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**CH2MHILL**

June 26, 2001

USEPA Region II  
Mr. Raymond Basso  
Chief, RCRA Branch Program  
290 Broadway 22<sup>nd</sup> Floor  
New York, NY 10007-1866

Re: Transmittal of Response to Comments on Final Master Work Plan, Final Site Specific Work Plan, Final Description of Current Conditions Report, Final Work Plan for Groundwater Baseline Investigation, and Draft Work Plan for Soil and Groundwater Background Investigation for the Atlantic Fleet Weapons Training Facility (AFWTF), Vieques Island, Puerto Rico

Dear Mr. Basso:

On behalf of the Navy, CH2M HILL is pleased to transmit three copies of the response to EPA specific comments on following documents:

- Final Master Work Plan for AFWTF, Vieques Island, Puerto Rico
- Final Site Specific Work Plan for Phase I RFI AFWTF, Vieques Island, Puerto Rico
- Final Description of Current Conditions Report for AFWTF, Vieques Island, Puerto Rico
- Final Work Plan for the Groundwater Baseline Investigation at U.S. Navy's Eastern Maneuver Area, Vieques Island, Puerto Rico
- Draft Work Plan for Soil and Background Investigation for AFWTF

The EPA comments were received in three separate submittals: your letter dated April 10, 2001, and e-mails from Mr. Tim Gordon dated May 8, 2001 and May 10, 2001. Mr. Chris Penny of the Navy will provide a response to the general comments in your April 10, 2001 letter within the next few days.

As discussed with Mr. Tim Gordon of EPA and Chris Penny of the Navy, the proposed responses to EPA comments are provided as proposed text changes to the work plans or as attachments. Upon receipt of EPA approval of the proposed revisions for these work planning documents, draft final documents will be prepared and distributed to EPA. In addition, the final draft documents will undergo public comment prior to finalizing the documents. At that time, the documents will be placed in a public repository and a Public Notice will be published in the newspaper.

Mr. Raymond Basso  
Page 2  
June 26, 2001

Should you have any questions regarding the above, please do not hesitate to call Mr. Chris Penny at 757- 322-4815 or me at 813-874-6522 ext. 4307.

Sincerely,



Martin J. Clasen, P.G.  
CH2M HILL  
Project Manager

- c: Mr. Carl Soderberg/USEPA Puerto Rico (one copy)
- Ms. Aissa Colon/PREQB (one copy)
- Madeline Rivera Ruiz, NAVSTA Roosevelt Roads (two copies)
- Mr. Chris Penny/LANTDIV (two copies)
- Mr. John Tomik/CH2M HILL (one copy)
- Ms. Connie Crossley/Booze Allen (one copy)

**Response to EPA Comments to the Final Work Plans  
for RCRA Facility Investigations  
at the Atlantic Fleet Weapons Training Facility  
Vieques Island, Puerto Rico**

CH2M HILL submitted Draft Workplans for RCRA Facility Investigations (RFIs) at the Atlantic Fleet Weapons and Training Facility (AFWTF), Vieques Island, Puerto Rico to the United States Environmental Protection Agency (EPA) Region II in September 2000. These workplans included the following documents:

- *Master Work Plan (includes Project Management Plan, Master Field Sampling Plan, Master Data Management Plan, Master Investigation-Derived Waste Management Plan, Community relations Plan, and Master Health and Safety Plan)*
- *Site Specific Workplan for Phase I RCRA Facility Investigations*
- *Work Plan for Groundwater Baseline Investigation*
- *Description of Current Conditions Report*

EPA and EPA's technical reviewers (Booz Allen & Hamilton) reviewed these documents and issued comments on the documents in a letter dated November 29, 2000. These comments were discussed in correspondence between EPA, Booz Allen & Hamilton, and CH2M HILL, and the documents were revised accordingly and resubmitted for review in February 2001. In addition, the *Draft Soil and Groundwater Background Investigation Work Plan* was submitted for review.

EPA and Booz Allen & Hamilton Inc. reviewed the Final Work Plans to ensure that comments on the Draft documents had been adequately addressed. Subsequent comments from EPA and Booz Allen & Hamilton were issued by EPA in a letter dated April 10, 2001 to address items that EPA and Booz Allen & Hamilton feel were not adequately address in the revised documents, as well as to issue comments on the Draft Soil and Groundwater Background Investigation Workplan. EPA presented Booz Allen and Hamilton's comments to the Master Work Plan, Baseline Investigation Work Plan, and Soil and Groundwater Background Investigation Work Plan as enclosures #1, #2, and #3, respectively, to their April 10, 2001. In addition, EPA issued two additional sets of comments via email on May 8, 2001, and May 10, 2001.

These comments are provided below, along with a response to the comments. EPA's comments are italicized and are numbered in accordance with the comment numbers presented in EPA's April 10, 2001, letter and May 8 and 10, 2001 emails. Responses to each comment are presented below each comment. These responses will be incorporated into the final documents upon approval of these responses.

**RESPONSE TO EPA LETTER DATED APRIL 10, 2001**

*Site Specific Work Plan*

- A. *Section 2.12.2 must be revised to indicate that the results of the visual inspection of photo-identified sites and interviews with present and former facility personnel regarding those*

*photo-identified sites will be presented in the RFI Phase I Draft Final Report, not the Final RFI Report as presently written.*

**Response:** Comment noted: Results of the visual inspection of photo-identified sites and interviews with present and former facility personnel will be presented in the Draft Final Phase I RFI Report.

*B. Section 2.13 (Potential Areas of Concern [PAOCs]), identifies four specific PAOCs and refers to another 8 PAOCs, that are not specifically identified. However, no steps or tasks are included in the Site Specific Work Plan describing how and when evaluation of the 12 PAOCs will be completed to determine whether or not a release of hazardous waste or constituents has occurred from these PAOCs. The Navy's responses #2 and #4 given in Attachment A of your March 14, 2001 letter (and previously Emailed to EPA as Draft Responses on February 2, 2001) as regards EPA's comments on the previous edition of the Description of Current Conditions Report, indicated that such an evaluation will be performed. The Site Specific Work Plan must describe [briefly is acceptable] how and when evaluation of the 4 identified PAOCs will be completed to determine whether or not a release of hazardous waste or constituents has occurred from these PAOCs, and what steps will be taken to more precisely locate and evaluate the other 8 PAOCs. Also, as indicated in the Navy's responses #2.c and #4.c given in the above cited Attachment A, the Site Specific Work Plan must clearly indicate that the results of that evaluation will be included as part of the RFI Phase I Draft Final Report.*

**Response:** Section 2.13.2 of the Site Specific Work Plan will be revised as follows to clarify the steps to be taken to evaluate the 12 PAOCs:

The 12 Potential Areas of Concern (PAOCs) will be evaluated by the following: 1) conduct a archive review of historical documents and aerial photos, 2) if the site can be located conduct a site inspection to assess if there is any physical evidence of prior releases (i.e. soil staining, stressed vegetation), 3) at each POAC where the archive research or site inspection provides evidence of release of hazardous substances than up to three surface soil samples will be collected at each potentially impacted site for analysis of RCRA Appendix IX constituents, 4)compare the soil analyses with background levels and risk-based screening criteria and 5) present the results in the RFI Phase I Draft Final Report. If there is no evidence of either use or release of hazardous constituents than no additional sampling will be completed. If there is evidence of a release than subsurface soil samples and groundwater samples will be collected.

#### Description of Current Conditions Report

*EPA has also completed its review of the "Description of Current Conditions Report," also submitted by CH2MHILL's [Mr. Martin Clasen's] letter of February 19, 2001, and has determined that it is acceptable as submitted. However, this approval is conditioned on the Site-Specific RFI Work Plan being acceptably revised to include evaluation of the PAOCs, as discussed above.*

**Response:** Comment noted.

Final Work Plan for [Supplemental] "Groundwater Baseline Investigation"

*Although the Final Work Plan for [Supplemental] "Groundwater Baseline Investigation" (the Supplemental Groundwater Work Plan), also submitted by CH2MHILL [Mr. Martin Clasen] on the Navy's behalf on February 19, 2001, addressed our specific prior comments, EPA requests clarification regarding three issues noted by our consultant, Booz Allen Hamilton, which are discussed in Enclosure No. 2.*

*In addition, to the issues noted in Enclosure No. 2, EPA has several other comments on the Supplemental Groundwater Work Plan:*

- A. The statement in Section 2.2 regarding the groundwater analytical program should state that groundwater will be analyzed for all constituents included in Appendix IX of 40 C.F.R. Part 264 [not "compounds listed in Appendix IX USEPA Code of Federal Regulations"], excluding all metals. Also, a statement should be added after that, explaining that groundwater in the four wells to be sampled under this work plan has previously been analyzed for all Appendix IX metal constituents, and the results are included in Appendix B of the work plan.*

**Response:** Section 2.2 of the Supplemental Groundwater Baseline Investigation Work Plan will be revised to state that groundwater will be analyzed for all constituents listed in Appendix IX of 40 C.F.R. Part 264, excluding all metals. Section 1.1.2, previous investigations, of the same document will be revised to state that the metals results are presented in Appendix B.

- B. EPA finds the statement in Section 3 (Report) that "The interpretation is limited to comparing measured sample concentrations to the USEPA Region IX risk-based concentration (RBC) screening values and MCLs" to be an inadequate proposal for screening for unacceptable threats to human health. Firstly, no reference for the Region IX risk-based concentration (RBC) screening values is cited in Section 3 or Section 5 (References) of the work plan, or elsewhere, nor are the proposed RBC values themselves listed any where in the work plan. Secondly, EPA is aware of Region IX Preliminary Remediation Goal (PRG) concentration screening values, but not Region IX risk-based concentrations (RBCs). Please use the correct terminology. Thirdly, if Region IX PRGs are to be utilized, the Supplemental Groundwater Work Plan must clearly state that the Region IX Tap Water PRG concentrations, or the maximum contaminant levels (MCLs) given at 40 C.F.R. Part 141 Subpart B, whichever are lower, will be utilized for screening the groundwater results to determine whether there are possible unacceptable threats to human health and whether further investigations and/or other measures are warranted.*

**Response:** Sections 3 and 5 will be revised to state that EPA Region IX Tap Water Preliminary Remediation Goals (PRGs) concentrations, or the maximum contaminant levels (MCLs) given at 40 C.F.R. Part 141 Subpart B, whichever are lower, will be utilized for screening groundwater results to evaluate if there are potential unacceptable threats to human health and whether further investigations are warranted.

- C. Section 2.3.2 (Data Validation) and Section 3 (Report) of the work plan must clearly indicate that the data from the Appendix IX metal constituent results included in Appendix B of the work plan will be validated [see also D below] and that those results will be incorporated into the Draft Final Report on the results of implementation of the Supplemental Groundwater Work Plan.*

**Response:** Comment noted: Data Validation results from the Appendix IX metals analysis provided in Appendix B will be provided in the Draft Supplemental Groundwater Baseline Investigation Report associated with this work plan.

D. *Enclosure No. 4 to this letter gives EPA's comments on the Data Validation Reports submitted to us on September 8, 2000 by Baker Environmental on the Navy's behalf, for the data included in the November 1999 Results of the Hydrogeologic Investigation. In implementing the Supplemental Groundwater Work Plan, please insure that all analytical requirements and laboratory deliverables necessary for evaluation of the validity of any data gathered, as per all applicable requirements discussed in Enclosure 4, are met and provided as part of the data validation package submitted with the Draft Final Report on the results of implementation of the Supplemental Groundwater Work Plan.*

**Response:** Comment noted. The Supplemental Groundwater Work Plan will be revised to state that all analytical requirements and laboratory deliverables necessary for evaluation of the validity of any data gathered will be provided as part of the data validation package submitted with the draft and final reports. These requirements will include a comparison of the analytical data to Data Quality Objectives, the implementation of EPA Region II data validation SOPs, and a review of the raw analytical data.

E. *The November 4, 1999 report Results of the Hydrogeologic Investigation Vieques Island Puerto Rico, which was submitted to EPA by your letter of March 16, 2000, has the Section on Piezometers in Appendix F (Well and Piezometer Construction Diagrams) stamped "Attorney Work Product/Attorney Privileged Information - Do Not Disclose." In order for EPA to consider the November 4, 1999 Results of the Hydrogeologic Investigation Vieques Island data as partially satisfying requirements of the Order, and therefore, no longer required under the "Groundwater Baseline Investigation" work plan, the data must not be subject to "Attorney Privileged" restrictions. Therefore, please either re-submit the report on Results of the Hydrogeologic Investigation Vieques Island Puerto Rico, with all "Attorney Privileged Information" notations removed, or a letter indicating that the November 4, 1999 report Results of the Hydrogeologic Investigation Vieques Island Puerto Rico is no longer subject to "Attorney Work Product/Attorney Privileged Information" restrictions.*

**Response:** A letter will be submitted to EPA stating that the "Results of the Hydrogeologic Investigation" is no longer subject to Attorney Work Product/Attorney Privileged information.

#### Draft Work Plan Soil and Groundwater Background Investigation

*As you are aware, this "background" work plan was developed subsequent to EPA's letter of November 29, 2000, and was never previously submitted to, or reviewed by, EPA. EPA requested our contractor, Booz Allen & Hamilton to review the background investigation work plan. Their technical review comments, which EPA has reviewed and concurred with are provided in Enclosure No. 3.*

*In addition to comments given in Enclosure No. 3, the Introduction and Purpose and Objectives portions of this work plan must more clearly indicate that data gathered under it will be utilized*

*in conjunction with data gathered under the RFI Phase I, and if required "full RFI," work plans, to assess whether or not releases of inorganic hazardous constituents have occurred from the SWMUs and AOCs investigated, or are naturally occurring.*

**Response:** The Introduction and Purpose sections of the Background Investigation Work Plan will be revised to state that the background data will be utilized in conjunction with the Phase I RFI data, and if required, full RFI data, to assess if the inorganic constituents detected at the SWMUs are related to SWMU activities, or are naturally occurring.

*Public Notice and Public Comment*

*In your letter of March 14, 2001, you recommend that the above work plans, following their review and acceptance by EPA, undergo public comment prior to their implementation. EPA concurs.*

*EPA recommends that, upon their approval by us, the Navy arrange for all the above documents, including the "Description of Current Conditions Report" (since it constitutes part of the RFI work plan) to be placed in a public repository on Vieques Island, and a Public Notice of their availability for inspection and public comment be given.*

**Response:** The Navy will submit the work plans for public comment. However, the final draft of the work plans will not be prepared and submitted for public review until written approval of the enclosed responses to EPA's comments are received from EPA.

**Response to Enclosure # 1**  
**Comments to the Final Work Plans for RCRA Facility Investigations**  
**at the Atlantic Fleet Weapons Training Facility**  
**Vieques Island, Puerto Rico**

**GENERAL COMMENTS**

1. Site Specific Work Plan, Section 2.1.2

**Original Comment:**

*Section 2.1.2, for Solid Waste Management Unit (SWMU) #1, the Camp Garcia Landfill, describes specific landfill cells and trenches as being identified by aerial photographic interpretation done by ERI in 2000 and indicates the overall impacted area was determined to be approximately 55 acres. Figure 2-2 would appear to display those features; however, they are not specifically labeled on the figure, nor is the apparent outline around the landfill specifically labeled, and the basis for establishing that outline is not described. Also, the date of the displayed photograph is not given. These missing details hinder EPA's ability to assess the adequacy of the proposed investigations for this SWMU.*

*Remaining Issue: The revised text does not provide any additional explanation of the basis for delineating the landfill boundaries as shown in Figure 2-2, as requested in EPA's November 29, 2000 comment letter.*

**Response:** Section 2.1.2 of the Site Specific Work Plan will be revised to state that the landfill cells and trenches were determined based on ground scaring and cleared vegetation evident on historical aerial photographs reviews conducted by Environmental Research, Inc (ERI). Based on the aerial photographic survey, apparent landfill cells and trenches were identified in the 1959, 1962, and 1964 aerial photographs. Figure 2-2 has been color coded to present the limits of the apparent landfill cells and trenches evident in the above mentioned aerial photographs. The legend in Figure 2-2 has been revised to clarify the features identified in the figure. Attached is a copy of the revised Figure 2-2 for review.

The approximate landfill boundary line shown on Figure 2-2 was drawn only to provide a preliminary estimate of the extent for SWMU-1, which encompassed the evident landfill cells and trenches. This line has been relabeled as SWMU-1, not approximate landfill boundary. The landfill boundary will be determined after interpreting the results of the geophysical survey.

**SPECIFIC COMMENTS**

5. Draft Project Management Plan, Section 2.1.3, SWMU-1-Camp Garcia Landfill, Page 2-3

*Original Comment: The Description of Current Conditions Report indicates that a cap composed of compacted soil was installed on the landfill in 1978. Therefore, the proposed surface soil sampling is inappropriate. In order to assess the contents of the landfill and the potential that a release has occurred, soil borings and/or test pits are warranted.*

*Remaining Issue:* In the conference call on January 26, 2001, an agreement was reached that soil borings and/or test pits would not be required if language was added to the Work Plan to indicate that institutional controls would be placed on the landfill that precluded intrusive activities. Such text could not be located in the Final Work Plans. The text should be added to Section 2.1.3 of the Project Management Plan and Section 2.1.3 of the Site Specific Work Plan as rationale for not collecting subsurface soil samples.

**Response:** Section 2.1.3 of the Site Specific Work Plan and Section 2.1.3 of the Project Management Plan will be revised to state that institutional controls will be placed on the landfill area by the Navy.

12. Project Management Plan, Figure 3-1

*Original Comment:* The USEPA and the Puerto Rico Environmental Quality Board (PREQB) representatives should be added to the project organization chart as has been done in Figure 3-1 of the Master Quality Assurance Project Plan (QAPP).

*Remaining Issue:* "USEDA" should be corrected to "USEPA," and the USEPA representative should be corrected to Mr. Timothy Gordon.

**Response:** Figure 3-1 has been revised as requested. Attached is a revised copy of Figure 3-1 for review.

18. Final Master Field Sampling Plan, Table 2-1, Required Containers, Preservatives, and Holding Times for Water Samples, Page 2-6

*Original Comment:* The preservation requirements for liquid toxicity characteristic leaching procedure (TCLP) samples should be clarified. According to Method SW-1311, liquid samples containing less than 0.5 percent solids are not extracted using the leaching procedure. In this case, the preservation requirements in Table 2-1 for the TCLP methods are appropriate. However, if the liquid samples contain greater than 0.5 percent solids, the solid portion is separated and carried through the leaching procedure. Field acidification of samples will bias the leaching procedure. Therefore, samples should not be acidified in the field if greater than 0.5 percent solids are anticipated.

*Remaining Issue:* The original comment pertained only to the liquid TCLP analyses listed on the table, and was primarily intended to address inorganic samples. The general footnote, "groundwater samples with greater than 0.5 percent solids will not be field acidified," is inappropriate. Based on further consideration, the original comment should be disregarded, and the footnote should be deleted.

**Response:** The footnote on Table 2-1 of the Master Sampling Plan has been deleted.

*Original Comment:* Preparation and analysis method numbers should be specified for each type of analysis. For CLP methods, the Statement of Work (SOW) number should be specified.

