8/6/04-02501

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

AUG - 6 2004

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Christopher T. Penny
Project Coordinator
Installation Restoration Section (South)
Environmental Program Branch
Environmental Division,
Atlantic Division (LANTDIV), Code 182
Naval Facilities Engineering Command
6506 Hampton Blvd.
Norfolk, VA 23508-1278

Re: Atlantic Fleet Weapons Training Facility (AFWTF) - EPA I.D.# PRD980536221
Draft Final Work Plan and Sampling and Analysis Plan Soil and Groundwater Background Investigation

Dear Mr. Penny:

The United States Environmental Protection Agency (EPA) has completed its review of the *Draft Final Work Plan and Sampling and Analysis Plan Soil and Groundwater Background Investigation* (the Background Work Plan) and the Responses to Comments (dated May 11, 2004), both submitted on the Navy's behalf by your consultant, CH2MHill, on May 19, 2004. EPA has determined that the Background Work Plan is not fully acceptable.

Enclosed with this letter are comments by both EPA Region 2 and the Puerto Rico Environmental Quality Board (PREQB) on the Background Work Plan. Also, please note that for certain responses given in the Responses to Comments (to EPA's and/or PREQB's specific comments on the December 2003 draft Background Work Plan), the response given is acceptable, but that response has not been fully incorporated into the submitted draft Final Background Work Plan. This applies specifically to PREQB's comment #14, #15 and #16, given in the enclosures to EPA's letter of March 8, 2004. Please fully modify the revised Background Work Plan to incorporate those responses, and all others, given in the May 11, 2004 Responses submitted with the draft Background Work Plan.

In addition to these comments and those enclosed, please be advised that EPA has received verbal and written comments from the public that any comparison of site specific investigation results with background data from Vieques island is not acceptable, because the public believes that past Navy activities have impacted the entire island, not just specific sites. Therefore, as part of the revised Background Work Plan, the Navy should develop a scientifically defensible

discussion as to why the background data to be gathered under the revised Background Work Plan would be representative of natural occurring conditions that have not been impacted by past Navy training, waste management, or other activities.

In addition, comments on the Background Work Plan were submitted directly to you by the U.S. Fish and Wildlife Service (USFWS) by letter dated July 15, 2004. The draft Final Background Work Plan should also be revised to address those comments.

Also, as discussed in my letter of March 8, 2004, please note that this Background Work Plan was developed to replace the September 2001 draft Background Investigation Plan that underwent public review from August through November 2002, as part of the public review for documents developed pursuant to the January 2000 RCRA Consent Order. Following completion of the 2002 public review, the Navy indicated that it withdrew the September 2001 draft Background Investigation Plan, and instead proposed to develop a new draft Background Work Plan. EPA in our September 2003 Responses to the Public Comments indicated that any new Background Work Plan developed to replace the 2001 draft Background Investigation Plan would be made available for public review and comment, prior to its final approval. Therefore, following its acceptable revision to address the above and enclosed comments, the draft Background Work Plan must undergo public review and comment prior to EPA giving its final approval.

Within 60 days of your receipt of this letter, please submit a revised draft Background Work Plan to address all the above and enclosed comments.

Please telephone Mr. Tim Gordon of my staff at (212) 637- 4167 if you have questions.

Sincerely yours,

Adolph Everett, P.E.,
Chief, RCRA Programs Branch

Enclosures

cc: Mr. Esteban Mujica Cotto, Director Puerto Rico Environmental Quality Board (PREQB), w/o encl.
Ms. Yarissa Martinez, PREQB, with encl.
Dr. Juan Fernandez, Office of Special Commisioner for Vieques and Culebra, with encl.
Mr. Felix Lopez, U.S. Dept. of the Interior, Fish & Wildlife Service, with encl.
Mr. Paul Rakowski, Naval Facilities Engineering Command, w/o encl.
Mr. John Tomik, CH2M Hill, with encl.
Ms. Erica Downs, TechLaw Inc., with encl.

