation and animals. The plan should describe proposed activities to identify endangered species prior to clearing and grubbing.

The plan should also detail the precise techniques that will be used to preserve endangered species (i.e., relocation, barricading, etc.).

4. Page 1-1, Section 1.1 – The fifth bullet should be expanded to include waste sampling for characterization purposes. The sixth bullet should be expanded to include transport and disposal of debris. The last bullet should be revised to indicate that the report will be “draft” pending regulatory review and approval.

5. Page 1-2 and 1-3 – The text should describe the calculation of the anticipated waste volume and present the factor used to convert soil volume to weight.

6. Page 3-2, Section 3.3.1 - Include the height of the barricade fence in this section.

7. Page 3-2, Section 3.3.2 - Clarify whether the establishment of routes at each site will be conducted in coordination with the USFWS.

8. Page 3-3, Section 3.3.3 - Clarify whether the 50 trips are round trip or one-way. Also, clarify whether trucks will be using roads on designated school bus routes. If so, truck traffic should be coordinated with the Municipality to ensure the safety of children during pick-up and drop-off from local schools.

9. Page 3-3, Section 3.3.5 - The overall design of the staging areas should be provided. The design should include a drawing which shows the general design for the staging areas, and note any modifications that will be made for an individual site. Clarify whether this section is discussing overland flow from surrounding areas or drainage from the staged debris/soil. The phrase “...to promote positive drainage away from the pile...” should clarify whether drainage refers to drainage from waste/soil staged in the staging area or overland flow from unimpacted areas surrounding the staging area. Also, provide figures of proposed staging area locations for agency review. Drainage from staging areas should be contained for off-site removal to ensure that contamination of areas in the vicinity of the staging area does not occur. The staging areas should be designed to capture drainage from waste/soil (i.e., bermed and a sump should be placed at a low spot so that drainage can be containerized). Staging areas for waste should be lined with an appropriate material to ensure that the soil beneath staging areas does not become impacted.

10. Page 3-3, Section 3.3.6 and Table 3-1 - Clarify whether Table 3-1 refers to in-situ or ex-situ samples and whether the samples are comprised of soil or debris. If it only applies to soil, the plan should clarify sampling and management techniques for potentially hazardous waste debris. The work plan currently states that only tires and large metal will be segregated from the remaining debris/soil. The removal action work plan should describe how all waste will be characterized that will be disposed at the municipal landfill. Also, due to the significant quantity of waste planned for removal (for example, from SWMU 7 - 9,000 tons), composite samples should be collected from the removed waste on the order of one per 100 cubic yards. The plan should also include samples of small pieces of debris (i.e., less than 6 inches) that will not be segregated as debris during the sieving process to ensure adequate characterization of all waste planned for disposal/ use as “clean” cover material at the municipal landfill.

11. Page 3-4, Section 3.4.2 - Previous sections (i.e., page iv, page v, page 3-1, etc.) referred to 11,050 tons of debris and soil to be removed. This section refers to 11,000 tons. The amount of debris and soil to be removed should be consistent between sections, and should indicate an approximate amount (i.e., approximately 11,050 tons). It should be clarified whether the amounts are limited contractually or whether additional removal can occur if quantities are greater than expected. Also, each subsection states that debris and soil will be removed from each site "...in a manner consistent with the type of debris encountered..." The manner of removal should be specified in the work plan. If it is discussed in another section of the work plan, this section should be referenced. Also, there is no discussion of actions that will be taken should hazardous waste liquids or solids be encountered during debris removal. The work plan should include a contingency for handling, sampling, and managing hazardous waste liquids, if encountered.

12. Page 3-4, Section 3.4.2 - The work plan should include the receiving disposal facility's requirements for waste segregation and characterization. The work plan should clarify how soil will be segregated from the waste for each area. The waste may be in various stages of decomposition, and the work plan should provide additional details on how smaller sized waste will be segregated from soil. If it is impracticable to do so, then waste characterization soil/sediment samples should include debris pieces, or the soil/waste mixture should be characterized once it has been removed and staged separately from tires and large metal debris.

13. Page 3-4, Section 3.4.2 - The design of the staging area should ensure that drainage from saturated soils removed from each area does not impact surrounding areas and clean stormwater run-on to the remediation area should be prevented. Drainage from the staging areas should be collected for proper disposal, unless it is demonstrated through sampling and analysis to be of acceptable discharge quality. The design of the staging area should include a sump or some other drainage collection method. If it is determined that the drainage from the staged debris/soil is not impacted, the design of the staging area should include drainage routing and erosion controls and indicate the receiving environment for drainage from the staging area.

14. Page 3-4, Section 3.4.2.1 - This section does not discuss segregating soil from other waste. Clarify how the waste generated from SWMU 6 will be characterized for disposal.

15. Page 3-5, Section 3.4.3 - The area represented by each composite sample should be reduced for excavation floor samples. The number of samples collected along the perimeter can be reduced to accommodate the increased number of excavation floor samples. A greater potential exists for encountering contamination along the floor of the excavation due to the tendency for contaminants to migrate with gravity. Also, the square footage represented by each sample in the composite should be more consistent. Each floor sample in the composite represents 500 square feet. For a three-foot deep excavation, each perimeter sample in a composite represents 150 square feet. A more representative frequency for excavation samples would be five samples per 1,500 square feet and for perimeter samples, one every 100 feet, with five samples making up a composite. Each sample in a composite, whether it is a perimeter or floor composite sample, would represent 300 square feet (assuming an excavation depth of 3 feet). As previously discussed, discrete samples should be collected in areas of obvious contamination that will

remain in-place (i.e., will not be removed during excavation). A photo-ionization detector (PID) should be used to aid in the identification of areas impacted by volatile organics for either immediate removal or sampling.