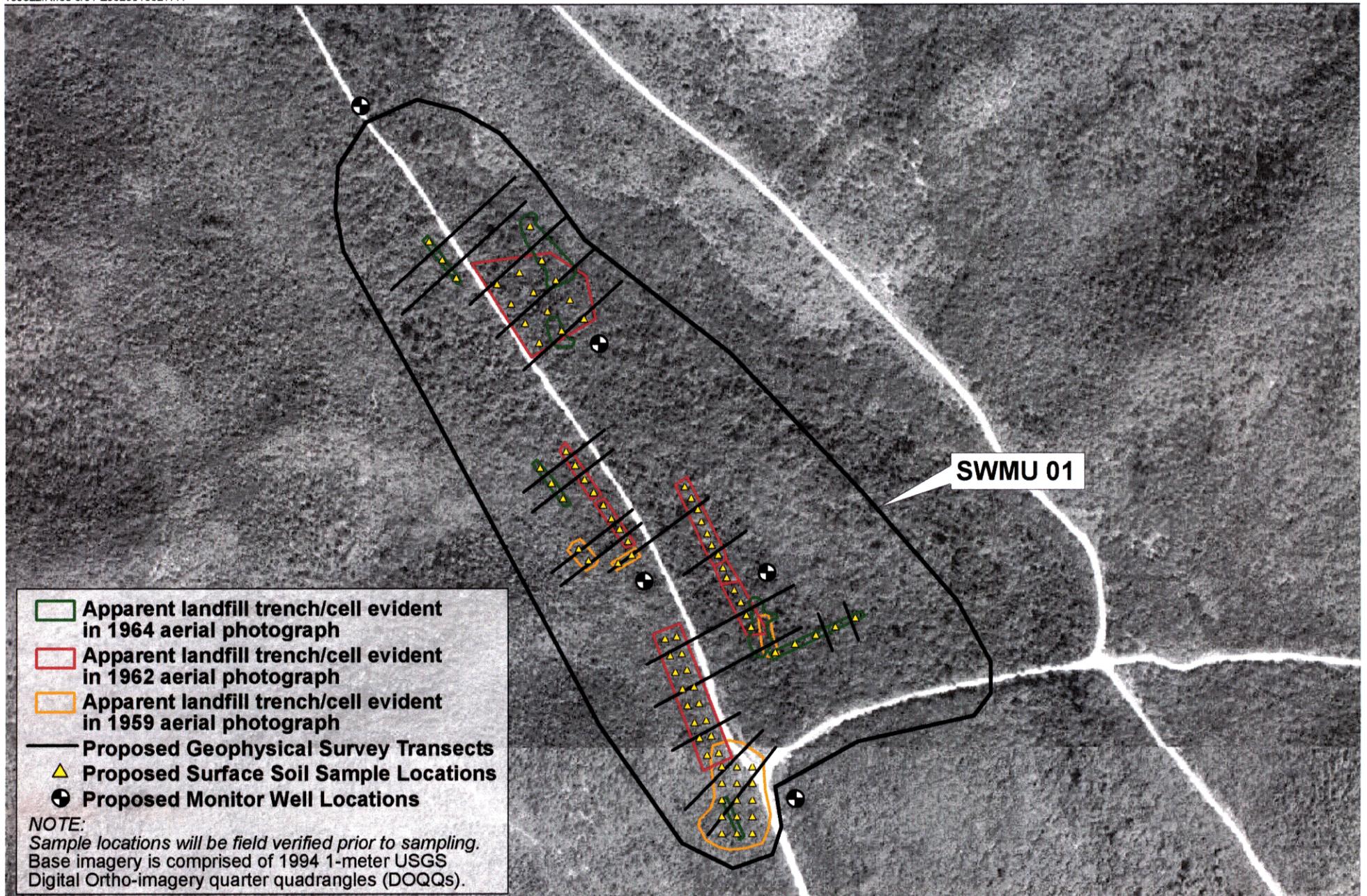
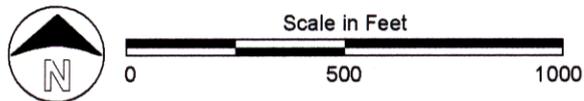
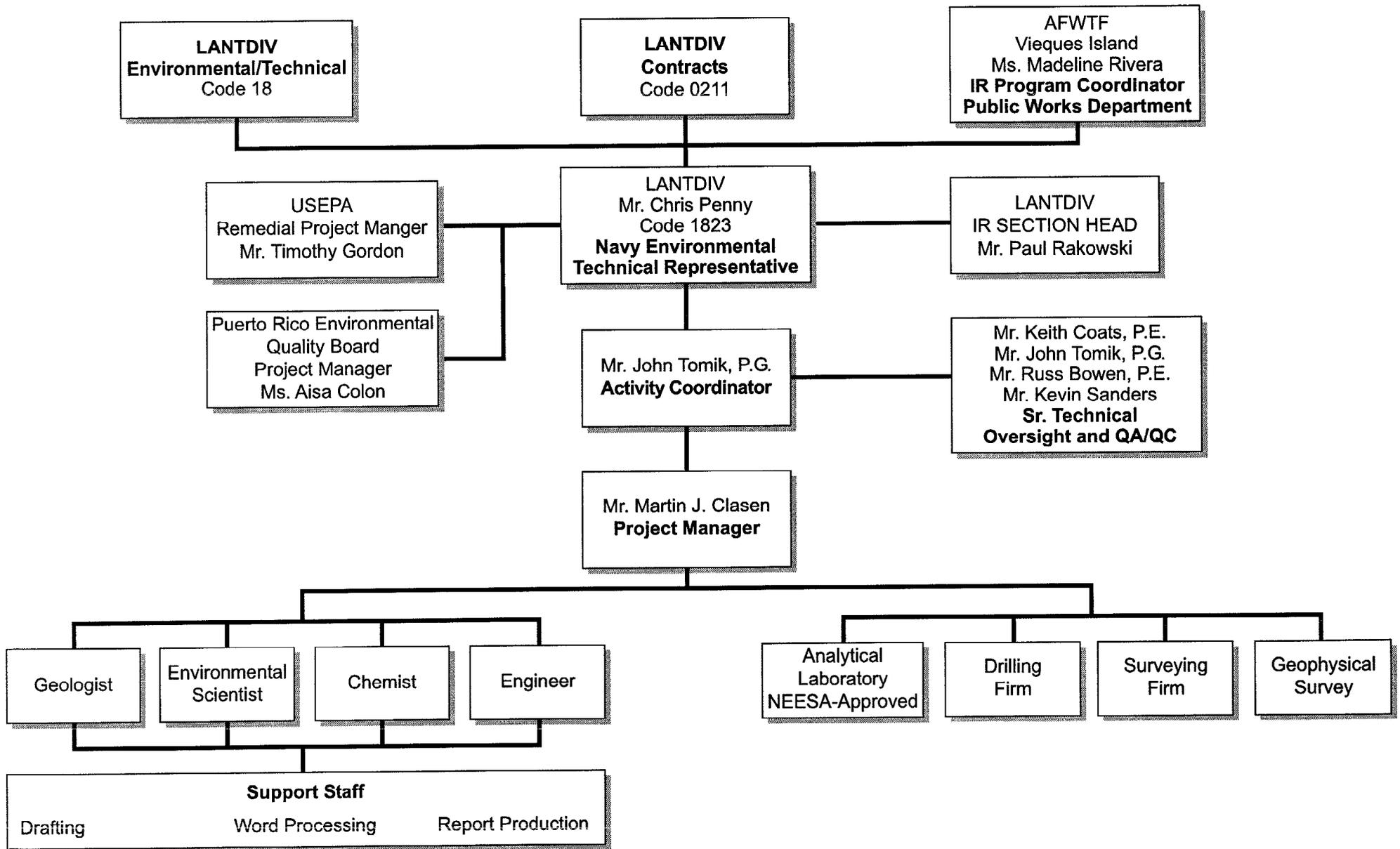


Figure 2-2  
SWMU 01 PROPOSED SAMPLE LOCATIONS  
CAMP GARCIA LANDFILL  
Vieques Island, Puerto Rico





**FIGURE 3-1**  
Project Organization  
AFWTF Vieques Island, Puerto Rico

*Remaining Issue: The preparation method numbers should be added, and the analytical method for cyanide should be corrected to SW-846 Method 9010B or 9012A throughout the work plan documents.*

**Response:** The preparation method numbers were added to Table 2-1, and the analytical method for cyanide was corrected. Attached is a revised Table 2-1 for review.

19. Final Master Field Sampling Plan, Table 2-2, Required Containers, Preservatives, and Holding Times for Soil and Sediment, Page 2-7

*Original Comment: Preparation and analysis method numbers should be specified for each type of analysis.*

*Remaining Issue: The preparation method numbers should be added, the arsenic method number should be moved from the total organic carbon row to its correct location, the TCLP pesticides method should be corrected to 8081 A, and the ignitability method should be corrected from 102A to 1020A*  
**Response:** The method numbers were added to Table 2-2 of the Master Field Sampling Plan, and the above correction have been made. Attached is a revised Table 2-2 for review.

25. Final Master Field Sampling and Plan, Section 2.11

*Original Comment: Standard operating procedures (SOPS) have been included for both traditional purging and low-flow purging of monitoring wells. Similarly, this section indicates that samples may be collected with either a bailer or a low-flow pump. This section should describe the circumstances under which each procedure and sampling equipment will be used. However, it should be noted that sampling using a procedure substantively equivalent to the USEPA Region 2 Ground Water Sampling - Low Stress (Low Flow) Purging and Sampling is generally required. This procedure includes protocols for sampling low yielding wells which do not include the use of bailers. Consequently, extenuating circumstances will be required before the use of bailers for sampling groundwater will be found to be acceptable.*

*Remaining Issue: The revised text (pg. 2-13) indicates that "in instances where groundwater is greater than 40 feet below grade, clean double check valve bailers will be utilized for sample collection." However, the previous response to this comment indicated that "bailers will only be used if low flow techniques are not capable of drawing water from the 40 foot depth across the site." As the Final Field Master Sampling Plan is now written, there appears to be a presumption that bailers will be used wherever the water table is 40 feet below ground surface. However, as previously indicated in the remaining issues identified regarding General Comment No. 1 in the February 14, 2001, Review of Draft Response to Comments, low flow sampling techniques should be used unless it is clearly demonstrated that it is not possible to do so. Bailers should be used to purge wells and collect groundwater samples only as a last resort. Reasonable efforts should be made to obtain pumps capable of lifting water from a depth of 40 or more feet, as required by site conditions.*

**TABLE 2-1**

Required Containers, Preservatives, and Holding Times for Water Samples

<b>Analysis</b>	<b>Analytical Preparation/ Method Number</b>	<b>No. of Containers</b>	<b>Sample Container</b>	<b>Preservative</b>	<b>Holding Time</b>	<b>Volume of Sample Collected</b>
VOCs	SW-846 Method 5030B/8260B	3	Three 40-ml glass vials w/Teflon-lined cap	HCl to pH <2; Cool to 4°C	14 days	Fill completely; no air bubbles
SVOCs	SW-846 Method 3510C/8270C	2	Two 1-liter bottles	Cool to 4°C	7 days extraction/40 days to analysis	Fill to shoulder
Pesticides/ PCBs	SW-846 Methods 3510C/8081A and 3510C/8082	2	Two 1-liter bottles	Cool to 4°C	7 days/ extraction/40 days to analysis	Fill to shoulder
Metals	SW-846 Methods 3050B/6010B and 3050B/7000 series	1	1-liter polyethylene bottle	HNO <sub>3</sub> to pH <2; Cool to 4°C	6 months (28 days for mercury)	Fill to shoulder
Cyanide	SW-846 Methods 9010B and 9012A series	1	1-liter polyethylene bottle	NaOH to pH >12; Cool to 4°C	14 days	Fill to shoulder
Lead and Arsenic	SW-846 Methods 3050B/7421 and 3050B/7061	1	1-liter polyethylene bottle	HNO <sub>3</sub> to pH <2; Cool to 4°C	6 months	Fill to shoulder
Explosives	SW-846 Methods 8330 and 8332	1	1-Liter Amber	Cool to 4°C	7 days/ extraction/40 days to analysis	Fill to shoulder
Total Organic Carbon	EPA Method 9060	1	500-ml amber glass	H <sub>2</sub> SO <sub>4</sub> or HNO <sub>3</sub> to pH<2; Cool to 4°C	28 Days	Fill completely, no air bubbles
TCLP VOCs	SW-1311/5030B/ 8260B	3	40-ml glass vials w/Teflon-lined cap	Cool to 4°C	14 days to filter/14 days to analysis	Fill completely; no air bubbles
TCLP SVOCs, Pesticides, Metals	SW-1311 SW-3510C/ 8270C/8081A SW-3010A/6010B SW-7470A for mercury	2	1-liter bottles	Cool to 4°C	14 days to filter/40 days to SVOC and Pest analysis; 28 days to mercury analysis; 180 days to metals analysis	Fill to shoulder
Total Suspended Solids (TSS)	EPA Method 160.2	1	500 mL bottle	Cool to 4°C	7 days	Fill to shoulder
Total dissolved Solids (TDS)	EPA Method 160.1	1	250 ml bottle	Cool to 4°C	7 days	Fill to shoulder
Alkalinity	EPA Method 310.1	1	250 ml bottle	Cool to 4°C	14 days	Fill to shoulder
Hardness	EPA Method 130.2	1	250 ml bottle	HNO <sub>3</sub> to pH <2; Cool to 4°C	6 months	Fill to shoulder

**TABLE 2-2**  
**Required Containers, Preservatives, and Holding Times for Soil and Sediment**

<b>Analysis</b>	<b>Analytical Preparation/ Method Number</b>	<b>No. of Containers</b>	<b>Sample Container</b>	<b>Preservative</b>	<b>Holding Time</b>	<b>Volume of Sample</b>
VOCs	SW-846 Method 5035/8260B	3 to 4	3-4 each 5-g En Core™ sampler	4°C	48 hours to extraction and 14 days from extraction to analysis	Fill completely with no air bubbles
SVOCs	SW-846 Method 3550B/8270C	1	8-oz. Glass jar <sup>1</sup>	4°C	14 days to extraction and 40 days from extraction to analysis	Fill completely
Pest/PCBs	SW-846 Methods 3550B/8081A/ and 3550B/8082	1	8-oz. Glass jar <sup>1</sup>	4°C	14 days to extraction and 40 days from extraction to analysis	Fill completely
Pesticides	SW-846 Method 3550B/8081A	1	8-oz. Glass jar <sup>1</sup>	4°C	14 days to extraction and 40 days from extraction to analysis	Fill completely
Metals	SW-846 Methods 3050B/6010B 7000 series	1	4-oz. Glass jar <sup>1</sup>	4°C	6 months, 28 days for mercury	Fill to shoulder
Cyanide	SW-846 Methods 9010B and 9012A series	1	8-oz plastic or glass bottle	Cool to 4°C	14 days	Fill completely
Lead/Arsenic	SW-846 Methods 3050B/7421 and 3050B/7061	1	8-oz plastic or glass bottle	Cool to 4°C	6 months	Fill to shoulder
Explosives	SW-846 Methods 8330 and 8332	1	4-oz. Glass jar <sup>1</sup>	4°C	7 days to extraction and 40 days from extraction to analysis	Fill completely
Total Organic Carbon	EPA Method 9060	1	8-oz plastic or glass bottle	Cool to 4°C	28 days	Fill completely
Grain Size	ASTM 0421-58/0422-63	1	Quart size plastic bag	Cool to 4°C	--	Approximately 1/3 <sup>rd</sup> full
TCLP VOCs	SW846 Method 1311 SW-5030B/8260B	2	2 each 25 gram En Core™ sampler	Cool to 4°C	14 days to extraction/14 days to analysis	Fill completely
TCLP SVOCs, Pesticides, Metals	SW846 Method 1311 SW-3510C/8270C/8081A SW-3010A/6010B SW-7471A for mercury	1	8-oz glass bottle with Teflon-lined cap	Cool to 4°C	14 days to extraction/40 to SVOC and Pest analysis; 28 days to mercury analysis; 180 days to metals analysis	Fill completely
Reactivity	SW-846 Sections 7.3, 3.2/7.3, 4.2	1	8-oz plastic or glass bottle	Cool to 4°C	28 days	Fill completely
Corrosivity	SW-846 Section 7.2	1	8-oz plastic or glass bottle	Cool to 4°C	28 days	Fill completely
Ignitability	SW 846 Method 1010/1020A	1	8-oz plastic or glass bottle	Cool to 4°C	ASAP	Fill completely

1- Teflon lined cap

**Response:** The last two paragraphs of Section 2-11 of the SAP will be revised as follows to further clarify groundwater purging and sampling methods:

Purging activities will be conducted in a manner which minimizes agitation of groundwater in the wells, and at a pumping rate not to exceed one liter per minute. Purging will be conducted using low flow peristaltic pumps when the depth to water will allow the use of these pumps. Peristaltic pumps, however, can only pull water from a depth of approximately 25 feet. Therefore, in instances where groundwater is greater than approximately 25 feet below grade, low-flow, variable speed submersible environmental pumps (Grundfos or equivalent) will be utilized for purging. Bladder pumps were ruled out for use at ATWTF for purging because of the difficulty in obtaining compressed gasses on the island. All down-hole and effluent tubing will be Teflon® lined or Teflon®.

Groundwater samples will be collected from the discharge hose of the purge pump into properly-labeled, laboratory-prepared sampling containers filled and/or preserved as appropriate; cooled to approximately 4 °C; and shipped to the analytical laboratory under appropriate COC documentation procedures. The pump rate shall be reduced to below one liter per minute, for all samples to reduce the potential for collecting turbid groundwater samples. Clean double check valve bailers may be used for sampling as a last resort in wells in which the depth to water or other extenuating circumstances preclude the collection of non-turbid samples through the pump. In this case, care will be taken when lowering the bailer not to agitate the water surface.

35. Final Master Quality Assurance Project Plan, Section 4.1, High Level DQOs, Page 4-1

*Original Comment: The discussion/assessment of Data quality objectives (DQOs) is inadequate. The last sentence states that, "the detection limits achieved by the EPA's SW-846 organics and inorganics analyses are adequate to meet the DQOs except for groundwater." However, no DQOs are identified for the detection limits and no resolution to this problem is provided. Furthermore, accuracy and precision DQOs have not been addressed at all. Revise the QAPP to include this information*

*The discussion of DQOs should identify screening criteria to which the analytical results will be compared. Method detection and quantitation limits should be compared to the pertinent screening criteria. This comparison should be presented in the QAPP, and alternative analytical methodology should be evaluated for all analytes where the quantitation limit is greater than the screening criteria.*

*In addition, project-specific DQOs should be established for accuracy and precision. Use of method-specified criteria, as indicated in Table 4-1 should not be used for this purpose because the method-specified limits do not take into account project-specific requirements for data quality. Table 4-1 should be revised to specify limits of accuracy and precision, and this section should describe the basis for the selection.*

*Remaining Issue: The comment has not been addressed. In their response to the original comment, the contractor stated that "EPA Region IX risk based criteria will be used. When a laboratory is contracted, detection limits will be compared to the screening criteria and alternative methods will be evaluated if necessary. Accuracy and precision control limits are lab specific as per SW846, based on intra-laboratory control charting statistics." However, no changes to the document appear to have been made. DQOs for this project should dictate that all detection and quantitation limits must be*

*below the EPA Region IX risk based criteria referenced above. Prior to collection of samples, the contractor should demonstrate to EPA that all laboratory detection and quantitation limits meet this DQO or provide evidence that the level is technically unachievable.*

*DQOs for this project should also identify levels of accuracy and precision that are deemed minimum standards to support decision making. Accuracy and precision data provided in SW-846 are inadequate to meet this purpose, as are laboratory capabilities in some instances. Prior to collection of samples, the contractor should establish accuracy criteria for all methods and analytes, ensure that the laboratory is capable of meeting the required criteria, and provide this information to EPA for review and approval.*

**Response:** Sections 4 has been re-written to help clarify the DQO, precision and accuracy, and laboratory quantitation issues. The revised text is attached for your review.

To respond to the above comment, the DQO process includes the following discussion of concentrations of concern:

In general, the order to define data needs, potential concentrations of concern (screening criteria) must be established. Comparison of analytical results to established screening criteria (i.e, risk-based criteria, etc.) will be conducted to determine if further action is warranted at a particular site. Screening criteria applicable to the Navy sites at AFWTF for each media were derived from the following sources:

- Groundwater - Lowest of the Federal Maximum Contaminant Level (MCL) or EPA Region IX Preliminary Remedial Goals (PRGs)
- Surface Water – USEPA National Recommended Water Quality Criteria (the lower of the human health or ecological criteria)
- Soil – The lower of the EPA Region IX PRG (leachability or direct contact) or EPA Region IV ecological screening criteria
- Sediment – NOAA guidelines for ecological receptors.