Atlantic Fleet Weapons Training Facility
Draft Final Work Plan and Sampling and Analysis Plan,
Soil and Groundwater Background Investigation, dated May 19, 2004
Vieques, Puerto Rico

Comments by EPA Region 2 CERCLA Program:

1. In response to EPA comment #1, details on existing wells to be sampled have been offered, including a table of well construction information and drilling logs. This new information illuminates a number of problems.

   A) It appears that there are no drilling logs for 3 wells - NW-1, NW-6, and RCRA-2. Without information on well construction or the unit in which they are screened, it is not possible to determine how to use the data as unit specific background.

   B) Table 2-1 contains information which conflicts with the drill logs and/or is self contradictory.

   - A number of the drill logs indicate granodiorite that contains olivene. This is not possible, and calls into question whether the logs can be used to determine what sort of rock was encountered. The rock type or the mineral has been misidentified. Also, please ensure that in the future, the geologist logging well installations has the experience and knowledge to identify rock types.
   - Well depths on the table do not always match the bottom of the screened interval.
   - P-2 is noted as installed in the Kv unit on the table, but the drill log describes it as diorite.
   - SWMU-1/MW-1 is given as installed in the KTd unit on the table, but the drill log shows it was drilled with augers into sand and gravel.
   - The log for SWMU-10/MW-1 notes a horizon at which 'granodiorite' is encountered, but there is no description and it seems possible that this is simply the depth at which rock was encountered. On the geology map, this location is mapped as KTd, but it is near the contact with both TI and KV areas.
   - The SWMU -1 and SWMU-10 wells appear to be screened (or have open sand pack) across the unconsolidated and rock units, leaving it unclear which layer would be represented by water samples from the wells.
   - Well RCRA-1 is given as installed in Kv on the table, but the drill log indicates it is granodiorite.
   - Well RCRA-4 is noted as a KTd well, but the log shows it was drilled with augers, with some rocks encountered.
   - None of the logs for existing wells in the areas that are mapped as Kv indicate that volcanic rock was encountered.

C) Many of the wells appear to have an extended sand pack above the screened interval, making the 'effective screen length' considerably longer. This presents problems in using the wells as background for what will presumably be wells of better construction, as well as reducing the clarity, in some cases, of what unit is being sampled.

D) The comment response indicates that stratigraphic contacts are included in the table, but they are absent.

The original comment also requested justification for the units in which background data are to be collected. This was not provided in the response. The present plan apparently purports to examine background groundwater in the KTd and Kv units only, based on the comment response which indicates that all of the sites for which the background data will be used lie in these units. First, if this is the case, why is NW-8 (and other wells which also appear to be in the Qa unit) being sampled? Second, recently installed wells for SWMU-1 and SWMU-10 appear to be in areas with saturated, Quaternary sediment deposition, indicating an unconsolidated water table unit. If this is the case, then sampling only the bedrock units will not provide appropriate background for site specific.

A clear statement of goals and how the data will be used to meet them is needed. For instance, if the data need is for background concentrations in all hydrogeologic units that correspond to those under site investigation areas, begin by using all of the available information on what units need to be considered. This should go beyond simply looking at the geology map as presented, which seems to be proving inaccurate in detail - as evidenced by data from existing wells and investigations. With the hydrogeologic units to be investigated defined and justified, it must be unambiguously demonstrated that selected wells are constructed and screened appropriately for each unit.

Given the difficulties with the existing well data noted above, it is not clear how many of these wells will provide useful sampling points for the intended study. Any wells that are clearly representative may be included, but if many are eliminated, additional drilling may be needed to meet the project goals.

Note also that on the western end of Vieques, it was determined that site specific background wells would be used for each site. The purpose of this study and the use of the data needs to be flushed out so as to ensure that all parties are agreed on the path forward.