16. Page 3-6, Table 3-2 - Full TAL/TCL analysis should be conducted on confirmatory soil samples. The lists identified in Table 3-2 represent the analytes that did not screen out using samples that are only representative of soil adjacent or in the vicinity of the debris piles. Screening of samples collected outside of a potential source area should not be used to determine the list of chemicals of potential concern for a source area. In this case, the source area is the debris piles. Therefore, full TAL/TCL analysis should be conducted. Perchlorate analysis should be conducted where there is evidence of UXO disposal.

17. Page 3-6, Section 3.4.3 - The last paragraph on this page states that if additional impacted areas are indicated, further work will be conducted. Clarify the basis for determining whether areas are impacted (i.e., PID screening, olfactory or visual determination). PID screening should be conducted.

18. Page 4-1, Section 4.1 - The analytical results for PCBs, TPH, toluene, ethylbenzene and total xylenes are not comparable to TCLP Maximum Contaminant Concentrations. These results should be compared to applicable human health and ecological screening criteria (i.e., PRGs and eco-SSLs).

19. Section 6.0 - The work plan should include details on the design of the staging area to ensure that the staging area itself does not impact underlying soil or become a source of contamination, as commented on previously. The work plan states that contaminated soil/debris, if encountered, will be staged prior to off-site disposal. The staging areas should be designed to capture drainage from staged soil/debris for off-site disposal. The staging areas should be bermed and lined, and a sump or some other appropriate means for collecting drainage for off-site disposal should be employed. Staging area design and a discussion of preventative actions that will be taken to ensure that drainage will not be released from the staging areas should be included in this section of the work plan. SWMU 6 is of particular concern, although the staging designs for each site should be provided, if it is anticipated that the design will vary from site to site.

20. Page 6-2, Section 6.4 - Correct the spelling of “made” in the last sentence of the first paragraph.

21. Section 7.0 - Coordinate with the USFWS on appropriate seed/planting to revegetate disturbed areas.

22. Appendix C - Page 2-1, Section 2.1 - As commented on previously, perimeter samples should be collected on a frequency of 1 per 100 linear feet and floor samples should be collected on a frequency of 1 per 300 square feet. If a three-foot excavation is assumed, the resulting square footage represented by each sample would be 300 square feet, regardless of whether it is a perimeter sample or a floor sample. The purpose of this modification is to increase the density of the floor samples, since contamination, if present, is more likely to be encountered directly beneath the debris piles and not along the sides of the debris piles. Composite sampling is not

appropriate for volatiles analyses. Therefore, field screening should be conducted to identify locations for discrete sample collection for volatile organic compound (VOC) analysis prior to compositing. Composite samples are not recommended for confirmatory samples, since a subsample from an area where contamination is present is diluted by subsamples collected in areas that are clean (NJDEP 2005). EPA guidance on composite sampling (1995) states “when classifying samples according to exceedance or compliance with some standard value,  $c$ , the problem of dilution is overcome by comparing the composite sample result to  $c$  divided by the composite sample size,  $k$ , ( $c/k$ ). This is especially important for heterogeneous media and contaminant distributions, such as uncontrolled dump sites, where samples collected from clean areas dilute samples collected from contaminated areas during compositing.

23. Table 2-1, Summary of Chemicals of Potential Concern Table – As commented on previously, confirmation samples should be analyzed using full TAL/TCL since previous investigations only evaluated the perimeter or downgradient areas. Screening results from samples collected outside potential source areas should not be used to determine the chemicals of potential concern for sources areas. Perchlorate should also be analyzed for if UXO is present.

Page 5-2, Section 5.3 - The work plan indicates that tires and large metal debris will be segregated from the remainder of the waste. The remainder of the waste will then be transported to the Vieques Municipal Landfill for disposal. It is unclear whether the excavation process will cause potentially degraded/decomposed/rusted waste to become mixed with soil. Waste characterization be conducted once the wastes/soils have been segregated to ensure that the results are representative of the wastes being disposed of at the municipal landfill.

24. Page 5-2, Section 5.3 - The reference (i.e., section number) for the task-specific SAPs should be provided. Also, further details should be provided on the visual classification of samples collected from borings installed through the debris. Sample collection procedures should include the depths at which samples will be collected as well as describe whether debris pieces will be included in the waste characterization samples.

25. Page 5-2, Sections 5.3 and 5.4 - Sample collection procedures should be discussed in this section and in Section 5.4 or a reference made to the document and/or section where the procedures are provided. The only procedures currently discussed in these sections are compositing procedures once individual samples have been collected.

26. Attachment A, Table A-1 – As commented on previously, waste characterization for disposal should be conducted after wastes have been excavated and segregated. In-situ waste characterization is useful for estimating the extent of wastes to be excavated. All waste characterization samples for all sites should include pieces of debris that will be included in the waste planned for disposal at the municipal landfill. Note that the removal action work plan states that only tires and large metal will be segregated from the excavated waste. Also, as commented on previously, confirmation perimeter samples should be collected on a frequency of 1 per 100 linear feet and floor samples should be collected on a frequency of 1 per 300 square feet. If a three-foot excavation is assumed, the resulting square footage represented by each sample would be 300 square feet, regardless of whether it is a perimeter sample or a floor sample. The purpose of this modification is to increase the density of the floor samples, since

contamination, if present, is more likely to be encountered directly beneath the debris piles and not along the sides of the debris piles.

### **III REFERENCES**

EPA. 1995. EPA Observational Economy Series, Volume 1: Composite Sampling. US Environmental Protection Agency, Office of Policy, Planning and Evaluation. EPA-230-R-95-005. August.

NFEC and NEHC, 2001. U.S. Navy Human Health Risk Assessment Guidance. December 2001.