These values have been established as the Program Required Quantitation Limits (PRQLs). Once a laboratory is selected for the project, the laboratory quantitation limits (limits corresponding to the lowest calibration standard) must be developed by considering the screening criteria, the laboratory MDL, and the laboratory standard levels. Laboratory quantitation limits should be selected to meet as many screening criteria as possible while still maintaining acceptable calibration quality control results. In general, the laboratory quantitation limit for a given parameter should be at least two times greater than the laboratory's MDL.

Due to very low concentrations of concern, there may be laboratory quantitation limits that are not low enough to meet some concentrations of PRQLs due to limitations of the analytical methods. The laboratory and Prime Contractor will work together to try to meet the PRQLs for as many compounds as concern as possible. An exception report will be generated which lists all the laboratory quantitation limits which exceed PRQLs, and appropriate actions will be taken to minimize the number of laboratory quantitation limits which exceed the PRQLs. This may involve selection of a different analytical method, performance of calibration studies to lower the laboratory quantitation limit, or other

## SECTION 4

# Quality Assurance Objectives

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The required quality of the analytical data to be collected is dependent upon the use of the data. Data development during the Installation Restoration (IR) Program activities will be used site-specific and delivery order specific purposes. This QAPP may be used to accomplish program-wide IR activities.

## 4.1 Data Quality Objectives

Data Quality Objectives (DQOs) will be established for each major sample collection effort as specified in the *Guidance for the Data Quality Objectives Process (EPA QA/G4)*. DQOs are the quantitative and qualitative descriptions of the data required to support an environmental decision or action. As target values for data quality, they are not necessarily criteria for acceptance or rejection of individual analytical results. DQOs for a site vary according to the end use of the data. Everyone, from the data gatherer to the analytical laboratory, is involved in the DQO development process from the beginning.

The following fundamental mechanisms will be used to achieve quality goals:

- Prevention of errors through planning, documented instructions and procedures, and careful selection and training of personnel
- Assessment of data through field and laboratory audits and data validation of the analytical results
- Correction of errors through a corrective-action program

The DQOs for this project are based on the use of the data, including potential comparisons to concentrations of concern. Analytical data quality levels and concentrations of concern are described in this section.

### 4.1.1 Analytical Data Quality Levels

Once the DQO process has been completed, the specific QA/QC requirements will be evaluated to determine the type of analytical data that will be collected. Analytical data quality is specified in terms of levels defined in the DQO Guidance Document (*EPA QA/G4*). The two analytical levels are defined below:

**High Level DQOs** - The higher level DQOs for this project as described in Section 2 are to reliably determine the nature and extent of contamination and to assess the ecological and human health risks. Risk assessments involve comparing detected concentrations of contaminants with standards and toxicological or biological criteria.

**Low Level DQOs** - Analyses of engineering and water quality parameters or waste disposal characteristics do not require the level of quality control and documentation needed for risk assessment. In the field, all instruments will be calibrated according to the SOPs and site-specific FSPs and documented in the log books. When appropriate, equipment blanks will be collected and analyzed, and matrix influences will be determined. The laboratories will

follow the procedures of the EPA methods selected, and submit documentation to substantiate the analyses.

#### **4.1.2 Concentrations of Concern**

In order to define data needs, potential concentrations of concern (screening criteria) must be established. Comparison of analytical results to established screening criteria (i.e, risk-based criteria, etc.) will be conducted to determine if further action is warranted at a particular site. Screening criteria applicable to the Navy sites at AFWTF for each media were derived from the following sources:

- Groundwater - Lowest of the Federal Maximum Contaminant Level (MCL) or EPA Region IX Preliminary Remedial Goals (PRGs)
- Surface Water – USEPA National Recommended Water Quality Criteria (the lower of the human health or ecological criteria)
- Soil – The lower of the EPA Region IX PRG (leachability or direct contact) or EPA Region IV ecological screening criteria
- Sediment – NOAA guidelines for ecological receptors.

These values have been established as the Program Required Quantitation Limits (PRQLs).

Once a laboratory is selected for the project, the laboratory quantitation limits (limits corresponding to the lowest calibration standard) must be developed by considering the screening criteria, the laboratory MDL, and the laboratory standard levels. Laboratory quantitation limits should be selected to meet as many screening criteria as possible while still maintaining acceptable calibration quality control results. In general, the laboratory quantitation limit for a given parameter should be at least two times greater than the laboratory's MDL.

Due to very low concentrations of concern, there may be laboratory quantitation limits that are not low enough to meet some concentrations of PRQLs due to limitations of the analytical methods. The laboratory and Prime Contractor will work together to try to meet the PRQLs for as many compounds as concern as possible. An exception report will be generated which lists all the laboratory quantitation limits which exceed PRQLs, and appropriate actions will be taken to minimize the number of laboratory quantitation limits which exceed the PRQLs. This may involve selection of a different analytical method, performance of calibration studies to lower the laboratory quantitation limit, or other appropriate actions. For all analytes in which the PRQL is not achievable, evidence that the level is technically unachievable will be provided to EPA prior to sampling for EPA approval.

## **4.2 Project QA Objectives**

Once the DQO process has been completed, the specific QA/QC requirements will be evaluated to determine the type of analytical data that will be collected. The overall QA objectives for the Program-Wide IR Program is to develop and implement procedures that will provide data that are of known, documented, and defensible quality. QA/QC is

ensured through appropriate sample collection, preservation and transportation methods combined with an evaluation of analytical performance through analysis of quality control samples.

The three documents in the Master SAP (QAPP, FSP, and IDWMP) contain the plans and procedures for safe, competent sampling and for effective management of the data. Each laboratory providing analytical data for the sampling efforts will develop its own laboratory quality assurance plan (LQAP). The SAP and the LQAP must address the elements of the Navy QA Program. Audits in the field and in the laboratories will determine how the QA/QC procedures are being implemented. Discrepancies, if any, will be addressed through the corrective action programs described in the SAP and the LQAP.

Data evaluation will be conducted by the data management staff of CH2M HILL. The Chain of Custody (COC) forms, laboratory case narratives, and log books will be checked against sample results, blank results, and percent recoveries (where applicable).

The quality of the data generated by sampling, monitoring, and analyses will be evaluated in terms of precision, accuracy, representativeness, completeness, and comparability (PARCC) DQOs are measured by the degree of precision, accuracy, representativeness, completeness, and comparability (PARCC) of the data required for the project. The project's precision and accuracy objectives for laboratory analysis are in Table 4-1. Laboratory specific limits will be generated after a laboratory has been contracted. The quality objectives for field parameters (OVM, conductivity, etc.) are included in SOPs in Appendix A of the Master WP.

**TABLE 4-1**  
Precision, Accuracy, and Completeness of Objectives

Parameter	Precision <sup>1</sup> (Relative Percent Difference)	Accuracy <sup>1</sup> (Percent Spike Recovery)	Analytical Method	Intended Data Use
<b>Groundwater and Surface Water</b>				
Organic Compounds	≤ 20	50 – 150	SW-846 Methods 8260B, 8270C, and 8081A/8082	Determine extent of contamination. Human and ecological risk assessment.
Organophosphorus Pesticides	≤ 20	50 – 150	SW-846 Method 8141A	Determine extent of contamination Human and ecological risk assessment.
Chlorinated Pesticides	≤ 20	50 – 150	SW-846 Method 8151A	Determine extent of contamination Human and ecological risk assessment.
TAL Metals and Cyanide	≤ 20	75-125	SW-846 Methods 6010B and 7000 series	Determine extent of contamination Human and ecological risk assessment.
Low-concentration Metals and Cyanide	≤ 20	75-125	SW-846 Methods 6010B and 7000 series	Determine extent of contamination Human and ecological risk assessment.
Explosives	≤ 20	75-125	SW-846 Methods 8330 and 8332 series	Determine extent of contamination Human and ecological risk assessment.
TOC	≤ 20	75-125	EPA Method 9060	Evaluate process options
TSS, TDS	≤ 20	75-125	EPA Methods 160.1 and 160.2	Evaluate process options
Alkalinity	≤ 20	75-125	EPA Method 310.1	Evaluate process options and determine water quality
Hardness	≤ 20	75-125	EPA Method 130.2	Evaluate process options and determine water quality
<b>Soil and Sediment</b>				
Organics	≤ 35	50 – 150	SW-846 Methods 8260B, 8270C, and 8081A/8082	Determine extent of contamination Human and ecological risk assessment.
Organophosphorus Pesticides	≤ 35	50 – 150	SW-846 Method 8141A	Determine extent of contamination Human and ecological risk assessment.
Chlorinated Pesticides	≤ 35	50 – 150	SW-846 Method 8151A	Determine extent of contamination Human and ecological risk assessment.
TAL Metals and Cyanide	≤ 35	75-125	SW-846 Methods 6010B and 7000 series	Determine extent of contamination Human and ecological risk assessment.
Explosives	≤ 20	75-125	SW-846 Methods 8330 and 8332 series	Determine extent of contamination Human and ecological risk assessment.
Grain Size	--	--	ASTM 0421-58/0422-63	Characterize soil or sediment
TCLP Organics and Inorganics	≤ 35	75-125	SW-846 Method 1311	Determine disposal options
RCRA Parameters (Reactivity, Ignitability, Corrosivity)	≤ 35	--	SW-846 Sections 7.3, 3.2/7.3, 4.2, SW-846 Method 1010/1020A, SW-846 Section 7.2	Determine disposal options

<sup>1</sup>Target QC limits until laboratory specific limits are generated.

appropriate actions. For all analytes in which the PRQL is not achievable, evidence that the level is technically unachievable will be provided to EPA prior to sampling for EPA approval.

36. Final Master Quality Assurance Project Plan, Table 4-1, Precision, Accuracy and Completeness Objectives, Page 4-3

*Original Comment: The table should specify method numbers for each type of analysis and project-specific accuracy criteria for each method.*

*Remaining Issue: The table has not been revised to add project-specific accuracy criteria as the contractor indicated in their responses to comments. "Method criteria" should be replaced with project-specific requirements, as described in Comment 35.*

**Response:** Method criteria in Table 4-1 has been replaced with target specific QC limits. A footnote has been added to the table stating that target QC limits have been provided until laboratory specific limits are generated (see response to comment 35).

46. Final Master Quality Assurance Project Plan, Table 8-2, Analytical Parameters and Reporting Limits, Page 8-2

*Original Comment: The table presents "detection limits" for each constituent. However, it is unclear whether this refers to an actual method detection limit (MDL) or a estimated quantitation limit (EQL). It is recommended that the table be revised to provide both MDLs and EQLs. As discussed above, EQLs should be verified to be below project screening criteria or alternative methodology should be evaluated.*

*Remaining Issue: The response to comments indicated that the table would be revised to include both MDLs and EQLs. This has not been done. The table should be revised as indicated in the February 2, 2001, Draft Response to Comments.*

**Response:** The MDLs presented in Table 8-2 are the MDLs presented in the Appendix IX list for the recommended method. In addition, the lowest applicable screening criteria for water and soil samples has been included in this table (see response to comment 36). These values have been established as the Program Required Quantitation Limits (PRQLs). The revised Table 8-2 is attached for your review.

Once a laboratory is selected for the project, the laboratory specific MDLs and laboratory quantitation limits (limits corresponding to the lowest calibration standard) will be compared to the lowest applicable screening criteria. Laboratory quantitation limits will be required to be at or below as many screening criteria as possible while still maintaining acceptable calibration quality control results. In general, the laboratory quantitation limit for a given parameter should be at least two times greater than the laboratory's MDL.

Due to very low concentrations of concern, there may be laboratory quantitation limits that are not low enough to meet some concentrations of PRQLs due to limitations of the analytical methods. The laboratory and Prime Contractor will work together to try to meet the PRQLs for as many compounds as concern as possible. An exception report will be generated which lists all the laboratory quantitation limits which exceed PRQLs, and appropriate actions will be taken to minimize the number of laboratory quantitation limits

which exceed the PRQLs. This may involve selection of a different analytical method, performance of calibration studies to lower the laboratory quantitation limit, or other appropriate actions. For all analytes in which the PRQL is not achievable, evidence that the level is technically unachievable will be provided to EPA prior to sampling for EPA approval.

***Original Comment:** Table 8-2 provides the quantitation limits for SW-846 Method 8240A. However, SW-846 Method 8260B has been identified as the analytical method for VOCs. Clarify and indicate when one method is chosen over another. Also, provide the quantitation limits for all compounds, not just the 8240A and Appendix IX semivolatiles and inorganic compounds. The QAPP should be revised to provide the limits for all of the compounds identified in Table 8-1.*

*In addition, some Appendix IX constituents are missing from the table (e.g., polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and dioxins/furans). If the intent is to analyze samples for all Appendix IX constituents, the table should be revised to include a complete list of all Appendix IX compounds. Justify the exclusion of any of the Appendix IX compounds.*

***Remaining Issue:** The comment has not been fully addressed. Reporting limit tables are included in the QAPP for Methods 8240A, 8270C, 8330, and metals. Separate tables should be included for methods 8081 A, 8082, 8141 A, 8151 A, and 901 OB (or 9012A), and the title of the table for volatile organics should be revised to reference Method 8240A.*

**Response:** Tables 8-1 and 8-2 has been revised to present all Appendix IX analytes and recommended analytical methods. References in the documents to CLP methods and analytes has been revised in the documents to be constant with this list.

54. Final Site Specific Work Plan, Phase I RCR Facility Investigation, Section 2.1.3, SWMU 01 Sampling Rationale, Page 2-3

***Original Comment:** As discussed above, surface soil sampling appears inadequate to determine whether release has occurred from the landfill, because a compacted soil cap was installed in 1978. Soil borings or test pits should be sampled to verify the contents of the landfill, determine the depth of landfill contents with respect to groundwater, and assess potential releases from the landfill contents.*

***Remaining Issue:** See Comment 5 above regarding the addition of text describing institutional controls that the Navy will enforce limiting access to the landfill.*

**Response:** The Work Plan will state that institutional controls will be implemented by the Navy. The type of controls will be based on the results of the risk assessment that will be completed for the RFI and therefore it is premature to identify those controls at this time. However, at a minimum the institutional controls will limit subsurface excavation through the fill material.

**TABLE 8-2A**  
RLs for Appendix IX VOCs, SW-846 method 8260B

Compound	Water RL (µg/L)	Soil RL (µg/kg)	Compound	Water RL (µg/L)	Soil RL (µg/kg)
1,1,1,2-Tetrachloroethane	1	5	cis-1,2-Dichloroethylene	0.5	2.5
1,1,1-Trichloroethane	1	5	cis-1,3-Dichloropropene	1	5
1,1,2,2-Tetrachloroethane	1	5	Dibromochloromethane	1	5
1,1,2-Trichloroethane	1	5	Dichlorodifluoromethane	2	10
1,1-Dichloroethane	1	5	Ethyl methacrylate	1	5
1,1-Dichloroethylene	1	5	Ethylbenzene	1	5
1,2,3-Trichloropropane	1	5	Isobutyl alcohol	40	200
1,2-Dibromo-3-chloropropane	2	10	Methacrylonitrile	2	10
1,2-Dibromoethane	1	5	Methyl bromide	2	10
1,2-Dichloroethane	1	5	Methyl chloride	2	10
1,2-Dichloropropane	1	5	Methyl ethyl ketone	10	20
1,4-Dioxane	200	500	Methyl iodide	1	5
2-Hexanone	10	20	Methyl methacrylate	1	5
4-Methyl-2-pentanone	5	20	Methylene bromide	1	5
Acetone	10	20	Methylene chloride	1	5
Acetonitrile	20	100	N-butyl alcohol	50	1000
Acrolein	20	100	Propionitrile	4	20
Acrylonitrile	20	100	Styrene	1	5
Allyl chloride	2	10	Tetrachloroethylene	1	5
Benzene	1	5	Toluene	1	5
Bromodichloromethane	1	5	trans-1,2-Dichloroethylene	0.5	2.5
Bromoform	1	5	trans-1,3-Dichloropropene	1	5
Carbon disulfide	1	5	trans-1,4-Dichloro-2-butene	1	5
Carbon tetrachloride	1	5	Trichloroethylene	1	5
Chlorobenzene	1	5	Trichlorofluoromethane	2	10
Chloroethane	2	10	Vinyl acetate	2	10
Chloroform	1	5	Vinyl chloride	2	10
Chloroprene	1	5	Xylenes, Total	1	5

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory

**TABLE 8-2B**  
 RLs for Appendix IX SVOCs SW-846 method 8270C

Compound	Water RL (µg/L)	Soil RL (µg/kg)
1,2,4,5-Tetrachlorobenzene	10	330
1,2,4-Trichlorobenzene	10	330
1,2-Dichlorobenzene	10	330
1,3-Dichlorobenzene	10	330
1,4-Dichlorobenzene	10	330
1,4-Naphthoquinone	50	1600
1-Naphthylamine	10	330
2,3,4,6-Tetrachlorophenol	50	1600
2,4,5-Trichlorophenol	10	330
2,4,6-Trichlorophenol	10	330
2,4-Dichlorophenol	10	330
2,4-Dimethylphenol	10	330
2,4-Dinitrophenol	50	1600
2,4-Dinitrotoluene	10	330
2,6-Dichlorophenol	10	330
2,6-Dinitrotoluene	10	330
2-Acetylaminofluorene	100	3300
2-Chloronaphthalene	10	330
2-Chlorophenol	10	330
2-Naphthylamine	10	330
2-Picoline	20	660
3,3'-Dimethylbenzidine	50	1600
3,3'-Dichlorobenzidine	50	1600
4,6-Dinitro-o-cresol	50	1600
4-Aminobiphenyl	50	1600
4-Bromophenyl phenyl ether	10	330
4-Chlorophenyl phenyl ether	10	330
4-Nitroquinoline 1-oxide	100	3300
5-Nitro-o-toluidine	20	660
Acenaphthene	10	330
Acetophenone	10	330
alpha,alpha-Dimethylphenethylamine	50	1600
Aniline	10	330

**TABLE 8-2B**  
 RLs for Appendix IX SVOCs SW-846 method 8270C

Compound	Water RL (µg/L)	Soil RL (µg/kg)
Anthracene	10	330
Aramite	20	660
Benzyl alcohol	10	330
Bis(2-chloro-1-methylethyl)ether	10	330
Bis(2-chloroethoxy)methane	10	330
Bis(2-chloroethyl)ether	10	330
Bis(2-ethylhexyl)phthalate	10	330
Butyl benzyl phthalate	10	330
Chlorobenzilate	10	330
Diallate	20	660
Dibenzofuran	10	330
Diethyl phthalate	10	330
Dimethoate	20	660
Dimethyl phthalate	10	330
Di-n-butyl phthalate	10	330
Di-n-octyl phthalate	10	330
Dinoseb	20	660
Diphenylamine	10	330
Ethyl methanesulfonate	10	330
Fluoranthene	10	330
Fluorene	10	330
Hexachlorobenzene	10	330
Hexachlorobutadiene	10	330
Hexachlorocyclopentadiene	50	1600
Hexachloroethane	10	330
Hexachloropropene	100	3300
Isophorone	10	330
Isosafrole	20	660
m-Cresol	10	330
m-Dinitrobenzene	10	330
Methapyrilene	50	1600
Methyl methanesulfate	10	330
m-Nitroaniline	50	1600