2. EPA comment 2 requested a discussion of drilling methods, which was not included in the reply. Previously, wells have been advanced into bedrock

using air hammer techniques and only chips have been logged. This does not provide adequate information. Rock should be cored and the cores fully described. Depending on the number of wells and their proximity to one another, it may be possible to use a combination of cores and downhole techniques (e.g. video logs, geophysics). Given the three widely spaced wells that are currently proposed, cores would be required.

3. In EPA comment 3, it was stated that existing data should be used in determining the present sample locations. The response indicates that new logs will be prepared and that existing logs will be reviewed to verify stratigraphic units. Review should be done before developing and enacting the work plan. For example, it is noted on Page 2-6 that surface samples collected during well installation will be part of the data set, and that certain numbers of these samples were from different units. Based on the comments above which show cases such as no volcanic rocks being noted in areas mapped as Kv, this remains an incomplete effort. The existing data needs to back up the designations that tie a sample to stratigraphy, and the plan developed accordingly. Note that this applies to all sampling locations, not just existing well logs and their implications. The geology map presented in the work plan needs to be updated based on what we actually have seen in the field. The updated map should be used to guide sample locations for both soil and groundwater, as well as stratigraphic designations.

4. In EPA Comment 4, it is noted that 10% of soil samples will be run for PAHs, with biasing of samples near roadways (this is contradicted on Page 2-5, where it is stated that the locations will be selected randomly). This will result in 3 samples. It is not clear how this data is to be used, and therefore also unclear if this is an adequate approach. While not stated, it seems possible that the Navy intends to use these sample results in comparison to any detections in soils as part of AOC/SWMU investigations. It is not clear that this would be appropriate, or, if it were deemed an acceptable approach, that the number of samples would provide an adequate basis to make the comparison. If this were to move forward, all parties would have to agree on the data usage.

   If PAH sampling is included in the final effort, the specific sampling locations should be selected.

5. In EPA Comment 8, the evaluation of thallium in soil and groundwater may require analytical methods that are more sensitive than the standard methods. The MCL for thallium is 2 ug/l, while the risk based

concentrations are 0.26 ug/l and 0.55 mg/kg for groundwater and soil, respectively. In order to decrease the likelihood of reporting false positive thallium results, please ensure that the analytical methods have appropriate reporting limits.

The response states, "The method recommended in the draft work plan has been accepted by EPA and was used during the Phase I RFI investigation. The same method will be used in the background study."

This response is unacceptable. Although the analytical method referenced in the draft work plan has been approved by EPA, many of the investigations conducted on Vieques Island have resulted in thallium detections that are being considered "false positives." One way to try and address the sensitivity of this metal and the very low risk-based screening values and the high toxicity of this metal is to analyze it using more sensitive methods. As written, the response states that since thallium has always been analyzed using one specific method, it shall always be analyzed using that method. However, site-specific information now exists that indicates that this method may not be the most appropriate method for analyzing thallium, and that another, more sensitive method might yield data that is more useful when investigating the site. If the Navy and CH2MHill refuse to consider a more sensitive analytical technique, then the response must have a better rationale than "This is the way it's always been done."

In addition to these comment, this version of the workplan has raised a few additional comments:

General Comments:

6. Overall we have three main concerns regarding this background investigation. The first is the need to include the collection of background sediment and surface water data in addition to soil and groundwater. Background sediment collection should include TOC and grain size, and surface water collection should include hardness data. The second issue is the need to collect surface soil samples better representative of the active biological zone; specifically it is recommended that samples be collected from the top 0-1' rather than the top 0-6". The 0-6" zone is too shallow to characterize risk to all terrestrial receptors, particularly burrowing species, most soil dwelling animals and many vegetative species. Further, it makes sense to collect samples between 6" and 4' so this depth may be characterized;

currently this area is not included in the proposed sampling (proposed sampling includes 0-6" and 4-6'). The third issue is the need to provide a justification for why certain analytes were selected, rather than a complete TCL and TAL. If the main purpose of this study is to determine basewide metal concentrations (Response to USFWS Comment Number 9) than this should be clearly stated.