**TABLE 8-2B**  
 RLs for Appendix IX SVOCs SW-846 method 8270C

<b>Compound</b>	<b>Water RL (µg/L)</b>	<b>Soil RL (µg/kg)</b>
Nitrobenzene	10	330
N-Nitrosodiethylamine	10	330
N-Nitrosodimethylamine	10	330
N-Nitrosodi-n-butylamine	10	330
N-Nitrosodiphenylamine	10	330
N-Nitrosodipropylamine	10	330
N-Nitrosomethylethylamine	10	330
N-Nitrosomorpholine	10	330
N-Nitrosopiperidine	10	330
N-Nitrosopyrrolidine	10	330
o-Cresol	10	330
o-Nitroaniline	50	1600
o-Nitrophenol	10	330
o-Toluidine	20	660
p-(Dimethylamino)azobenzene	20	660
p-Chloroaniline	10	330
p-Chloro-m-cresol	10	330
p-Cresol	10	330
Pentachlorobenzene	10	330
Pentachloroethane	50	1600
Pentachloronitrobenzene	50	1600
Pentachlorophenol	10	330
Phenacetin	20	660
Phenol	10	330
p-Nitroaniline	50	1600
p-Nitrophenol	50	1600
p-Phenylenediamine	100	3300
Pronamide	20	660
Pyrene	10	330
Pyridine	20	660
Safrole	20	660
sym-Trinitrobenzene	50	1600

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory

**TABLE 8-2C**  
 RLs for Appendix IX PAHs, SW-846 method 8310

Analyte	Water RL (µg/L)	Soil RL (µg/kg)	Analyte	Water RL (µg/L)	Soil RL (µg/kg)
2-Methylnaphthalene	0.02	5	Benzo(g,h,i)perylene	0.02	5
3-Methylcholanthrene	0.50	5	Benzo(k)fluoranthene	0.02	5
7,12-Dimethylbenz(a)anthracene	0.50	5	Chrysene	0.02	5
Acenaphthylene	0.02	5	Dibenz(a,h)anthracene	0.02	5
Benzo(a)anthracene	0.02	5	Indeno(1,2,3-cd)pyrene	0.02	5
Benzo(a)pyrene	0.02	5	Naphthalene	0.02	5
Benzo(b)fluoranthene	0.02	5	Phenanthrene	0.02	5

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory

**TABLE 8-2D**

RLs for Appendix IX Organochlorine Pesticides, SW-846 method 8081A

Analyte	Water RL ( $\mu\text{g/L}$ )	Soil RL ( $\mu\text{g/kg}$ )	Analyte	Water RL ( $\mu\text{g/L}$ )	Soil RL ( $\mu\text{g/kg}$ )
4,4'-DDD	0.05	1.7	Endosulfan sulfate	0.05	1.7
4,4'-DDE	0.05	1.7	Endrin	0.05	1.7
4,4'-DDT	0.05	1.7	Endrin aldehyde	0.05	1.7
Aldrin	0.05	1.7	Gamma BHC	0.05	1.7
Alpha BHC	0.05	1.7	Heptachlor	0.05	1.7
Beta BHC	0.05	1.7	Heptachlor epoxide	0.05	1.7
Chlordane	0.5	17	Isodrin	0.1	3.3
Delta BHC	0.05	1.7	Kepone	1.0	33
Dieldrin	0.05	1.7	Methoxychlor	0.1	3.3
Endosulfan I	0.05	1.7	Toxaphene	2.0	67
Endosulfan II	0.05	1.7			

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory

**TABLE 8-2E**  
 RLs for Appendix IX Organophosphorous Pesticides, SW-846 method 8141A

Analyte	Water RL (µg/L)	Soil RL(µg/kg)
Disulfoton	1	33
Famphur	1	33
Methyl parathion	1	33
Parathion	1	33
Phorate	1	33
Tetraethyl dithiopyrophosphate	1	33
O,O-Diethyl O-2-pyrazinyl phosphorothioate	1	33
O,O,O-Triethyl phosphorothioate	1	33

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory.

**TABLE 8-2F**  
RLs for Appendix IX PCBs, SW-846 method 8082

Analyte	Water RL ( $\mu\text{g/L}$ )	Soil RL ( $\mu\text{g/kg}$ )
Aroclor-1016	1	33
Aroclor-1221	1	33
Aroclor-1232	1	33
Aroclor-1242	1	33
Aroclor-1248	1	33
Aroclor-1254	1	33
Aroclor-1260	1	33

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory

**TABLE 8-2G**  
RLs for Appendix IX Herbicides, SW-846 method 8151A

Analyte	Water RL ( $\mu\text{g/L}$ )	Soil RL ( $\mu\text{g/kg}$ )
2,4-D	4.0	80
2,4,5-T	1.0	20
2,4,5-TP (Silvex)	1.0	20

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory.

**TABLE 8-2H**  
**RLs for Appendix IX Dioxins and Furans, SW-846 method 8290**

<b>Analyte</b>	<b>Water RL (µg/L)</b>	<b>Soil RL (µg/kg)</b>
2,3,7,8-TCDD	0.0007	0.003
Total HxCDD	NA	NA
Total HxCDF	NA	NA
Total PeCDD	NA	NA
Total PeCDF	NA	NA
Total TCDD	NA	NA
Total TCDF	NA	NA

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory.

NA – Not Available.

**TABLE 8-21**

RLs for Appendix IX Inorganics, SW-846 method 6010B, a 9000 series method for cyanide and sulfide, and a 7000 series method for mercury

Analyte	Water RL ( $\mu\text{g/L}$ )	Soil RL ( $\mu\text{g/kg}$ )	Analyte	Water RL ( $\mu\text{g/L}$ )	Soil RL ( $\mu\text{g/kg}$ )
Antimony	60	6,000	Mercury	0.2	100
Arsenic	10	1,000	Nickel	40	4,000
Barium	200	20,000	Selenium	5	500
Beryllium	5	500	Silver	10	1,000
Cadmium	5	500	Sulfide	500	50000
Chromium	10	1000	Thallium	10	1,000
Cobalt	50	500	Tin	100	10,000
Copper	25	2,500	Vanadium	50	5,000
Cyanide	10	500	Zinc	20	2,000
Lead	3.0	300			

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory.

**TABLE 8-2J**  
**Analytical Parameters and Reporting Limits**  
**Explosives**  
**SW-846 Method 8330 and 8332**

<b>Analyte</b>	<b>Water RL (µg/L)</b>	<b>Soil RL (µg/kg)</b>
1,3,5-Trinitrobenzene	240	5
1,3-Dinitrobenzene	240	5
2,4,6-Trinitrotoluene	240	5
4-Amino-2,6-dinitrotoluene	240	5
2-Amino-4,6-dinitrotoluene	240	5
2,4-Dinitrotoluene	240	5
2,6-Dinitrotoluene	240	5
Nitrobenzene	240	5
2-Nitrotoluene	240	5
3-Nitrotoluene	240	5
4-Nitrotoluene	240	5
Hexahydro-1,3,5-trinitro-1,3,5-triazine	240	5
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	240	5
Nitroglycerin	240	5
Pentaerythritol tetranitrate (PETN)	240	5
Ammonium Perchlorate	240	5
Picric Acid	240	5

RLs are estimated reporting limits for the applicable analyte. Laboratory specific reporting limits will be obtained and compared with the screening criteria upon contracting with an analytical laboratory.

**Original Comment:** The Site Specific Work Plan indicates that four monitoring wells will be installed to sample groundwater quality. However, the Work Plan has not identified the zone of interest in which the screens will be set. The Work Plan should clearly indicate the target zone of interest (e.g., shallow water immediately below the water table) for setting the screens for the proposed monitoring wells.

**Remaining Issue:** As stated in the February 2, 2001, Draft Response to Comments, the Site Specific Work Plan was to be revised to indicate that the proposed monitoring wells will be screened in the shallow surficial aquifer. As further indicated in the February 14, 2001, Review of Draft Response to Comments, the portion of the shallow surficial aquifer intended to be sampled should also be more clearly specified. The Final Work Plan contains no mention of the depth at which groundwater monitoring wells at the Camp Garcia Landfill will be screened.

**Response:** Due to the highly variable depth to groundwater previously detected at Camp Garcia, and because there are no existing wells in the immediate vicinity of the landfill, it is not feasible to determine the depth of groundwater that the wells will be screened. However, the work plan will state that the monitoring wells will be installed at a depth of 10 feet below the first encountered groundwater using a 10-foot screen so that the groundwater/vadose zone interface will be screened to allow detection of potential floating free product.

57. Final Site Specific Work Plan, Section 2.3.1, SWMU 04 Site Summary, Page 2-8

**Original Comment:** The description of the former Area of Concerns (AOCs) is incomplete and inconsistent with the Consent Order. The cleaning/degreasing basin is identified in the Consent Order as AOC D, and the rags, absorbent, and grease storage area as AOC E. This discussion identifies AOC D as the rags, absorbent, and grease storage area, and does not describe the cleaning/degreasing basin. The discrepancy regarding the former AOC designations should be resolved, a paragraph should be added to describe the cleaning/degreasing basin operations, and the location of the four areas and associated sampling locations should be shown on a single site map.

**Remaining Issue:** In the first paragraph the storage area for rags, absorbent material, and grease was identified as AOC E. However, in the last paragraph the storage area for rags, absorbent material, and grease is identified as AOC D. This apparent inconsistency should be resolved.

**Response:** Per the classifications in the 1988 and 1995 RFAs, the storage area for rags, absorbent material, and grease was designated as AOCs E. The first paragraph of the report will be revised to include this correction.

58. Final Site Specific Work Plan, Section 2.3.2, SWMU 04 Previous Investigation Results, Page 2-8

**Original Comment:** The AOC designations in this section are inconsistent with both Section 2.3.1 and the Consent Order. The discrepancies should be resolved.

**Remaining Issue:** The comment has not been addressed. The AOC designations remain inconsistent.

**Response:** Per the classifications in the 1988 and 1995 RFAs, the oil catch basin; and storage area for rags, absorbent material, and grease were designated as AOCs C and E, respectively. The AOC designations in Section 2.3.2, page 2-8 have been revised to be consistent with the 1988 and 1995 RFAs.

**Original Comment:** Surface soil samples adjacent to the two basins (i.e., hydraulic oil catch basin, cleaning/degreasing basin) are not adequate to assess releases from the basins. Samples should be collected at selected depths below the bottom of the basin to assess potential leaks in the basins themselves.

**Remaining Issue:** Section 2.3.3 now describes the collection of subsurface soil samples. However, the first paragraph states that no additional sampling will be conducted if arsenic is determined to be naturally-occurring. While the subsequent paragraphs indicate further subsurface soil sampling will be undertaken, this statement could be misinterpreted to indicate that the subsurface soil samples will not be collected if the arsenic is determined to be naturally-occurring. This potential confusion should be corrected by indicating that further surface soil sampling will not be undertaken if the arsenic identified at SWMU 4 is determined to be naturally occurring.

**Response:** The first paragraph of Section 2.3.3 will be revised to state that if arsenic is determined to be naturally occurring in site soils, no additional surface soil sampling will be performed at SWMU 4.

64. Final Site Specific Work Plan, Figure 2-11

**Original Comment:** The text indicates that four monitoring wells will be installed, but Figure 2-11 shows five proposed monitoring well locations. The text should be corrected. In addition, the Work Plan has not identified the zone of interest in which the screens will be set. The Work Plan should clearly indicate the target zone of interest (e.g., shallow water immediately below the water table) for setting the screens for the proposed monitoring wells. The text indicates that 16 soil borings will be advanced in the lagoons. The discussion should be expanded to describe the depth at which samples will be collected with respect to the clay/plastic liner and describe how the liner will be repaired upon completion of sampling.

**Remaining Issue:** The comment has not, and should be, addressed.

**Response:** The first paragraph of section 2.7.3 will be modified to state that one monitoring well will be installed up-gradient of the lagoons and four wells will be installed downgradient of the lagoons. The screened depth of the proposed monitoring wells will be determined during drilling operations when the depth to groundwater is determined. In general, shallow monitoring wells will be installed at depths where the screened intervals are set to bracket the water table for the purpose of evaluating any potential free phase product accumulation that may exist.

The text will be revised to state that five monitoring wells will be installed with well screens installed to a depth of 10 feet below the first encountered groundwater. The depth of the soil samples indicated in the text assume that the surface samples will be collected above the liner and the subsurface samples will be collected below the liner. The actual depths may vary to meet these objectives.

66. Final Site Specific Work Plan, Table 3-2, Required Containers, Preservatives, and Holding Times for Soil and Ground Water Samples, Page 3-5

**Original Comment:** Multiple analytical methods are listed for each organic groundwater analysis, some of which are not applicable to the associated analysis. In addition, the methods

listed are SW-846 methods, which are acceptable, but are inconsistent with the Master QAPP. The method numbers should be corrected.

**Remaining Issue:** The comment has not, and should be, addressed.

**Response:** The method numbers in Table 3-2 will be revised to be consistent with those presented in Table 2-2 and 4-1 of the Master QAPP.

68. Final Site Specific Work Plan, Section 3.5, Task 5: Investigation Reports, Page 3-11

**Original Comment:** The Project Management Plan indicates that a Draft Final RFI report will be prepared, whereas this section and the schedule in Section 6 indicate that only Draft and Final versions will be prepared. The discrepancies should be resolved. Also, an outline for the Phase I RFI report should be presented in this section.

**Remaining Issue:** The comment has not been address in the revised text as indicated in the February 2, 2001, Draft Response to Comments.

**Response:** Section 3.5 of the Site Specific Workplan will be revised to state that a Draft Phase I RFI Report will be prepared for submittal to LANTDIV, NSRR, EPA, and PREQB. Based on the review comments to the Draft Phase I RFI Report, a Final Phase I RFI Report will be prepared which addresses the comments to the draft report.

An outline for the Phase I RFI Report will be added to Section 3.5 of the Site Specific Workplan and is enclosed for your review. Need to add in /table of contents: summary of background investigation, assessment of POACs, list of appendices.

69. Final Site Specific Work Plan, Section 4, Project Management and Staffing, Page 4-1

**Original Comment:** The key project team members, their roles, and telephone numbers should be listed in this section. This list should not be limited to upper management, but should also include technical managers such as a project chemist, field team leader, QA officer, and/or health and safety officer. A similar list should be included that identifies subcontractors and the name and telephone number of the primary contact for each subcontractor.

**Remaining Issue:** The comment has not been addressed in the revised text as indicated in the February 2, 2001, Draft Response to Comments.

**Response:** Table 4-1 will be added to Section 4 of the Site Specific Work Plan to include additional key CH2MHILL team members with their phone numbers. The subcontractors, however, will be competitively bid based on the scope of work in the approved work plans. Therefore, subcontractor names can not be included at this time. Table 4-1 has been enclosed for your review.

**EXHIBIT 3-1**  
Phase I RFI Report Outline  
*Final Site Specific Workplan Phase I RFI*

**Section**

**1. Introduction**

- 1.1 Background
- 1.2 Objectives of the Investigations
- 1.3 Organization of the Report
- 1.4 NASD Description
- 1.5 Previous Investigations
- 1.6 Physical Characteristics of the Study Area
  - 1.6.1 Location
  - 1.6.2 Land Use
  - 1.6.3 Climate
  - 1.6.4 Topography and Surface Water
  - 1.6.5 Geology
  - 1.6.6 Groundwater
- 1.7 Review of Historical Aerial Photos
- 1.8 Summary of Background Investigation

**2. Field Investigation Procedures .....**

- 2.1 Decontamination of Sampling Equipment .....
- 2.2 Monitoring Well Installation.....
- 2.2 Monitoring Well Development.....
- 2.3 Monitoring Well Purging and Sampling.....
- 2.4 Groundwater Elevation Measurements .....
- 2.5 Surface Soil Sampling .....
- 2.6 Subsurface Soil Sampling .....
- 2.7 Surface Water and Sediment Sampling.....
- 2.8 Surveying.....
- 2.9 Geophysical Surveys.....
- 2.10 Unexploded Ordnance Surveys .....
- 2.11 Qualitative Ecological Survey.....
- 2.12 Laboratory Field Sampling Protocol.....
- 2.13 Data Quality Evaluation .....
- 2.13.1 Purpose and Background.....
- 2.13.2 Holding Times .....
- 2.13.3 Calibration.....
- 2.13.4 Method Accuracy .....
- 2.13.5 Potential Field Sampling and Laboratory Contamination .....
- 2.13.6 Matrix Effects.....
- 2.13.7 Sample Results for Metals Near the Method  
Detection Limit (MDL) .....
- 2.13.8 Summary and Conclusions.....

2.14 Risk-Based Criteria Screening Procedure .....

**3 SWMU 1 – Camp Garcia Landfill (Camp Garcia)**

3.1 Objectives.....

3.2 Site Description.....

3.3 Previous Investigation Results .....

3.4 Phase I Field Investigations .....

3.5 Field Screening Results.....

3.6 Laboratory Analytical Results .....

3.7 Conclusions and Recommendations.....

**4 SWMU 2 – Fuels Off-Loading Site (Camp Garcia)**

4.1 Objectives.....

4.2 Site Description.....

4.3 Previous Investigations .....

4.4 Phase I RFI Field Investigation.....

4.5 Field Screening Results.....

4.6 Laboratory Results .....

4.7 Conclusions and Recommendations.....

**5 SWMU 4 – Waste Areas of Building 303 (Camp Garcia)**

5.1 Objectives.....

5.2 Site Description.....

5.3 Previous Investigation Results .....

5.4 Phase I RFI Field Investigation.....

5.5 Field Screening Results.....

5.6 Laboratory Analytical Results .....

5.7 Conclusion and Recommendations .....

**6 SWMU 5 – Spent Battery Accumulation Area (Observation Post (OP)-1, Inner Range, AFWTF).....**

5.1 Objectives.....

5.2 Site Description.....

5.3 Previous Investigation Results .....

5.4 Phase I RFI Field Investigation.....

5.5 Field Screening Results.....

5.6 Laboratory Analytical Results .....

5.7 Conclusion and Recommendations .....

**7 SWMU 6 – Waste Oil and Paint Accumulation Area (Seabees Area, Camp Garcia)**

5.1 Objectives.....

5.2 Site Description.....

5.3 Previous Investigation Results .....

5.4 Phase I RFI Field Investigation.....

- 5.5 Field Screening Results.....
- 5.6 Laboratory Analytical Results
- 5.7 Conclusion and Recommendations .....
  
- 8 SWMU 14 Wash Rack.....
  
- 9 SWMU 7 – Waste Oil Accumulation Area (outside Building 303 at Camp Garcia)
  - 5.1 Objectives.....
  - 5.2 Site Description.....
  - 5.3 Previous Investigation Results .....
  - 5.4 Phase I RFI Field Investigation.....
  - 5.5 Field Screening Results.....
  - 5.6 Laboratory Analytical Results
  - 5.7 Conclusion and Recommendations .....
  
- 10 SWMU 8 – Waste Oil Accumulation Area (OP-1, Inner Range, AFWTF)
  - 5.1 Objectives.....
  - 5.2 Site Description.....
  - 5.3 Previous Investigation Results .....
  - 5.4 Phase I RFI Field Investigation.....
  - 5.5 Field Screening Results.....
  - 5.6 Laboratory Analytical Results
  - 5.7 Conclusion and Recommendations .....
  
- 11 SWMU 10 – Sewage Treatment Lagoons (Camp Garcia)
  - 5.1 Objectives.....
  - 5.2 Site Description.....
  - 5.3 Previous Investigation Results .....
  - 5.4 Phase I RFI Field Investigation.....
  - 5.5 Field Screening Results.....
  - 5.6 Laboratory Analytical Results
  - 5.7 Conclusion and Recommendations .....
  
- 12 SWMU 12 – Solid Waste Collection Unit Area (OP-1, Inner Range, AFWTF - formerly AOC B)
  - 5.1 Objectives.....
  - 5.2 Site Description.....
  - 5.3 Previous Investigation Results .....
  - 5.4 Phase I RFI Field Investigation.....
  - 5.5 Field Screening Results.....
  - 5.6 Laboratory Analytical Results
  - 5.7 Conclusion and Recommendations .....
  
- 13 AOC A – Diesel Fuel Fill Pipe Area (OP-1, Inner Range, AFWTF)
  - 5.1 Objectives.....
  - 5.2 Site Description.....

5.3 Previous Investigation Results .....

5.4 Phase I RFI Field Investigation .....

5.5 Field Screening Results .....

5.6 Laboratory Analytical Results

5.7 Conclusion and Recommendations .....

**14AOC F – Rock Quarry (Camp Garcia)**

5.1 Objectives.....

5.2 Site Description.....

5.3 Previous Investigation Results .....

5.4 Phase I RFI Field Investigation .....

5.5 Field Screening Results.....

5.6 Laboratory Analytical Results

5.7 Conclusion and Recommendations .....

**15 AOC G – Pump Station and Chlorinating Building at Sewage Lagoons (Camp Garcia)**

5.1 Objectives.....

5.2 Site Description.....

5.3 Previous Investigation Results .....

5.4 Phase I RFI Field Investigation .....

5.5 Field Screening Results.....

5.6 Laboratory Analytical Results

Conclusion and Recommendations .....

Assessment of Potential Areas of Concern

**16 References.....**

Add List of Appendices to include: geophysical survey reports, chain of custody, boring logs, groundwater sampling logs, analytical data reports, data validation reports, risk assessment calculations

**TABLE 4-1**  
**Key Project Team Members**

**Phase I RFI, AFWTF, Vieques Island**

<b>Name</b>	<b>Role</b>	<b>Telephone Number</b>	<b>E-Mail Address</b>
John Tomik	Activity Manager	(757) 460-0429 ext. 13	<a href="mailto:Jtomik@ch2m.com">Jtomik@ch2m.com</a>
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Russell Bowen	Senior QA Officer	(813) 874-6522 ext. 4300	<a href="mailto:Rbowen@ch2m.com">Rbowen@ch2m.com</a>
Keith Coats	Senior Review	(813) 874-6522 ext. 4396	<a href="mailto:Kcoats@ch2m.com">Kcoats@ch2m.com</a>
Gary Webb	Health & Safety Officer	(425) 453-5000	<a href="mailto:Gwebb@ch2m.com">Gwebb@ch2m.com</a>
Kevin Sanders	Senior Project Chemist	(352) 335-5877 ext.. 2436	<a href="mailto:Ksanders@ch2m.com">Ksanders@ch2m.com</a>
Fernando Ferreira	Field Operations Manager	(813) 874-6522 ext. 4103	<a href="mailto:Fferreir@ch2m.com">Fferreir@ch2m.com</a>
Eric Isern	Field Team Leader	(813) 874-6522 ext. 4146	<a href="mailto:Eisern@ch2m.com">Eisern@ch2m.com</a>

**Response to Enclosure #2**  
**Comments to the Final Work Plan for Groundwater Baseline Investigation**  
**at U.S. Navy's Eastern Maneuver Area**  
**Atlantic Fleet Weapons Training Facility**  
**Vieques Island, Puerto Rico**

One April 10, 2001, EPA issued Booze Allen & Hamilton (EPA review contractor) comments on the Final Work Plan for Groundwater Baseline Investigations at U.S. Navy's Eastern Maneuver Area at Atlantic Fleet Weapons Training Facility (AFWTF), Vieques Island, Puerto Rico (dated March 28, 2001) as Enclosure #3 of the EPA comment letter. These comments were discussed in correspondence between EPA, and CH2M HILL. The below responses are a result of this correspondence. In addition, the Work plan was revised to incorporate these comments.

**GENERAL COMMENTS**

1. *The work plan provides only limited guidance regarding the sampling and analysis requirements for this project. However, the work plan should be adequate when used in conjunction with the Master Work Plan, particularly the standard operating procedure for low-flow groundwater sampling.*

**Response:** The work plan is to be used in conjunction with the Master Work Plan documents and is not a standalone document. The sampling and analysis requirements are included in the Master Work Plan.

**SPECIFIC COMMENTS**

1. Section 2.2.1, Groundwater Sampling Procedures, Page 2-2

*The groundwater sampling procedures indicate that samples will be collected using low-flow procedures at depths less than 30 ft, but is less clear regarding methods of sample collection at greater depths. Appendix A provides well completion diagrams which indicate that the wells vary in depth from 50 to 70 ft. Given that the depth of all of the wells is greater than 30 ft, the text should more specifically describe how the samples will be collected. In addition, bladder pumps are capable of collecting low flow groundwater samples from this depth.*

**Response:** The last two paragraphs of Section 2.2.1 of the Baseline Investigations Work Plan have been revised as follows to further clarify groundwater purging and sampling methods:

Purging activities will be conducted in a manner which minimizes agitation of groundwater in the wells, and at a rate not to exceed one liter per minute. Purging will be conducted using low flow peristaltic pumps when the depth to water will allow the use of these pumps. Peristaltic pumps, however, can only pull water from a depth of approximately 25 feet. Therefore, in instances where groundwater is greater than approximately 25 feet below grade, low-flow, variable speed submersible environmental pumps (Grundfos or equivalent) will be utilized for purging. Bladder pumps were ruled out for use at ATWTF

for purging because of the difficulty in obtaining compressed gasses on the island. All down-hole and effluent tubing will be Teflon® lined or Teflon®.

Groundwater samples will be collected from the discharge hose of the purge pump into properly-labeled, laboratory-prepared sampling containers filled and/or preserved as appropriate; cooled to approximately 4 °C; and shipped to the analytical laboratory under appropriate COC documentation procedures. The pump rate shall be slowed, relative to purging, for all samples to reduce the potential for collecting turbid groundwater samples. Clean double check valve bailers may be used for sampling as a last resort in wells in which the depth to water or other extenuating circumstances preclude the collection of non-turbid samples through the pump. In this case, care will be taken when lowering the bailer not to agitate the water surface.

2. Table 2-1, Required Containers, Preservatives, and Holding Times for Water Samples, Page 2-3

*Preparation and analysis method numbers should be listed for each of the analyses listed on the table.*

**Response:** Method numbers have been added to Table 2-1 of the Baseline Investigations Work Plan. This table is enclosed for review. [Table should indicate preparation number]

*Section 2.2 indicates that metals analyses will not be performed, but Appendix IX metals, lead, and arsenic are included on this table. In addition, Toxicity Characteristic Leaching Procedure (TCLP) analyses are listed, but their intended use is not described in the text. If these analyses will not be performed they should be deleted from the table; otherwise, their purpose should be clarified.*

**Response:** A sentence will be added to the end of the paragraph in section 2.2 that states TCLP analyses may be required for IDW characterization to determine the appropriate disposal method.

3. Section 2.3, Sample Analysis and Validation, Page 2-6

*The reference for EPA's National Functional Guidelines for Organic Data Review should be updated to 1999 in this section and in Section 2.3.2.1*

**Response:** The reference in section 2.3 will be revised as requested.

**TABLE 2-1**  
Required Containers, Preservatives, and Holding Times for Water Samples

Analysis	Methodology	No. of Containers	Sample Container	Preservative	Holding Time	Volume of Sample Collected
VOCs	SW-846 Method 5030B/8260B	3	Three 40-ml glass vials w/Teflon-lined cap	HCl to pH <2; Cool to 4°C	14 days	Fill completely; no air bubbles
SVOCs	SW-846 Method 3510C/8270C	2	Two 1-liter bottles	Cool to 4°C	7 days extraction/40 days to analysis	Fill to shoulder
Pesticides/PCBs	SW-846 Methods 3510C/8081A and 3510C/8082	2	Two 1-liter bottles	Cool to 4°C	7 days/ extraction/40 days to analysis	Fill to shoulder
Metals	SW-846 Methods 3050B/6010B and 3050B/7000 series	1	1-liter polyethylene bottle	HNO <sub>3</sub> to pH <2; Cool to 4°C	6 months (28 days for mercury)	Fill to shoulder
Cyanide	SW-846 Methods 9010B and 9012A series	1	1-liter polyethylene bottle	NaOH to pH >12; Cool to 4°C	14 days	Fill to shoulder
Lead and Arsenic	SW-846 Methods 3050B/7421 and 3050B/7061	1	1-liter polyethylene bottle	HNO <sub>3</sub> to pH <2; Cool to 4°C	6 months	Fill to shoulder
Total Organic Carbon	EPA Method 9060	1	500-ml amber glass	H <sub>2</sub> SO <sub>4</sub> or HNO <sub>3</sub> to pH<2; Cool to 4°C	28 Days	Fill completely, no air bubbles
TCLP VOCs	SW-1311/5030B/8260B	3	40-ml glass vials w/Teflon-lined cap	Cool to 4°C	14 days to filter/14 days to analysis	Fill completely; no air bubbles
TCLP SVOCs, Pesticides, Metals	SW-1311 SW-3510C/ 8270C/8081A SW-3010A/6010B SW-7470A for mercury	2	1-liter bottles	Cool to 4°C	14 days to filter/40 days to SVOC and Pest analysis; 28 days to mercury analysis; 180 days to metals analysis	Fill to shoulder
Total Suspended Solids (TSS)	EPA Method 160.2	1	500 mL bottle	Cool to 4°C	7 days	Fill to shoulder
Total dissolved Solids (TDS)	EPA Method 160.1	1	250 ml bottle	Cool to 4°C	7 days	Fill to shoulder
Alkalinity	EPA Method 310.1	1	250 ml bottle	Cool to 4°C	14 days	Fill to shoulder
Hardness	EPA Method 130.2	1	250 ml bottle	HNO <sub>3</sub> to pH <2; Cool to 4°C	6 months	Fill to shoulder

**Response to Enclosure #3**  
**Comments to the Draft Work Plan and Sampling and Analysis Plan for**  
**Soil and Groundwater Background Investigation**  
**Atlantic Fleet Weapons Training Facility**  
**Vieques Island, Puerto Rico**

EPA comments on the Draft Work Plan and Sampling and Analysis Plan for the Soil and Groundwater Background Investigations at Atlantic Fleet Weapons Training Facility (AFWTF), Vieques Island, Puerto Rico were issued on March 14, 2001. These comments were discussed in correspondence between EPA, Booze Allen & Hamilton (EPA review contractor), and CH2M HILL. The below responses are a result of this correspondence. In addition, the Work plan was revised to incorporate these comments.

**GENERAL COMMENTS**

*The February 2001, Draft Work Plan and Sampling and Analysis Plan for Soil and Groundwater Background Investigation (Work Plan) includes groundwater sampling to determine background concentrations of metals in groundwater. However, the Work Plan provides no discussion of basic hydrogeology of the site or any rationale for the wells, both existing and proposed, that will be used to establish groundwater background concentrations. Similarly, no discussion of the screening depth and the different saturated strata present on the island (e.g., bedrock and unconsolidated alluvium) has been provided. The potential impact of different strata on background groundwater quality has not been discussed. While the Work Plan for the Groundwater Baseline Investigation provides some discussion of the hydrogeology of the island, this material has not been referenced or summarized in the text of the Work Plan and Sampling and Analysis Plan for the Soil and Groundwater Background Investigation. Moreover, it is not clear that the material provided in Groundwater Baseline Investigation Work Plan is sufficient to justify the selection of wells to be used in establishing background groundwater concentrations.*

**Response:** The following descriptions for site hydrogeology will be included in Section 2-1 of the Work Plan.

The geology at AFWTF is characterized by volcanic and plutonic bedrock overlain by alluvial unconsolidated sediments. The volcanic bedrock consists primarily of andesites of Cretaceous age (Briggs and Akers, 1965). The plutonic bedrock consists largely of granodiorite and quartz-diorite that is exposed over a large percentage of the island. The alluvium consists of a mixture of sand, silt, and clay.

Hydrogeologic cross-sections constructed from well installation logs are presented in Figures 1-3 through 1-5. As shown in the cross sections, the thickness of the unconsolidated layer decreases northward from wells NW-7 and NW-4 located along the Caribbean shoreline to well NW-3, located at the highest elevation within the study area. Likewise, the thickness of the unconsolidated layer increases again northward from NW-3 toward NW-1 located near the Atlantic Ocean shoreline (Baker, 1999).

As part of the previous hydrogeologic investigation, groundwater elevation measurements were recorded on August 26, 1999. The depth to groundwater within the bedrock ranged from approximately 36 feet at NW-5 to 131 feet at P-1. The groundwater elevations of the bedrock are significantly higher than the elevations where groundwater was encountered during drilling. This would indicate that the bedrock formation is under artesian conditions. The groundwater elevation data for the bedrock indicates that a groundwater flow divide exists within the bedrock at the approximate north/south mid point of the island: at the location of well NW-3. Generally, groundwater north of well NW-3 flows north toward the Atlantic Ocean and groundwater south of NW-3 flows south toward the Caribbean Sea.

Two groundwater aquifers are present in the AFWTF area of Vieques, and include the shallow unconsolidated alluvial deposits near the Caribbean coast and the deeper bedrock aquifer system northward from the coast. Bedrock in the AFWTF area is predominantly unweathered, highly impermeable granodiorite; the porosity is very low, and the potential for groundwater development is limited. Toward the coast, clayey alluvium overlies the granodiorite. Samples from wells in the Camp Garcia area show mostly saline water in the clayey alluvium.

Groundwater wells proposed for the RCRA Facility Investigations (RFIs) will be constructed using 10 feet well screen lengths screened across the top of the water table. The location of these RFI sites will place all RFI wells in the bedrock. Therefore, the wells proposed for sampling as part of the background study will be screened within the same geologic formation and relative depth.

## SPECIFIC COMMENTS

### 1. Section 2.1, Geology and Soils, Page 2-1

*1. With the exception of beach, dune, and alluvial deposits, this section gives the impression that there is no soil horizon above bedrock. Presumably, residual soils from above the bedrock will be the focus of this study. The discussion should be clarified, and the soil types should be related to the five soil series (e.g., Descalabrado, Vieques, Coamo) described in the Master Work Plan. In addition, there is no discussion regarding vertical variations in lithology. Such a discussion, including general cross-section diagrams, should be added to support selection of the 4-5 ft. depth interval for collection of subsurface soil samples. The purpose of the discussion should be to demonstrate that the sample interval will be representative of the entire vertical cross-section.*

**Response:** The work plan will be revised to state that limited information regarding the alluvial deposits is available for Vieques other than the generalized soil types map prepared by Torres-Gonzales (presented as Figure 2-1). The purpose of the background samples are to provide samples representative of the native soils that are collected in a similar soil strata as the RFI samples, not to demonstrate that the sample interval will be representative of the entire vertical cross-section. The soil sample depths for the background study (0 to 6-inches and 4 to 5 feet) have been selected to correspond to the same sample depths as the RFI samples.

### 2. Section 2.1, Geology and Soils, Page 2-2

*The Site-Specific Work Plan for Solid Waste Management Unit (SWMU) 2 indicates that soil samples will be collected at the off-loading area. It is not clear whether this area contains beach*

sands. However, if beach sands may be present at the sampling locations, the discussion regarding soil types at SWMU 2 should indicate that soil types Kv and Qb are present at the site.

**Response:** It is the intent of the background sampling to collect soil from types consistent with the soil type of the site specific samples. The soil types at SWMU 2 is currently unknown. However, soil descriptions will be collected during sampling and well installation of all RFI sites. This data will be used so that the correct background soil type can be compared with the site samples.

3. Figure 2-1, Existing and Proposed Background Sample Locations, Page 2-4

*The label for sample Kv-4 is incorrectly shown as KTd-4 and should be corrected. In addition, samples SS-O1 through SS-04 are identified as T1 samples. However, the identifier T1 has not been described elsewhere. The TI identifier should be discussed.*

**Response:** The label for Kv-4 has been corrected on Figure 2-1 and is enclosed for review. TI, as presented in the legend on Figure 2-1, indicates marine sedimentary rock. *The Soil Survey of Humancao Area of Eastern Puerto Rico* indicated this to be rockland, but states that properties are too variable to be estimated. Soil descriptions will be collected at each of these proposed locations so that an appropriate description of the formation can be provided in the background report.

4. Section 2.3.1, Groundwater Sampling Locations and Analysis, Page 2-4

*This section indicates that samples will be collected from two existing piezometers. Figure 2-1 shows three piezometers. The piezometers from which samples will be collected should be clarified.*

**Response:** The work plan text in Section 2.3.1 will be revised to state that samples will be collected from the three existing piezometers. .

*It appears that the groundwater data will be evaluated as a single data set. Justification should be provided for doing so. Where possible, geochemical data should be used as evidence that groundwater conditions are consistent across the island and that groundwater quality data can be combined into a single background, regardless of the strata and location from which the sample is taken..*

**Response:** The work plan will state that groundwater data will be evaluated for potential differences in the inorganic chemical concentrations between wells finished in different soil types. Statistical analyses will be conducted to determine if the ground water analyses can be grouped together as a single data set or if the analyses will be grouped together by the strata that the well screens are installed. Both statistical results, dissolved versus total metals concentration, and the general chemistry parameters of the groundwater will be used to determine a set of background values for comparison with site groundwater concentrations.

*Insufficient background and discussion are provided to justify the selection of wells for use in establishing background (see General Comment No. 1).*

**Response:** The work plan will state that the proposed monitoring wells were selected based on their location with respect to potential sources of groundwater contamination. This will be demonstrated by a comparison of the sites to be investigated, the existing groundwater elevation contours, and the proposed well locations to be sampled; which show that the wells are not located downgradient from any potential source areas.

5. Section 3 Statistical Analysis, Page 3-1

*The discussion of statistical analysis does not clearly indicate whether statistics will be computed to describe each soil type individually or to characterize all soil samples as a single group. Similarly, the discussion does not clearly indicate if soil samples from potential release areas will be compared only to statistics derived from the same soil type or from the larger aggregated set of soil samples. The text should be revised to clearly indicate how background concentrations will be established relative to individual soil types and to identify the data set(s) that will be used during comparisons of soils collected at specific, potential release areas. Use of aggregate data sets combining chemical data from all soil samples, regardless soil type, will require justification.*

**Response:** The work plan text will be modified to indicate that... "Background sampling data will be evaluated following EPA guidances, 'Geostatistical Sampling and Evaluation Guidance for Soil and Solid Media.' Review draft., U.S. EPA, February, 1996, and 'Statistical Analysis of Ground-water Monitoring Data At RCRA Facilities,' Addendum to Interim Final Guidance. Office of Solid Waste, USEPA, June 1992. Using these guidance, differences in chemical concentrations between soil types will be determined. If the statistical results indicate that data can be combined, a single data set will be developed for each medium, where appropriate. A description of tests conducted, results, and conclusions will be presented in the background data analysis report."

6. Section 3.2, Incorporating Background Analytical Results into Remedial Investigations and Feasibility Studies, Page 3-5

*The Work Plan (pg. 3-5) indicates that "one of the most important uses of background analysis is for identifying constituents of concern (COCs) associated with Navy releases." Citing EPA risk assessment guidance, the Work Plan further indicates that "if inorganic chemicals are present at the site at naturally occurring levels, they may be eliminated from the quantitative risk assessment." The Work Plan specifically states that "while the cumulative risk associated with background and site release may exceed an acceptable risk level (triggering remediation), when evaluated separately the site release may pose insignificant risks," and "in this case, cleanup would be unwarranted."*

*The Work Plan has failed to note that the EPA risk assessment guidance referenced above (U.S. EPA, 1989, pg. 5-19) also states, immediately after the above citation, that "in some cases, however, background concentrations may present a significant risk, and, while cleanup may or may not eliminate this risk, the background risk may be an important site characteristic to those exposed." Thus, it may not be possible to eliminate background metals from COC lists used to quantify risks at the site. The treatment of background in the risk assessment can only be determined at the time of the risk assessment based on the specific characteristics of the data. The most immediate use of the background data during the site-specific investigation will be to determine if levels of metal identified at individual SWMUs are background or indicative of a release. If it is determined that a release has occurred, further investigation may be required to fully characterize the release. The Work Plan should be revised to more accurately reflect the potential uses of background data during the planned site-specific investigation.*

**Response:** Comment noted. We agree that, the primary purpose of the background is to determine if the observed naturally occurring inorganic chemicals are significantly elevated in the site samples that are indicative of a release from the site activities. As suggested by the comment, on a site-specific basis if the background chemicals appear to pose excessive risk, then future site reports will acknowledge the background risks for public information, although site related management actions would not propose to remediate naturally occurring background. If the maximum concentration in site samples is below the background levels, then that chemical will not be selected as a COPC, following the current risk assessment guidance and practices.