7. The method for selecting analytical parameters for this background study should be further clarified. From the limited site history provided, it appears that the Navy has had control of this area since the 1950's, therefore, it is likely that man-made materials present in the environment are the result of Navy activities at the site. If the purpose of the study is to establish background levels for parameters that are present either from the natural conditions at the site or from site operations performed by entities other than the Navy, then it is not apparent why samples are to be analyzed for parameters such as pesticides, explosives and perchlorate. Also, if PAH analyses are recommended for this site, explain the reasoning behind performing this analysis on only 10% samples.

8. The background samples will be analyzed for Appendix IX metals. This list is a typical list used by RCRA, and contains the following 17 metals: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, nickel, selenium, silver, thallium, tin, vanadium, and zinc. CERCLA typically uses the TAL list for metals, which includes the Appendix IX metals plus aluminum, calcium, iron, magnesium, manganese, potassium, and sodium. It is suggested that the list of metals be expanded to include the additional 6 metals that would be included on the TAL list. This will be helpful if this area of Vieques Island is evaluated in the future under CERCLA.

Specific Comments:

9. Section 2.3.1, second paragraph - The process for evaluating the quality of existing data should be explained in more detail, for example: What specific statistical analyses will be performed? Is the existing data validated? Is the raw data available? What QA/QC specific to the existing data was performed? Will data be revalidated? Or will a review of the existing validation be performed? It is recommended that data validation for this project conform to Region 2 data validation SOPs which can be found at http://www.epa.gov/region02/desa/hsw/sops.htm.

10. Page 2-4: The work plan calls for sampling of 9 out of 17 of the wells proposed for inclusion in the background evaluation. However, the text also indicates that 13 existing samples will be included. The implication

appears to be that, for some wells, multiple samples would be included in the analysis. This will give the wells that were sampled multiple time greater weight in the analysis, which does not seem appropriate. Please specify exactly what existing data will be used, giving well names and sampling dates, and ensure that no well is given more weight in the analyses than others. Also, Tables 2-1 and 2-3 do not agree with the text or each other. Please amend for consistency.

11. Section 2.3.2, Soil Sampling Locations, page 2-6: Please note the sampling depth of the previously collected (1999) eleven background soil samples in this Section and in Table 2-2 Background Soil Sample Locations.

12. Section 2.4.2 - The Upper Confidence Limit (UCL) required for this project should be stated as well as the basis for its selection. It should be noted that, in order for the selected sample size and the statistical measures on confidence to be valid, the sample locations must be chosen randomly. The Work Plan should show that this was done. Also, it is stated that, if the surface soil and vadose zone results are statistically similar, they can be combined to meet the 95% UCL for 95% of the population. It is not clear that this is a valid approach. The surface soil and the vadose zone areas are two separate decision areas and as such cannot be combined to meet the required decision error.

13. Section 3.0 - A statistician should review this section of the document to ensure that the statistical approaches mention here are appropriate for this project.

14. Page 3-2, Section 3.1.3 "Non-Detect Data Sets": Please note that EPA's default approach to dealing with non-detect results for most TAL/TCL parameters is to treat non-detects at one-half of the detection limit. Any deviation from this approach must be accompanied by a rationale that will be evaluated by statisticians and data quality experts.

15. Section 4-1 - It is stated that an EPA-approved Laboratory will be used. EPA does not approve analytical laboratories. Also, disposal of IDW should conform with EPA and local/Puerto Rico regulations.

16. Section 4.1.2 "Field Sampling Activities": Please note that data collected from piezometers should not be used as part of the data set, due to the fact that the samples are not collected from developed monitoring wells. Also, please remove the reference to the Region 3 policy for filtered and unfiltered groundwater data. The site is located in Region 2, which has an approach on how to use filtered and unfiltered groundwater data. Region 2 guidance allows for reporting of results of filtered groundwater samples for metals. The implications of the results should be discussed in the final background

report.

17. Section 4.2.2 - Validators should use latest EPA region 2 SOPs. See Specific Comment # 9 above.

18. Section 4-3 - A Data Quality Assessment (DQA) should be performed that provides evidence that the data used to answer the project's principal question was subjected to a thorough analysis to ensure that the question could be answered within an acceptable degree of error. Both the project's principal question and the acceptable error are determined by the DQO Process. It is recommended that the guidance provided by EPA QA/G-9, be followed. This document can be found at http://www.epa.gov/quality1/qs-docs /g9-final.pdf.

19. Table 4-1: PAH analyses of groundwater are not included in the Table.

20. Table 4-1: Please indicate that pesticide analysis will only be conducted on the 0-6" surface soil samples.

21. Table 4-1: It is noted in the Response to USFWS comment Number 14, that the reference to PAHs will be changed to SVOCs. This should be reflected in this table and throughout the document where analyses are discussed.

22. Table 4-1 - Change Total and Dissolved Metals to Filtered and Non-filtered

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION II
Division of Environmental Planning and Protection
Strategic Planning and Multi-Media Programs Branch
290 Broadway, 25th Floor
New York, New York 10007-1866

MEMORANDUM

DATE: July 21, 2004

SUBJECT: Comments on the Draft Final Work Plan and Sampling and Analysis Plan Soil and Groundwater Background Investigation Former Atlantic Fleet Weapons Training Facility Vieques, Puerto Rico prepared by CH2MHill dated May 19, 2004

TO: Timothy Gordon, Project Manager
USEPA, DEPP, RCRA Programs Branch

FROM: Gina Ferreira, Environmental Scientist
USEPA, DEPP, Strategic Planning and MultiMedia Programs Branch

General Comments

The only comment I have on this document concerns the use of the eleven background surface soil samples collected in 1999. The document proposes to use these eleven samples along with the 58 samples that will be collected shortly "if surface and subsurface soil chemical concentrations are statistically similar." There is no information provided describing the depths of these previous samples. (This information is needed to determine if the depths between the previous samples and the proposed ones are comparable and can be used as a single dataset.)

COMMONWEALTH OF PUERTO RICO
OFFICE OF THE GOVERNOR
ENVIRONMENTAL QUALITY BOARD

August 4, 2004

Mr. Adolph Everett
Chief, RCRA Program Branch
Environmental Protection Agency
Region 2
290 Broadway St.
New York, NY 10007-1866

Dear Mr. Everett:

The Puerto Rico Environmental Quality Board (PREQB) respectfully submits to the U.S. EPA the comments contained herein regarding the *"Draft Final Work Plan and Sampling and Analysis Plan, Soil and Groundwater Background Investigation, Former AFWTF, Vieques Island, Puerto Rico."*

If you have any questions or comments, do not hesitate to contact me at 787-365-8573.

Cordially,

Yarissa Martínez
Vieques and Culebra Affairs Coordinator

Cc/ Felix López, Fish & Wildlife Services
Christopher Penny, P.E. U.S Navy

Enclosure

Puerto Rico Environmental Quality Board's Technical Comments
On the
Draft Final
Work Plan and Sampling and Analysis Plan
Soil and Groundwater Background Investigation
Former Atlantic Fleet Weapons Training Facility
Vieques Island, Puerto Rico
May, 2004

Prepared July 28, 2004

Introduction

The above-referenced document is a second revision of the September 6, 2001 *Draft Final Work Plan and Sampling and Analysis Plan, Soil and Groundwater Background Investigation* prepared by CH2M Hill. TRC provided comments on the 2001 work plan to Don Elliott and Desiree Giler on October 30, 2002. CH2M Hill revised and reissued the report in December 2003. Based on the review of the revised work plan, most of TRC's comments on the September 6, 2001 document were not addressed and additional deficiencies were identified. TRC issued comments regarding this revision to Yarissa Martinez on February 2, 2004. CH2M Hill revised the report again in May 2004. This time the report has been changed to largely address the identified deficiencies. Below are a few, new comments that should be incorporated into the Final version.