*The last paragraph states that it is important to specify during the data quality objectives (DQO) process, the differences between site and background means/medians. It is inadequate to simply state that this is important. A discussion should be included that actually states the differences that are important to detect and describes how this data requirement was translated into the development of the sampling and analysis strategy.*

**Response:** This statement is not applicable to this section and will be deleted from the work plan. A discussion of statistics is described in Section 3.1 of the Work Plan. Additional statistical procedures are discussed in response to comment 5.

7. Section 4.2, Sample Analysis and Validation, Page 4-8

*The reference for National Functional Guidelines for Organic Data Review should be updated to October 1999.*

**Response:** This reference will be revised as recommended.

8. Section 4.2.1.2, Blanks, Page 4-9

*If temperature blanks will not be submitted, then the method by which cooler temperature will be determined should be specified. The Master Work Plan requires temperature blanks for all coolers.*

EPA request that a temperature blank be included in each cooler containing samples for CLP analyses. CLP analysis will not be conducted as part of this background study. Table 10-1 of the Master workplan indicates that temperature blanks will be included one per cooler. The text in the master workplan (page 10-2), however, further clarifies that temperature blanks are required for coolers containing samples for CLP analysis.

As a matter of consistency, however, the text on page 4-9 has been revised to include the requirement one temperature blank per cooler.

9. Section 4.2.1.3, Duplicates, Page 4-9

*The discussion regarding duplicate samples should be expanded to specify that soil samples will be thoroughly mixed prior to splitting and describe how duplicate samples will be selected.*

**Response:** The following test will be added to section 4.2.1.3 of the work plan.

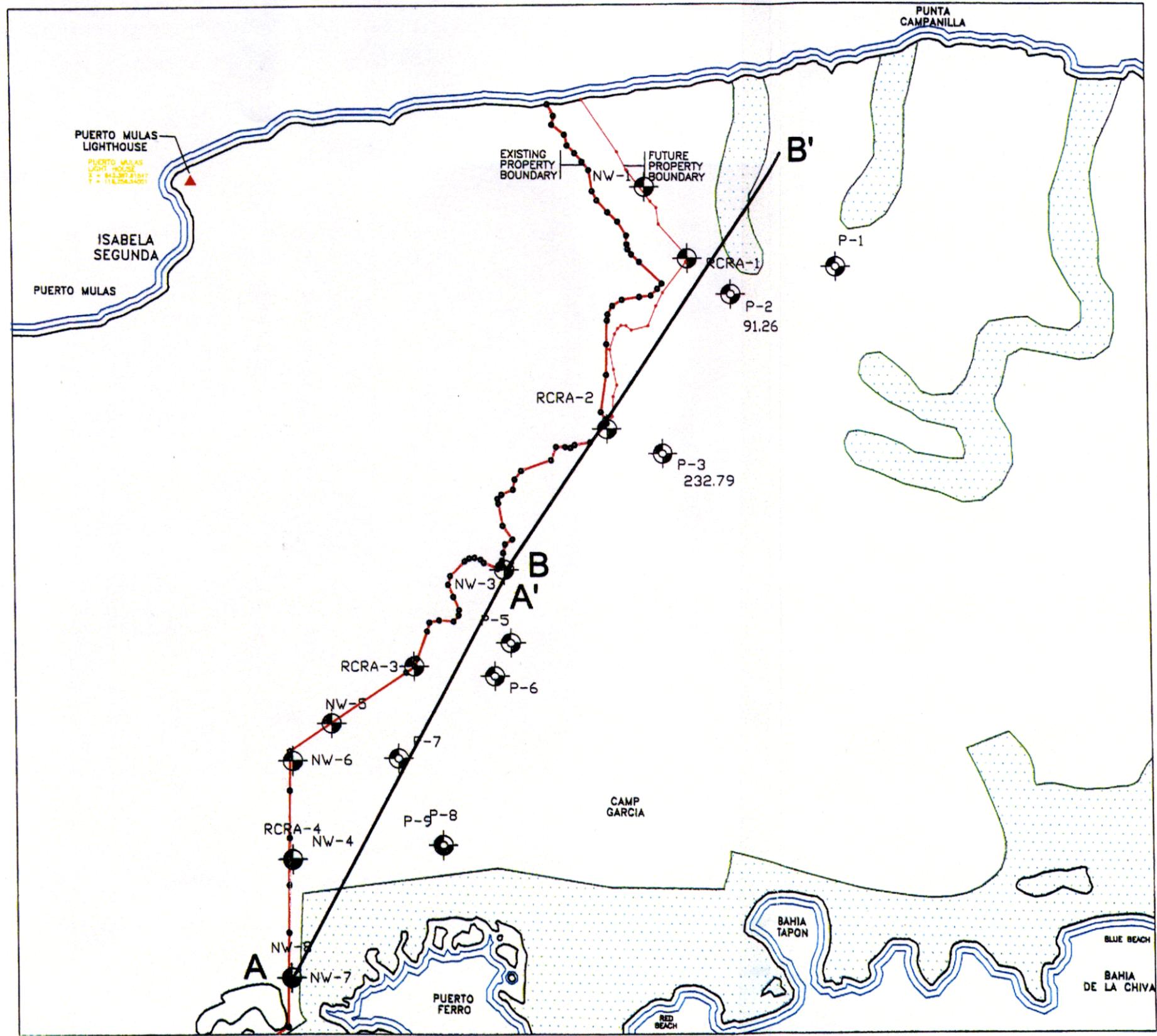
Duplicate soil samples will be placed in a stainless steel bowl and thoroughly mixed before placement in appropriate sample containers. The samples will initially be stirred in a circular fashion in one direction until thoroughly mixed. The sample will then be turned over in the bowl and subsequently stirred in a circular fashion in the opposite direction until

thoroughly mixed. These procedures will be continued to ensure that all parts of the sample are mixed and that the sample is as homogenous as possible before splitting the samples and placing in the appropriate sample containers.

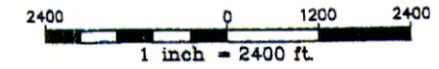
10. Section 6, Contractual Services, Page 6-1

*The final version of this Work Plan should provide the names of the specific subcontractors to be used on the project.*

**Response:** The names of the subcontractors will not be identified until the subcontracted procurements are bid. However, EPA will be provided the qualifications of the selected subcontractor to demonstrate that the contractor can meet the data quality objectives.

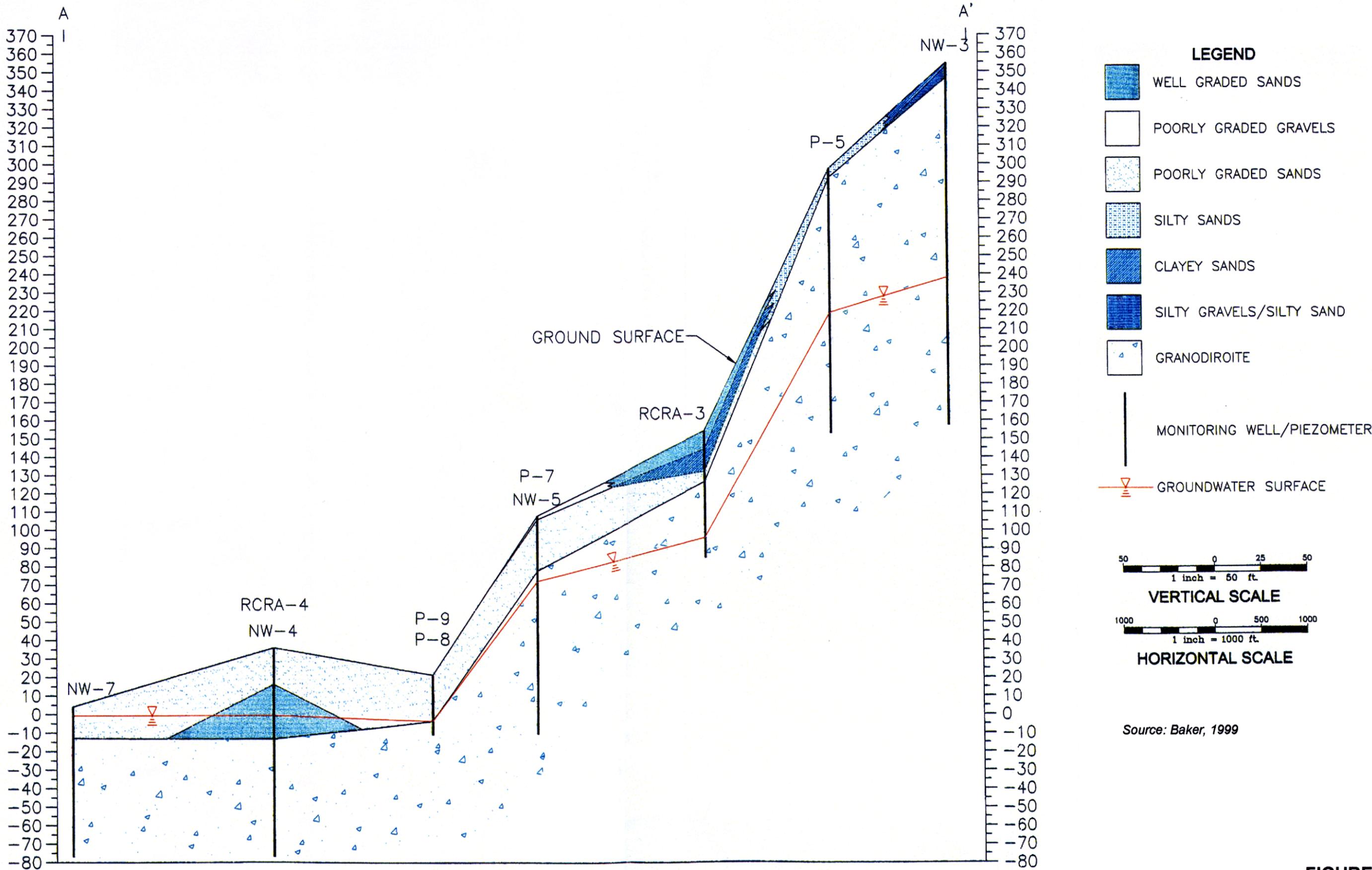


- LEGEND**
- RCRA-1 MONITORING WELL
  - P-1 PIEZOMETER
  - SHORELINE
  - A—A' HYDROGEOLOGIC CROSS-SECTION
  - AFWTF PROPERTY LINE

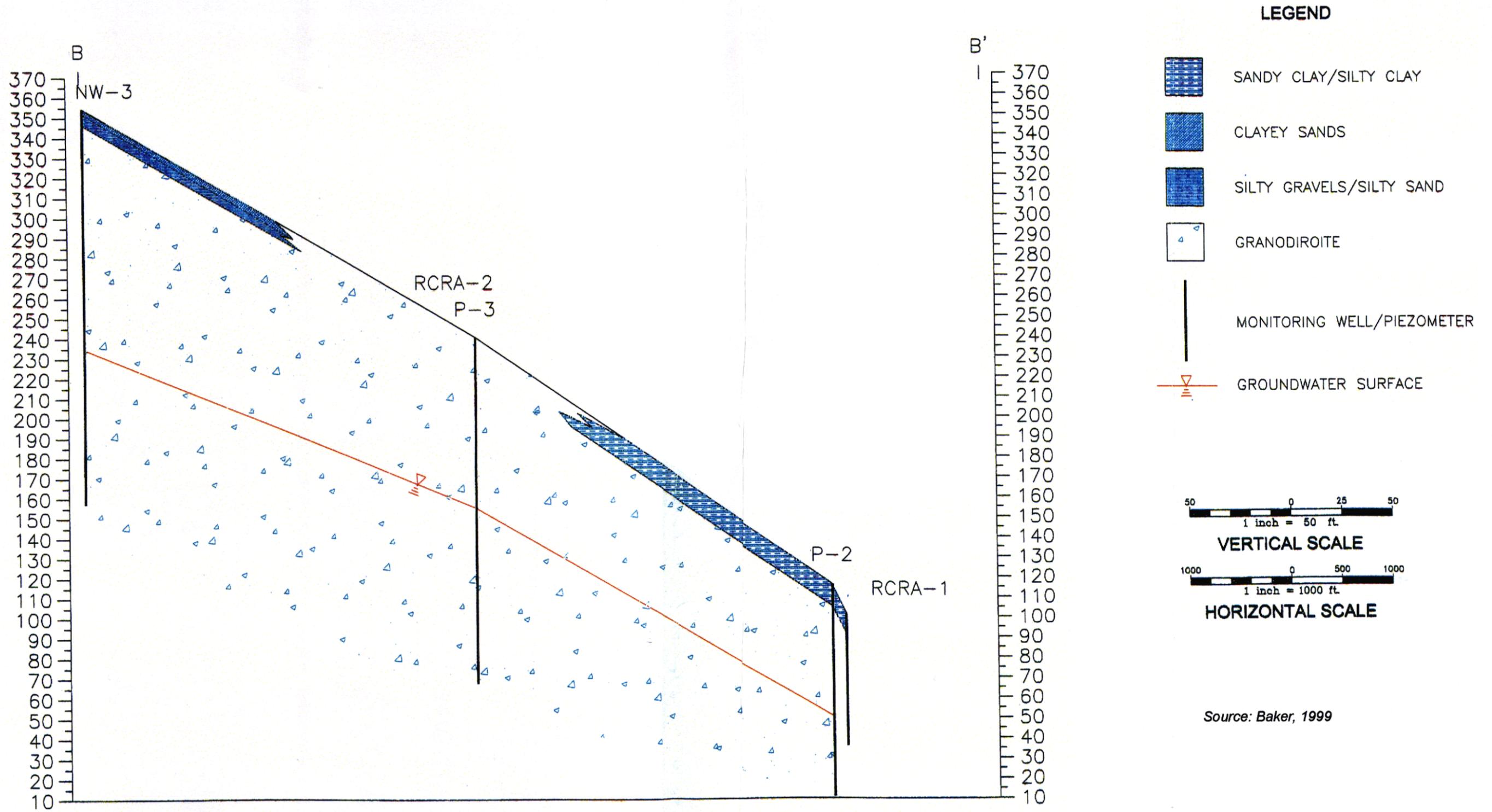


Source: Baker, 1999

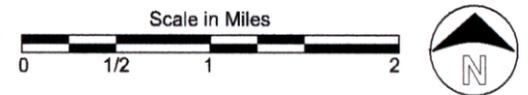
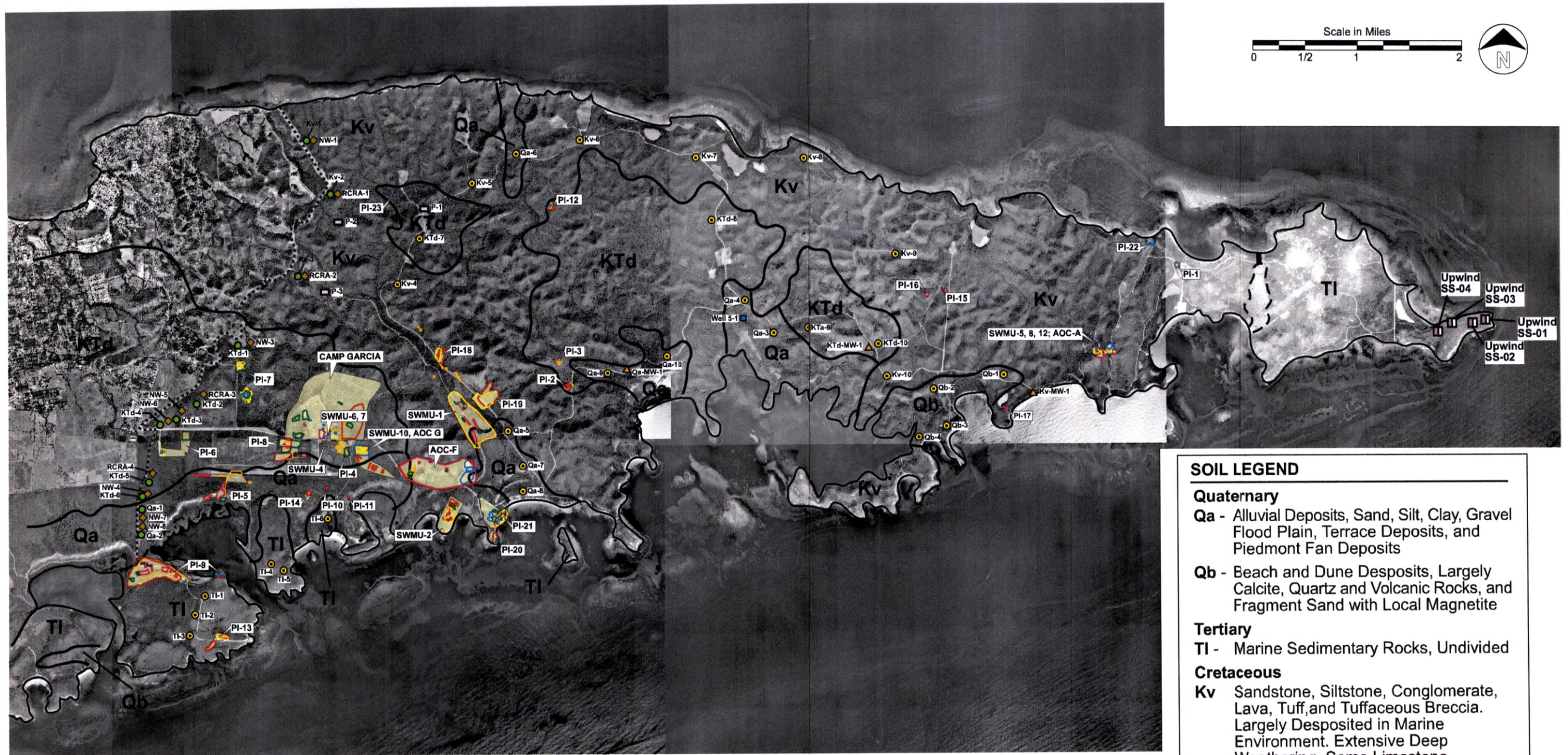
**FIGURE 2-1**  
Hydrogeologic Cross-Section Location Map  
Vieques Island, Puerto Rico



**FIGURE 2-2**  
Hydrogeologic Cross-Section A-A'  
Vieques Island, Puerto Rico



**FIGURE 2-3**  
Hydrogeologic Cross-Section B-B'  
Vieques Island, Puerto Rico



SOIL LEGEND	
<b>Quaternary</b>	
<b>Qa</b>	Alluvial Deposits, Sand, Silt, Clay, Gravel Flood Plain, Terrace Deposits, and Piedmont Fan Deposits
<b>Qb</b>	Beach and Dune Desposits, Largely Calcite, Quartz and Volcanic Rocks, and Fragment Sand with Local Magnetite
<b>Tertiary</b>	
<b>TI</b>	Marine Sedimentary Rocks, Undivided
<b>Cretaceous</b>	
<b>Kv</b>	Sandstone, Siltstone, Conglomerate, Lava, Tuff, and Tuffaceous Breccia. Largely Deposited in Marine Environment. Extensive Deep Weathering. Some Limestone.
<b>KTd</b>	Plutonic Rocks, Largely Grandiorite, and Quartz Diorite, Locally Deeply Weathered

Base imagery is comprised of 1994 1-meter USGS Digital Ortho-imagery quarter quadrangles (DOQQs).