Specific Comments

1. Page 2-2, Paragraph 1, Section 2.1 – Groundwater elevations higher than bedrock elevations may be an indication of confined or semi-confined conditions not just semi-confined conditions.

2. Page 2-2, Paragraph 2, Section 2.1 – Discuss the hydrologic properties of the weathered bedrock not just the unweathered bedrock

3. Page 2-2, Paragraph 3, Section 2.1 – The use of the term "water table" in association with a confined or semi-confined aquifer is confusing. Perhaps refer to the uppermost saturated rock unit. Water table conditions refer to unconfined aquifers. The water table is the surface upon which the water pressure is equal to atmospheric pressure and a confined aquifer contains water at pressures greater than atmospheric pressure.

4. Page 2-2, Paragraph 5 – Provide a table summarizing all contaminated sites to be investigated and the associated geologic zone(s). This paragraph identifies 8 sites, but 12 sites are identified in the consent order.

5. Page 2-2, Paragraph 6 – State why the different soil types were not considered statistically different.

6. Page 2-3, Paragraph 2 – Recent comments by PREQB on Navy investigation reports have noted that collecting soil samples from the top 6 inches of soil is not adequate for characterizing soil from 0 to 2 feet for the purpose of characterizing potential risks to children playing in soil or adults working in soils. Where PREQB has noted this potential deficiency, additional soil samples have been requested from 1 to 2 feet bgs. Consider adding background sample collection from this depth interval in the various geologic zones relevant to the site characterization work to ensure comparability between the site and background data sets.

7. Page 2-3, Paragraph 3, Section 2.2 – Provide the name of the firm that conducted the aerial photograph survey and the date of the report.

8. Page 2-3, Paragraph 6, Section 2.3 – The samples should be collected away from drainage trenches associated with the road runoff.

9. Page 2-4, Paragraph 2 –
    a. Clarify that all groundwater sampling will be conducted consistent with Region II low stress (low flow) guidance.
    b. Clarify that all groundwater sampling will include field parameters such as dissolved oxygen, oxidation reduction potential, conductivity, etc., consistent with low flow sampling procedures.

10. Page 2-4, Paragraph 3, Section 2.3.1 –
    a. Only unfiltered groundwater samples are appropriate for risk assessment.
    b. Provide information about whether the old groundwater data that will supplement the new data was collected from wells constructed, sampled and analyzed in a manner consistent, and of the same quality as the new data.

11. Page 2-5, Table 2-1 – Consider collecting additional background samples from the Qa geologic unit, in addition to that collected to assess site specific background, to improve representativeness for this geologic unit. The Navy's claim the soil samples from the Qa, Qs, and KTd units are statistically similar notwithstanding, one groundwater sample from this unit cannot provide any sense of the variability in groundwater constituent concentrations associated with the Qa zone. SMWU-1 is located in geologic zones Kv and Qa; therefore, the Qa geologic zone is relevant to future remedial investigations at the site.

12. Page 2-5, Paragraph 1, Section 2.3.2 –

a. Clarify the discrepancy between the last sentence in the paragraph concerning 10 percent PAH sampling and the response to comments provided in Appendix C. The response contradicts the revised text on Page 2-5, Paragraph 1 of the May 2004 document, which states that 3 samples will be selected randomly.
b. If indications of non-natural contamination are identified in soil samples, then additional samples may need to be collected to develop representative background values.
c. PREQB's concern relative to PAHs is still relevant for unpaved roads given the common practice of oiling dirt roads in some regions as a dust suppression measure.

13. Page 2-5, Paragraph 2, Section 2.3.2 –
    a. The pH and total organic carbon content of background samples should also be determined to provide further information on the comparability of background soils to site soils. Collection of representative soil samples from impacted sites should be included in site-specific work plans to for this comparison
    b. Ensure that the soil sampling logs provide information about whether there were indications of foreign objects, odors, staining, stressed vegetation or any other indications that the site has been impacted.
    c. Clarify that Munsell color includes hue, value and chroma.

14. Page 2-6, Paragraph 2, Section 2.3.2 –
    a. Provide information about whether the old soil data, which will supplement the new soil data, was collected from soil borings constructed (same depths), sampled and analyzed in a manner consistent, and of the same quality as the new data.
    b. Discuss how the results and quantitation limits of the existing soil background analytical results compare to the Region 9 Preliminary Remediation Goals (PRGs) used during Navy remedial investigations to compare results and establish COPCs. The analytical performance for the background soil samples should be consistent with that used for the remedial investigations to help ensure comparability between the site and background data sets.
    c. The eleven 1999 soil samples should be recollected for those parameters with detection limits higher than PRGs or ecological screening criteria.

15. Page 2-6, Paragraph 6, Section 2.4.1 –
    a. Clarify how the site-specific upgradient well data will be incorporated into the background summary data.
    b. The site-specific background groundwater data should be compared to the regional background data to determine if site-specific background conditions are similar to regional background conditions prior to using all

background data during site evaluations. The site-specific groundwater data is preferable to regional groundwater data.

16. Page 2-7, Paragraphs 1 through 3 –
    a. Comment on what range of prespecified coverages and a range of prespecified confidence levels would be met if the Qb and/or Tl soil types were found to be statistically different from the rest of the background data base (i.e., if "n" were equal to 8 or 12). Clarify if a satisfactory basis for the calculation of tolerance and confidence limits will be established.
    b. As discussed in the Navy's Response to comments on Page 2-2, Section 2.1, Paragraph 6 (see Appendix C), if the Navy determines that the Qb and Tl soil type data sets are statistically dissimilar to the main background data set, they will be treated as separate data sets. If this determination is made, then the Qb and Tl soils will have only 12 and 8 soil samples (surface and subsurface), respectively, for use in calculation UCLs. Using the criteria discussed in the text, the number of soil samples might fall short of the minimum sample number requirement.

17. Page 2-8, Table 2-2 – Provide the sampled depth information for the existing surface soil samples.

18. Figures 2-2 and 2-3 – Provide the date that the groundwater elevations were measured and consider renaming the "groundwater surface" as "piezometric surface".

19. Figure 2-4 – Typographic Error. The work "background" is spelled incorrectly in the figure title.

20. Figure 2-5 – Typographic Error. The work "background" is spelled incorrectly in the figure title.

21. Page 3-2, Paragraph 2 – With regard to the goodness of fit tests, add information from the response to comments provide in Appendix C (e.g., Statistical evaluations will be conducted by a qualified and experienced statistician who is experienced in evaluating environmental data. Multiple test forms will be used along with the recommended histogram presentations prior to determining the distribution for the data set. It will be conducted in accordance with the existing guidance and other references for the statistical evaluations.)

22. Page 3-2, Paragraph 2, Section 3.1.3 - Since it is known how many samples will be collected, a more detailed discussion should be provided on how non-detect data will be evaluated. The example where one sample out of four is a non-detect does not seem applicable to the background study where 29 to 69 soil samples will comprise the datasets, as described in Section 2.4.2. This section should also include a discussion on how elevated detection limits will be addressed in the evaluation of non-detect data.

23. Page 3-3, Paragraph 4 – Strike the last sentence of this paragraph, which contradicts other sections of the document that are consistent with EPA guidance. Per EPA Region 2 policy, COPCs will not be eliminated if below established background levels. These COPCs will be carried through the full risk assessment process and background levels will be discussed after the risk assessment (see Page 1-2, Paragraph 2 of the revised document).