**Aerial Photographic Analysis Findings**

SWMU, AOC, PI Sites
1994
1985
1970
1967
1964
1962
1959
1936-37

**SYMBOL LEGEND**

Existing Water Supply Well to be Sampled as part of the Background Investigation	Existing Surface Soil Sample
Existing Background Well	Existing Piezometer
Existing Piezometer	Proposed Background Well to be Installed
Existing T1 Samples	Proposed Soil Sample



**FIGURE 2-4**  
Existing and Proposed Background Sample Locations  
AFWTF, Vieques Island

**Response to May 8, 2001 Email**  
**EPA Comments to Site Specific and Master RFI Work Plans for**  
**the Atlantic Fleet Weapons Training Facility**  
**Vieques Island, Puerto Rico**

GENERAL COMMENTS

1. *Text in Section 2.7.3 (SWMU 10) indicates 4 groundwater wells, but Figure 2-11 shows 5.*

**Response:** This comment has been addressed in response to comment 64, Enclosure #1.

2. *Text in Section 2.7.3 (SWMU 10) indicates 16 subsurface soil samples, but does not specify depth. [I assume 4-5 ft as mentioned in Sect 2.7.2 for prior sampling, but it should be specified in Section 2.7.3 too].*

**Response:** This comment has been addressed in response to comment 64, Enclosure #1.

3. *Table 3-1 should indicate Appendix IX for all class of constituents except explosives. Also, Table should contain reference to detailed constituent Tables (8-2) in Master RFI [see 5 below]. Also, in Table 3-1, what does LC mean before VOCs. Isn't the LC an error? If not, List of Acronyms in front of document should include LC VOCs.*

**Response:** LC is an acronym for low concentration. This acronym will be included in the acronym list.

4. *I checked Nov 1999 Western Perimeter Groundwater report [Baker] explosive constituent list. Five constituents (2,6 dinitrotoluene; 2 amino-4,6 dinitrotoluene; 4-amino-4,6 dinitrotoluene; nitroglycerin; and pentaerythritol tetranitrate) done then, are not included in Table 8-2 of Master RFI. I think the public will pick this up, and they should be included. Also, we already had query re RDX [from environmental activist]. Again, I think the public will pick this up, and it should be included. Also, is ammonium perchlorate the same as perchlorate?*

**Response:** These 5 constituents have been included in Table 8-2 (see response to comment 46, Enclosure #1).

5. *The Site Specific RFI (in Text throughout Section 2, and in Table 3-2) keeps indicating Appendix IX [of 40 CFR Part 264] analysis will be done. Yet Table 8-1 of Master RFI cites other constituent lists (TCL, TAL, etc) which are not identical to Appendix IX, and does not even cite Appendix IX of 40 CFR Part 264. Likewise, Table 8-2 of Master RFI, giving detailed list of constituents does not include all Appendix IX [of 40 CFR Part 264] constituents. Again, I think the public will pick this up, and it should be corrected.*

**Response:** Tables 8-1 and 8-2 have been revised to include the list the Appendix IX methods and analytes. (see response to comment 46 to Enclosure #1)

**Response to May 10, 2001 Email  
EPA Comments to Community Relations Plan at  
the Atlantic Fleet Weapons Training Facility  
Vieques Island, Puerto Rico**

GENERAL COMMENTS

A. *EPA Region 2's Communications Division is currently reviewing the Community Relations Plan of the Feb 2001 Master RFI Workplan for AFWTF. Please note it must conform with Section XVII (Public Participation) of the January 2000 RCRA 3008(h) Order, and the EPA guidance documents cited there.*

**Response:** Statement acknowledged. The Community Relations Plan (CRP) section of the AFWTF Master Workplan has been revised and is enclosed for EPA review.

B. *The Community Relations Plan calls for EQB to perform much of the work; have they reviewed the Plan and concurred? Following Region 2's Communications Division review, we expect to have additional comments on the Community Relations Plan.*

**Response:** A Draft CRP was submitted February 2001 to EQB. There have been no comments from EQB to date. Should comments be received prior to submission of the final plan, they will be implemented into the Final CRP.

Review of comments by EPA Region 2 Communications Division will also be implemented into the Final CRP upon receipt. To date, there have been no comments received.

SPECIFIC COMMENTS.

A. *Points of Contact (pg 2-4): Please list Mr. Raymond Basso for U.S. EPA in place of Nicoletta DiForte (she has not been assigned to Region 2 since Oct 2000. His phone # is 212-637-4109 or 4105. Also, please list myself as an alternate point of contact for Mr. Basso. I believe the listed EQB contact (J.J. Lajara) is no longer correct. Also, Mr. Carl Soderberg of US EPA's Caribbean Environmental Protection Division in San Juan should be listed (see Section IX of the Order for his address).*

**Response:** The points of contact addressed above have been updated, as follows:

Agency	Name
US Environmental Protection Agency (USEPA)	Mr. Raymond Basso Mr. Tim Gordon (Alternate contact)
Environmental Quality Board, Puerto Rico (PREQB)	Ms. Aisa Colon
USEPA Caribbean Environmental Protection Division	Mr. Carl Soderberg
Atlantic Division, Naval Facilities Engineering Command	Mr. Christopher T. Penny
Environmental Office, U.S. Naval Station Roosevelt Roads	Ms. Madeline Rivera

Agency	Name
US Environmental Protection Agency (USEPA)	Mr. Raymond Basso Mr. Tim Gordon (Alternate contact)
Environmental Quality Board, Puerto Rico (PREQB)	Ms. Aisa Colon

\* Note: Mr. Vasquez serves as Directory for the Land Contamination Regulatory Program and is the temporary EQB contact in place of Mr.J.J. Lajara.

B. *Joint Interest Group (Appendix B): Please list Mr. Raymond Basso for U.S. EPA in place of Nicoletta DiForte (she has not been assigned to Region 2 since Oct 2000). Also, I believe the listed EQB contact (J.J. Lajara) is no longer correct. Also, neither Mr. Basso or Mr. Gordon are in EPA's E.R.R.D. Division. Delete the references to E.R.R.D. Also, my phone number is not correctly listed.*

**Response:** Changes were made for the following contacts in the Appendix B Joint Interest Group list:

Ms. Aissa Colon Environmental Quality Board 431 Ponce de Leon Avenue Hato Ray, Puerto Rico 00917 (787)763-4448 <a href="mailto:jcaterr@prc.net">jcaterr@prc.net</a>	Tim Gordon U.S. Environmental Protection Agency Region 2 290 Broadway- 22 <sup>nd</sup> Floor New York, New York 10007-1866 <a href="mailto:gordon.timothy@epamail.epa.gov">gordon.timothy@epamail.epa.gov</a> phone(212)637-4167 fax(212)637-4437	Mr. Raymond Basso Chief, RCRA Caribbean Section U.S. Environmental Protection Agency Region 2 290 Broadway- 22 <sup>nd</sup> Floor New York, New York 10007-1866 <a href="mailto:Basso.raymond@epamail.epa.gov">Basso.raymond@epamail.epa.gov</a> Phone(212)637-4110 fax(212)637-4109
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C. *List of Interested Parties (Appendix C): Please include Carl Soderberg of US EPA's Caribbean Environmental Protection Division in San Juan should be listed (see Section IX of the Order for his address).*

**Response:** Carl Soderberg was added to the Federal Officials and Agencies section of the Appendix C Interested Parties List. The below address was obtained from Section IX of the RCRA 3008(h) AFWTF Consent Order:

Mr. Carl A. Soderberg  
US Environmental Protection Agency  
Caribbean Environmental Protection Div.  
Centro Europa Building, Ste. 417  
1492 Ponce de Leon Avenue  
Hato Rey, PR 00917

Draft

**Work Plan**

**Community Relations Plan**

**Atlantic Fleet Weapons Training Facility and Eastern Maneuver Area**

**Vieques Island, Puerto Rico**

Prepared for

**Department of the Navy**  
**Atlantic Division**  
**Naval Facilities Engineering Command**

Under the

**LANTDIV CLEAN II Program**  
**Contract N62470-95-D-6007**

Prepared by

**CH2MHILL**  
4305 West Cypress Street  
Suite 600  
Tampa, FL 33607

**June 2001**

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# Acronyms and Abbreviations

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AFWTF	Atlantic Fleet Weapons Training Facility
AOC	Area of Concern
CERCLA	Comprehensive Environmental Recovery, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMS	Corrective Measures Study
CRP	Community Relations Plan
EMA	Eastern Maneuver Area
EPA	United States Environmental Protection Agency
IRP	Installation Restoration Program
JIG	Joint Interest Group (RCRA)
LANTDIV	Atlantic Division
NASD	Naval Ammunition Support Detachment
NATO	North Atlantic Treaty Organization
NFRAP	No Further Remedial Action Planned
NFRAP-DD	No Further Remedial Action Planned – Decision Document
NSRR	U.S. Naval Station Roosevelt Roads
PAOC	Potential Area of Concern
PI	Photo-Identified
PRAP	Proposed Remedial Action Plan
PRASA	Puerto Rico Aqueduct and Sewer Authority
PREQB	Puerto Rico Environmental Quality Board
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
SWMU	Solid Waste Management Unit
USGS	United States Geological Survey
UST	Underground Storage Tank

## SECTION 1

# Introduction

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This work plan has been prepared to describe the approach for encouraging public participation, including preparation of a Community Relations Plan (CRP), to support a Resource Conservation and Recovery Act (RCRA) Facility Investigation and removal actions for sites with environmental contamination on the U.S. Navy properties located on the eastern side of Vieques Island, Puerto Rico. It also describes the approach for conducting specific interim public participation activities that will be conducted while the CRP is being prepared.

Section 1 provides background information on the U.S. Navy's property on Vieques Island and the affected community. Section 2 describes the approach for preparing a CRP and carrying out interim activities. Section 3 identifies contractual services that may be needed, and Section 4 provides a proposed schedule for completion of these tasks.

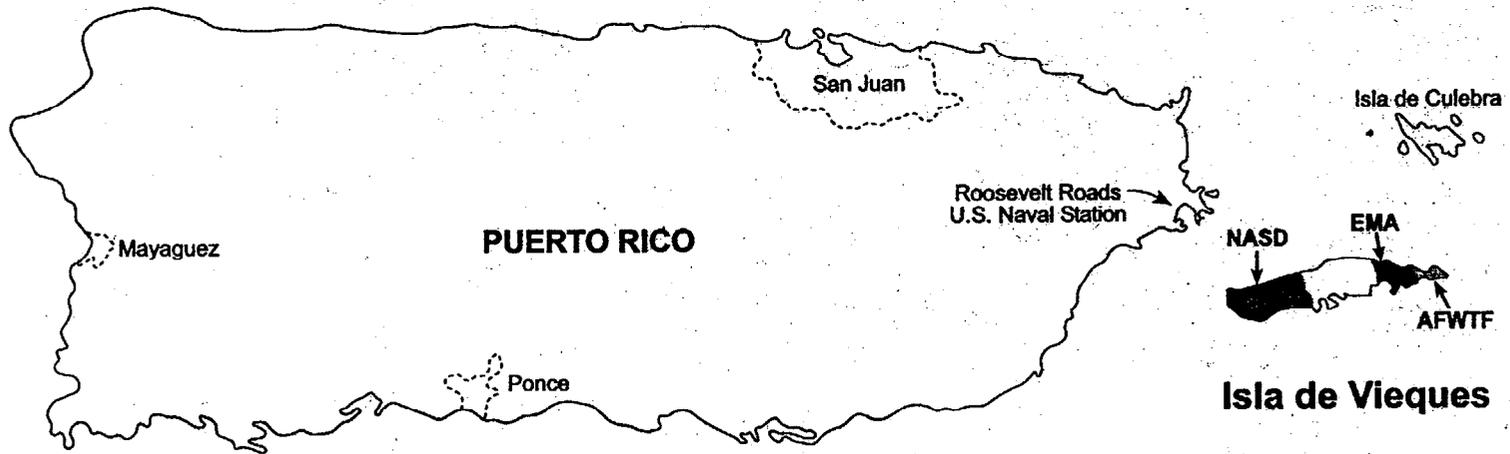
## 1.1 Facility Background and Setting

Vieques Island lies about 7 miles southeast of the U.S. Naval Station Roosevelt Roads (NSRR), Puerto Rico (Figure 1-1). According to the 2000 Census, approximately 9,106 people currently live on Vieques Island (a 5.9-percent increase from the 1990 Census), mostly in and around the towns of Isabela Segunda on the north shore and Esperanza on the south shore.

The U.S. Navy currently occupies approximately 14,700 acres (23 square miles) of the 33,000 acres (52 square miles) that make up Vieques Island. The Atlantic Fleet Weapons Training Facility (AFWTF) occupies 3,600 acres on the eastern tip of the island and the Eastern Maneuver Area (EMA) occupies 11,000 acres contiguous with the AFWTF and located on the east-central portion of the island.

The AFWTF provides facilities for naval gunfire support and air-to-ground ordnance delivery training for Atlantic Fleet ships, North American Treat Organization (NATO) ships, air wings, and smaller air units from other allied nations and the Puerto Rican National Guard. The Fleet Marine Force, Atlantic, conducts training for Marine amphibious units, battalion landing teams, and combat engineering units in the EMA. On occasion, Naval units of allied nations with a presence in the Caribbean and the Puerto Rican National Guard also utilize the EMA. The training areas have been in continuous use since World War II when the Navy acquired title to the land.

Recently, Public Works facilities, which provide vehicle and infrastructure (buildings, roads, and utilities) maintenance support for the Navy activities on the island, have been relocated from the Navy's former property on the western side of the island to Camp Garcia, which is located within the EMA.



- **AFWTF** - Atlantic Fleet Weapons Training Facility
- **EMA** - Eastern Maneuver Area
- **NASD** - Naval Ammunition Storage Detachment



**Figure 1-1**  
**SITE LOCATION MAP**  
 Vieques Island, Puerto Rico **CH2MHILL**

### 1.1.1 Future Disposition of Navy Facilities

Until this year, the Navy occupied another 8,000 acres on the western end of the island, known as the Naval Ammunition Support Detachment (NASD). The NASD was formerly used to store ammunition and ordnance used by the Atlantic Fleet and contained public works facilities to support Navy activities. On April 30, 2001, the Navy transferred about 4,000 acres of the former NASD property to the Municipality of Vieques, 3,100 acres to the U.S. Department of the Interior (DOI), and about 800 acres to the Puerto Rico Conservation Trust. The DOI lands are now being managed by the U.S. Fish and Wildlife Service (FWS) as the Vieques National Wildlife Refuge.

The Navy retained about 100 acres on the western side of the island, where the communications facilities on Monte Pirata and the Relocatable Over-The-Horizon Radar (ROTHR) are located. The Navy also retained easements to allow them to operate and maintain these facilities and to continue remedial activities at 17 potential hazardous waste sites on the property transferred to the Municipality and DOI.

Remedial activities on the former NASD are being conducted under Comprehensive Environmental Response, Compensation and Liability Act regulations. In 2000, the Navy prepared a Finding of Suitability for Early Transfer and Governor of Puerto Rico signed a Covenant Deferral Request, in accordance with CERCLA regulations for transferring federal property, which allowed the land to be transferred before remediation is complete.

Under an agreement signed by President Clinton and Governor Rosselló, and enabling legislation passed by the U.S. Congress, a public referendum was to be held in 2001 on the disposition of the remaining U.S. Navy property on Vieques Island (EMA and AFWTF). However, President Bush recently announced that the Navy plans to stop conducting training exercises on Vieques by May 2003 and the Secretary of Defense has asked Congress for legislative relief that will cancel the referendum. In that case, the eastern lands would be transferred to DOI after the Navy ends its use of them. If the referendum goes forward, the outcome will determine whether the Navy retains these lands or transfers them to DOI.

## 1.2 Consent Order

On January 20, 2000, the U. S. Environmental Protection Agency (EPA) and the Department of the Navy entered into an Administrative Order of Consent (Consent Order) to address potential environmental contamination at the AFWTF and EMA. In accordance with the Consent Order, the Navy is required to perform a RCRA Facility Investigation (RFI) to fully determine the nature and extent of any releases of hazardous wastes, solid wastes, and/or hazardous constituents, from or at the EMA and AFWTF.

The RFI Work Plan (submitted as a separate document) presents the work proposed for the Phase I RFI at nine Solid Waste Management Units (SWMUs) and three Areas of Concern (AOCs). Additionally, 12 Potential Areas of Concern (PAOCs) and 23 photo-identified (PI) areas will be investigated as part of the Phase I RFI, to determine whether release of hazardous materials has occurred at each site. These SWMUs and AOCs are located on the AFWTF and EMA; many are on Camp Garcia, which is part of the EMA. Figure 1-2 shows the location of the AFWTF, EMA, Camp Garcia, the nine SWMUs and the three AOCs.

**FIGURE 1-2      SITE LOCATION MAP, AFWTF AND EMA, VIEQUES**

## 1.3 RCRA Facility Investigation

The Navy will conduct the RFI in coordination with EPA Region II and PREQB. The objectives of the RFI are to supplement data collected during previous investigations concerning the nature and extent of potential contamination at the SWMUs and AOCs at the EMA and AFWTF, and to make recommendations for additional action or no further action, based on that data.

The RFI will focus on potential contamination at the nine identified SWMUs and three AOCs shown on Figure 1-2 and listed as follows:

- SWMU 1 – Camp Garcia Landfill
- SWMU 2 – Fuels Off-Loading Site (Camp Garcia)
- SWMU 4 – Waste Areas of Building 303 (Camp Garcia)
- SWMU 5 – Spent Battery Accumulation Area (Observation Post 1, Inner Range, AFWTF)
- SWMU 6 – Waste Oil and Paint Accumulation Area (Seabees Area, Camp Garcia)
- SWMU 7 – Waste Oil Accumulation Area (outside Building 303 at Camp Garcia)
- SWMU 8 – Waste Oil Accumulation Area (Observation Post 1, Inner Range, AFWTF)
- SWMU 10 – Sewage Treatment Lagoons (Camp Garcia)
- SWMU 12 – Solid Waste Collection Unit Area (Observation Post 1, Inner Range, AFWTF - formerly AOC B)
- AOC-A – Diesel Fuel Fill Pipe Area (Observation Post 1, Inner Range, AFWTF)
- AOC-F – Rock Quarry (Camp Garcia)
- AOC-G – Pump Station and Chlorinating Building at Sewage Lagoons (Camp Garcia)

The remaining three SWMUs (SWMUs 3, 9, and 11) not included in the Phase I RFI are located in the active military range area and are excluded from any corrective action requirements at this time, under the terms and conditions of the U.S. EPA Consent Order Docket No. RCRA-02-99-7301.

## SECTION 2

# Public Participation Planning

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Both the Navy's Installation Restoration (IR) program and the EPA's RCRA process require a public participation effort to encourage public input and feedback into RCRA Facility Investigations, Corrective Measures Studies, permits and removal actions. This section describes the approach for preparing and implementing a public participation program for the RFI at the EMA and AFWTF.

A separate Community Relations Plan (CRP) has been prepared for the remedial investigation of sites on the Navy's former NASD property on the western side of the island. That investigation is being conducted under the CERCLA process that governs property that is transferred out of federal ownership and the Navy's IR program. A Technical Review Committee (TRC) has been established to enhance public participation in the remedial investigation of the former NASD property. The TRC includes representatives of the new land owners, EPA Region II CERCLA staff, and a number of local community members; PREQB has been asked to provide a representative.

The Navy anticipates that US EPA Region II will participate actively in planning and implementing the RCRA public participation program for the RCRA activities at the EMA and AFWTF, with technical support from the Navy and CH2M HILL. The PREQB and the NASD TRC community members will be asked to provide consultation.

It is expected that all public participation materials will be reviewed by the RCRA Joint Interest Group, which includes EPA, PREQB, and Navy personnel, before being made available to the public. Public participation materials will be produced in both Spanish and English. Translations will be reviewed by NSRR Environmental Engineering Division personnel, for both local idiom and technical terminology.

## 2.1 Work Plan

This work plan has been prepared to describe the approach for public participation activities, including preparation of a CRP and implementation of specific interim public participation activities to be conducted while the CRP is being prepared.

The CRP will be prepared during the initial stages of the RFI process, with the goal of being available to the public around the time the field investigations begin. When the CRP is complete, it will replace this work plan as the outline for conducting public participation activities. The completed CRP will be a self-contained supplement to the Master Work Plan.

The rest of this section presents the approach for developing the CRP, as well as a description of public participation activities to be implemented in the short term and in the future.

## 2.2 Community Relations Plan

### 2.2.1 Background Review

CH2M HILL will review existing documents and contact PREQB, EPA, LANTDIV, and NSRR personnel to obtain additional background information as needed. Newspaper coverage and correspondence relevant to the RFI will be reviewed (to the extent that this material can be provided to CH2M HILL by NSRR, EPA, or others).

### 2.2.2 Community Interviews

The EPA's *RCRA Public Participation Manual* (1996) recommends community interviews when there is a high level of interest in the facility, which is clearly the case for AFWTF and EMA. Discussions with local officials and interested citizens provide an opportunity to determine public concerns and to find out how and when community members want to participate in the decision process for environmental remediation.

Community interviews were conducted in December 2000 to prepare a CRP for the CERCLA investigation of the former NASD. These interviews provide general information about the community, but the AFWTF and EMA were not specifically discussed at that time.

Interviews should be conducted by lead agency personnel, preferably including the Remedial Project Manager or a technical representative. It is anticipated that the Navy or EPA will serve as the lead agency for conducting the interviews. CH2M HILL will prepare a list of questions or talking points for the interviews, in both English and Spanish, based on the CERCLA interviews and concerns identified during the background research phase. The questionnaire will be used to record comments made by interview respondents.

The Navy will place a public notice in the local newspaper (*Vieques Times*) to announce the interviews. Community members who are interested in participating in interviews for the CRP will be asked to contact the EPA or the Navy. In addition, members of the NASD TRC will be interviewed or asked to help identify interview participants. As interviews are scheduled, participants will be asked to identify additional persons who might wish to participate.

The Navy will take the lead in contacting interested citizens and local officials to schedule the interviews. If EPA or the Navy need support in conducting the interviews, CH2M HILL will arrange for bilingual facilitation or a public relations specialist to accompany the Navy and/or EPA personnel. The goal is to interview 15 to 20 interested citizens, including local officials, community leaders, environmental group members, Vieques business owners and Vieques residents, including some who are not affiliated with any organized groups and some who were not interviewed for the CERCLA CRP.

Interviews will be conducted in person on Vieques Island. The preference is to meet somewhere that is comfortable for the person being interviewed. In this case, a public facility such as a school, library, or local government office in Vieques may serve as a good location for conducting the interviews. It is expected that the interview process will take place over a single week. Interviews will be conducted in English or Spanish, depending on the individual participants.

Every effort will be made to focus the discussions on identifying community concerns about the environmental investigation of the AFTWF and EMA, and on the RCRA process of preparing the RFI and subsequent decision documents, which could include a Corrective Measures Study (CMS) or a No Further Remedial Action Planned – Decision Document (NFRAP-DD). Information will be provided about the process and the key points at which public participation will be invited.

Some participants may want to discuss the Navy's training operations on Vieques, but that is a separate issue and is not the focus of this public participation program. Questions about that issue, or about the process of planning for reuse, if and when the eastern lands are transferred out of Navy ownership, will be referred to the proper point(s) of contact.

### 2.2.3 Completing the CRP

CH2M HILL will prepare the CRP based on background information provided by PREQB, EPA, and the Navy, and interview records. The CRP will summarize the compiled information, with particular attention to the level and nature of environmental concerns. The design of the public participation program will depend largely on this information, including the level of interest in the planned RFI of the nine SWMUs and three AOCs at the AFWTF and EMA (as opposed to other actions at Vieques). The stated preferences of the participants, such as written or face-to-face communication, will be important in planning and implementing specific public participation techniques.

Although planning for the RCRA CRP is focused on the RFI at the AFWTF and EMA, it will be coordinated as appropriate with public involvement activities for the CERCLA investigations at NASD and other remedial actions, if any, that may be ongoing at NASD after the scheduled date for transferring the land.

The CRP will consist of the following main sections:

- Introduction
- Facility Description and History
- Community Concerns
- Objectives of the Plan
- Public Participation Activities

Appendices may include:

- Mailing List of Interested Parties  
(addresses and telephone numbers of private citizens will not, however, be published in the CRP)
- Locations for Meetings and Information Repositories
- Media Contacts

## 2.3 Public Participation Implementation

### 2.3.1 Short-Term Public Participation Activities

The objective of the Navy and the EPA regarding public participation for the remedial investigations and removal actions at the Navy properties on Vieques is to be proactive in

Not sure if we want to do this

If NAVY worthy to set up as well.

planning and implementing public participation activities, including effective communications with the community about how residents can participate in the RCRA and CERCLA processes. The public participation activities planned for implementation by the Navy and EPA to meet this objective in the short-term are described in the sections that follow.

### **Mailing List**

The Navy maintains a mailing list of persons interested in the environmental restoration of former and current Navy property on Vieques Island (Appendix C). At present, the list consists of about 65 persons, including residents of Vieques Island and people who live elsewhere. Several fact sheets about the NASD have been mailed to this list. People can get on the mailing list by attending TRC meetings, visiting the NASD environmental restoration website (<http://www.vieques-navy-env.org/>), or getting in touch with the points of contact who are identified in all fact sheets and public notices. Because the former NASD, the EMA and the AFWTF are in close proximity, people who have expressed interest in any one of these properties will be placed on the mailing list for information about all of them.

### **Technical Review Committee**

In accordance with the guidance for RCRA in the Navy's *Installation Restoration Manual* (2000 Draft Update), the Navy anticipates that the TRC, which has been established to enhance public participation in the remedial investigation of the former NASD property, also will be a primary means of providing information to and obtaining feedback from the community during the RFI and any subsequent RCRA activities. The TRC includes representatives of the new land owners, EPA Region II CERCLA staff, and a number of local community members; PREQB has been asked to provide a representative.

*Include  
New  
landowners*

### **Public Information Repositories**

Public information repositories are located in public libraries in the town of Ceiba, which is near NSRR on the main island of Puerto Rico, and in the town of Isabel Segunda on Vieques Island. The Administrative Record file, which addresses IR program actions for U.S. Navy property at both NSRR and Vieques Island, is available in the Ceiba repository and also at the Public Works Department at NSRR.

Because the libraries are not open at night or on weekends, information also has been placed in a museum in Isabel Segunda (Museo Fuerte Conde de Mirasol). Recently, a local environmental group (Vieques Conservation & Historical Trust) has offered to host another public information repository in the town of Esperanza, on the south side of Vieques Island.

The addresses, telephone numbers and hours of operation for the repositories are provided in Appendix A.

At a minimum, the Navy will place the CRP and any bilingual fact sheets developed for the AFWTF and EMA in all of the public information repositories. As requested by EPA, the Navy will make the RCRA Facility Investigation Work Plan(s) and Final Report(s), draft and Final Corrective Measures Study, and any other documents developed under the Consent Order available for public review and comment in the public repositories.

## Points of Contact

Table 2-1 lists the primary points of contact designated within the Navy, EPA, and PREQB for public information and inquiries.

Mailing addresses, telephone numbers, fax numbers, and email addresses for these primary points of contact are provided in Appendix B. Contact information for other members of the RCRA Joint Interest Group (JIG) are also provided in Appendix B.

**TABLE 2-1**  
Primary Points of Contact

<b>Agency</b>	<b>Name</b>
US Environmental Protection Agency, Region II	Mr. Raymond Basso or Mr. Tim Gordon
US Environmental Protection Agency, Caribbean Division	Mr. Carl Soderberg
Environmental Quality Board, Puerto Rico	Ms. Aisa Colon
Installation Restoration Section, Atlantic Division, Naval Facilities Engineering Command	Mr. Christopher T. Penny Remedial Project Manager
Environmental Engineering Division, U.S. Naval Station Roosevelt Roads	Ms. Madeline Rivera

## Fact Sheets

CH2M HILL will prepare an introductory fact sheet to provide an overview of the upcoming RFI and the opportunities for public participation. This fact sheet will inform community members about the RCRA process, locations of the public information repositories (Appendix A) and the primary points of contact for the Navy, EPA, and PREQB (Table 2-1).

The first fact sheet will be distributed through the existing mailing list of interested parties and additional copies will be placed in the repositories. The fact sheet will be translated into Spanish and the translation will be reviewed by NSRR Environmental Engineering Division personnel.

CH2M HILL will also prepare a summary public notice (in English and Spanish), containing the most essential information from the first fact sheet and will publish this notice in local newspaper(s).

### 2.3.2 Future Public Participation Activities

Additional public participation activities, to be conducted during the RFI and CMS and the implementation of corrective measures (if any), will be determined when the CRP is prepared. These could include:

- Developing additional fact sheets at key points, such as the completion of the RFI report, and when a Proposed Corrective Measure or NFRAP decision document is prepared for RFI sites. At least one more fact sheet should be prepared, at an appropriate milestone.
- Mailing fact sheets or summaries of reports to the mailing list of interested parties, which is maintained by CH2M HILL for the Navy.
- Holding public meetings or open houses, depending on the level of public interest, at the NFRAP and Proposed Corrective Measure stages. Public meetings associated with formal public comment periods or key decision milestones must be planned and advertised well in advance. It is anticipated that EPA would take the lead in holding public meetings or open houses for RCRA activities.
- Establishing a Web site, either to facilitate internal review of documents among the Navy, EPA and PREQB, or to provide information to interested members of the public. Both internal review and public information websites have been established for the CERCLA investigation of the former NASD property. The website(s) for RCRA activities at AFWTF and EMA could either be added to, or separate from but linked to, the NASD website(s).
- Establishing a Technical Review Committee (TRC) or Restoration Advisory Board (RAB) as an advisory body, to act as a focal point for the two-way exchange of information between the Navy and the affected community. Initially, the existing NASD TRC will be used as a forum for public information and participation in decisions about the RCRA facility investigation at AFWTF and EMA. Additional members could be added to the existing group, or a separate TRC or RAB could be established for AFWTF and EMA.
- Holding occasional meetings with Navy and/or PREQB representatives and established community groups (as a less formal alternative to TRC or RAB meetings) to provide periodic updates and answer questions.

### 2.3.2 Public Comment Period

The RCRA Consent Order (Docket No. RCRA-02-99-7301) and EPA's *RCRA Public Participation Manual* specify certain public participation activities in which EPA is expected to take the lead.

After the RFI and CMS are finalized, and EPA has approved the reports and tentatively selected the corrective measure(s), EPA will prepare a Statement of Basis or fact sheet to solicit public review and comment. The Statement of Basis will identify the proposed final corrective measure(s) selected, including any no further action determination, and will describe other alternatives that were evaluated in the CMS report. EPA will issue a public notice that the corrective measure(s) has (have) been tentatively selected and that the Statement of Basis is available. EPA will make the RFI Final Report (or a summary of the

report), the CMS Final Report (or summary), and EPA's Statement of Basis available to the public for review and comment, for at least thirty (30) days.

EPA

If a public hearing is requested in response to the public notice, EPA will take the lead in arranging the public hearing, preparing informational materials (with technical support from the Navy and CH2M HILL), presenting the information, and recording public comments. Arrangements will include adequate advance notice of the time and place of the public hearing and translation services. EPA may also choose to conduct a public meeting or open house, even if the community does not request one.

Following the public review and comment period, EPA will prepare the final notice of decision and a response to public comments. EPA will provide copies of these documents to the public information repositories and to all persons who submit comments or request a copy of the response.

EPA will notify the Navy of the corrective measure(s) selected by EPA after consideration of public comments. If directed to do so by EPA, the Navy and CH2M HILL will modify the RFI and/or CMS, based upon public comment.

## SECTION 3

# Contractual Services

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This section documents the anticipated subcontract services required for the completion of tasks documented in this work plan. The following subcontract services may be required:

- If public meetings are held, bilingual stenographers may be hired to produce transcripts in English and Spanish.
- If EPA or the Navy needs support in scheduling and conducting the interviews, a bilingual facilitation or public relations specialist (preferably from a local firm) may be hired to assist EPA/Navy personnel during the CRP interview stage.

SECTION 4

# Proposed Schedule

*Electro-  
Version*

Table 4-1 shows a breakdown of public participation actions and deliverables, and assumed time intervals for performing the planned actions, developing deliverables, and governmental review of deliverables. Longer periods of review or delays in action needed by EPA will result in an extended schedule. Deliverables will be provided concurrently to PREQB for review, but the schedule will be extended for PREQB review only if so directed by EPA.

**TABLE 4-1**  
Proposed Public Participation Milestones

Actions	Duration (days)
Prepare 1 <sup>st</sup> fact sheet and public notice for Navy and EPA review (CH2M HILL)	14
Navy and EPA review	7
Translate fact sheet and public notice and send to NSRR for review (CH2M HILL)	7
NSRR review of translation	3
Finalize fact sheet and public notice (English and Spanish) (CH2M HILL)	7
Produce and mail 1 <sup>st</sup> fact sheet; publish notice in newspapers (CH2M HILL)	4
Schedule community interviews (EPA or Navy)	14
Conduct community interviews (EPA or Navy with CH2M HILL support)	7
Prepare and submit Draft CRP (CH2M HILL)	28
Navy and EPA review of Draft CRP	14
Prepare Final CRP (CH2M HILL)	7
Translate Final CRP and send to NSRR for review (CH2M HILL)	7
NSRR review of translation	14
Reproduce and distribute Final CRP (CH2M HILL)	7
Prepare 2 <sup>nd</sup> draft fact sheet for Navy and EPA review (CH2M HILL)	14
Navy and EPA review	7
Translate fact sheet and public notice and send to NSRR for review (CH2M HILL)	7
NSRR review of translation	3
Finalize fact sheet and public notice (English and Spanish) (CH2M HILL)	7
Produce and mail 2 <sup>nd</sup> fact sheet; publish notice in newspapers (CH2M HILL)	4
Meet with TRC or RAB	Quarterly or at milestones
Advance preparation for TRC or RAB meetings	30

APPENDIX A

# Locations of Public Information Repositories

## Public Information Repositories

Location	Hours	Telephone
Biblioteca Pública Jose Gautier Benitez Calle Baldorioty de Castro Vieques, PR 00765	Monday–Friday, 8:00 am–6:00 pm	787-741-3706
Biblioteca Pública Municipal Alejandrina Quiñones Rivera Calle Fco. Gauthier #816 URB. Rossy Valley Ceiba, PR 00735	Monday–Thursday, 8:00 a.m.–12 noon and 1:00–6:00 p.m. Friday, 8:00 a.m.–4:30 p.m.	787-885-0605
Vieques Historic Archives Museo Fuerte Conde de Mirasol Barrio Fuerte, Vieques, PR 00765	Wednesday–Sunday, 10:00 a.m.–4:00 p.m.	787-741-4688 or 787-741-1717
Vieques Conservation & Historical Trust Calle Flamboyán #138 Esperanza Beach Vieques, PR 00765		(787) 741-8850

APPENDIX B

# RCRA Joint Interest Group

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## Joint Interest Group Vieques,

Christopher T. Penny  
Remedial Project Manager  
Installation Restoration Section  
Environmental Division  
Atlantic Division (LANTDIV) Code 1822  
Naval Facilities Engineering Command  
1510 Gilbert Street  
Norfolk, VA 23511-2699  
(757) 322-4815  
[pennyct@efdlant.navfac.navy.mil](mailto:pennyct@efdlant.navfac.navy.mil)

Madeline Rivera  
U.S. Naval Station Roosevelt Roads  
Public Works Dept. Bldg. 31  
Environmental Engineering Division  
Ceiba, PR 00735  
phone(787)865-5337  
fax (787) 865-4967  
[riverama@mercury.navstarr.navy.mil](mailto:riverama@mercury.navstarr.navy.mil)

Aisa Colon  
Puerto Rico Environmental Quality Board  
Building 431  
431 Ponce de Leon Avenue  
Hato Ray, Puerto Rico 00917  
(787)766-2817  
[jcaterr@prtc.net](mailto:jcaterr@prtc.net)

Mr. Raymond G. Basso  
Chief, RCRA Programs Branch  
U.S. Environmental Protection Agency,  
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290 Broadway- 22<sup>nd</sup> Floor  
New York, New York 10007-1866  
[Basso.raymond@epamail.epa.gov](mailto:Basso.raymond@epamail.epa.gov)  
Phone (212) 637-4109 or 4105  
Fax (212) 637-4437

Tim Gordon  
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290 Broadway- 22<sup>nd</sup> Floor  
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Fax (813) 874-3056

APPENDIX C

# Mailing List of Interested Parties

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## **List of Interested Parties**

### **AFWTF, Vieques Island, Puerto Rico**

#### **Federal Officials and Agencies**

The Honorable Anibal Acevedo-Vila  
Resident Commissioner  
U.S. House of Representatives  
126 Cannon House Office Building  
Washington, DC 20515

Mr. Tim Gordon  
US Environmental Protection Agency  
Region II  
290 Broadway  
New York, NY 10007-1866

Mr. Carl A. Soderberg  
US Environmental Protection Agency  
Caribbean Environmental Protection  
Division  
Centro Europa Building, Suite 417  
1492 Ponce de Leon Avenue  
Santurce, Puerto Rico 00907-4127

Sr. Rafael W. Rodriguez  
US Geological Survey  
Puerto Rico State Representative  
651 Federal Drive  
Suite 400-15  
Guaynabo, PR 00965

Sr. Felix Lopez  
US Fish & Wildlife Service  
Boqueron Field Office  
P.O. Box 491  
Boqueron, PR 00622-0491

#### **State Officials and Agencies**

La Gobernadora Sila Maria Calderon  
Governor of Puerto Rico  
Oficina de la Gobernadora  
La Fortaleza  
San Juan, PR 00920

La Senadora Yasmin Mejias  
8th Senatorial District-Carolina  
Senado de Puerto Rico  
El Capitolio  
San Juan, PR 00920

El Senador Juan Cancel Alegria  
8th Senatorial District-Carolina  
Senado de Puerto Rico  
El Capitolio  
San Juan, PR 00920

Representante Augusto C. Sánchez  
Fuentes  
Electoral District 36  
Camara de Representantes  
El Capitolio  
San Juan, PR 00920

Aisa Colon  
Puerto Rico Environmental Quality Board  
National Plaza Building, 11th Floor  
431 Ponce de Leon Avenue  
Hato Rey, Puerto Rico 00917

#### **Local Officials and Agencies**

The Honorable Damaso Serrano  
Mayor of Vieques  
Vieques, PR 00765

Sr. Rafael Rodríguez Vega  
Director of Finance  
Municipality of Vieques  
PO Box 875  
Vieques, PR 00765

Sr. Emeric Catarineau  
President  
Vieques Municipal Assembly  
Vieques, PR 00765

**Non-Governmental Organizations**

Vieques Chamber of Commerce  
PO Box 1545  
Vieques, PR 00765

Vieques Conservation & Historical Trust  
Calle Flamboyán #138  
Esperanza Beach  
Vieques, PR 00765

Union for the Protection of the  
Environment of Vieques  
PO Box 1504  
Vieques, PR 00765

Ms. Aimée Houghton  
Center for Public Environmental  
Oversight  
122 C St NW, Suite 700  
Washington, DC 20001-2109

Mr. Lenny Siegel, Director  
Center for Public Environmental  
Oversight  
C/o PSC  
222B View St.  
Mountain View, CA 94041

Mr. John Lindsay-Poland  
Director, Task Force on Latin America &  
Caribbean  
Fellowship of Reconciliation  
2017 Mission St. #305  
San Francisco, CA 94110

**Public**

*To protect privacy, names and addresses of  
private individuals on the Interested Parties  
mailing list are not published.*

**Media**

Vieques Times  
153 Flamboyán St.  
Esperanza Beach  
Vieques, PR 00765

**U.S. Navy**

Captain John Warnecke  
Commanding Officer  
U.S. Naval Station Roosevelt Roads  
PSC 1008, Box 3001  
FPO AA 34051

Commander William N. Hughes  
Executive Officer  
U.S. Naval Station Roosevelt Roads  
PSC 1008, Box 3001  
FPO AA 34051