24. Page 3-3, Paragraph 2, Section 3.2.1- Cite the guidance that states that background concentrations should be used for screening purposes, as indicated in the first sentence of this paragraph. Also, cite the reference for the EPA guidance discussed in the second sentence of the paragraph.

25. Page 3-4, Section 3.2.1.2 - This paragraph indicates that the distributions of site data are compared against background to determine whether the site and background samples are drawn from the same sample population. PREQB looks forward to reviewing this distribution analysis in all draft investigation reports in addition to a comparison of point-estimate values.

26. Page 3-4, Section 3.2.1.3 – Typographic Error. Delete the word "of" in the last sentence of the paragraph to improve clarity.

27. Page 3-5, Section 3.2.1.5 – See previous comments regarding low flow sampling.

28. Page 3-5, Paragraph 1, Section 3.2.1.5 –
    a. It is unclear whether the authors are proposing to correlate trace elements with aluminum and iron concentrations.
    b. Cite a reference for the correlation between trace element concentrations and aluminum and iron concentrations and the associated evaluation technique.

29. Figure 3-1 – Consider replacing "W test" in the third step in the flow chart with "goodness of fit tests" to be consistent with the response to comments in Appendix C, wherein the Navy indicates that multiple test forms will be used along with the recommended histogram presentations prior to determining the distribution for the data set.

30. Page 4-2, Paragraph 6 - Most of the site groundwater data collected for the Navy's environmental work will be used in Human Health Risk Assessments (HHRAs). EPA Region 3 guidance notwithstanding, EPA Region 2 has stated that unfiltered sample data should be used in HHRAs and that any large discrepancies between filtered and unfiltered data should be discussed in the uncertainty section of the HHRA. PREQB recognizes the utility of having both filtered and unfiltered metals data in the background database for comparison purposes and agrees with the consistent collection of both unfiltered and filtered metals data from the background well locations.

31. Pages 4-3 and 4-4, Tables 4-1 and 4-2: Clarification of the reply to USFWS Comment No. 14 (see Comment No. 44 herein) affect the method numbers cited in Tables 4-1 and 4-2. If SVOC analysis will be performed, then the method listed in Table 4-1 will need to be changed to SW-846 3550B/8270C. If PAH analysis will be used, TRC recommends that SW-846 8270C also be used in lieu of SW-846 method 8310, which is currently cited. The potential for false positive results is higher with SW-846 method 8310 versus SW-846 method 8270C. If lower reporting limits are needed, the use of selective ion monitoring with method SW-846 8270C could always be performed.

32. Page 4-3, Table 4-1 – Have the perchlorate analysis conducted by a laboratory that can achieve the lowest detection limit. The risk-based screening criterion for perchlorate is 3.6 ug/L.

33. Page 4-4, Table 4-2:
    a. The extraction method currently cited for SVOCs in soil samples is for aqueous samples and must be changed to a solid extraction method (SW-846 method 3550B).
    b. The table must include the appropriate method, bottles, preservative, and holding time for perchlorate in soil samples.
    c. The number of containers for explosives in groundwater samples should be increased to two. This is an extractable organic method and therefore requires two bottles in case or breakages or if re-extractions are required.
    d. Soil total organic carbon analysis using the Lloyd Kahn method should be added to the table. Include soil pH as well.

34. Page 4-5, Paragraph 3 – Note that minimal drawdown criteria must also be achieved to be consistent with low stress (low flow) guidance.

35. Page 4-5, Paragraph 5, Section 4.1.4 – The z-coordinate should be listed for soil samples as well as groundwater if the GPS unit is capable of estimating the vertical elevation.

36. Appendix C, Page 6, Response to EPA Comment No. 8 - The response to EPA Comment No. 8 indicates that the method used for the analysis of thallium was accepted by EPA and used during the Phase I RFI. However, the detection limits achieved for thallium in groundwater during the Phase I RFI were about 10x higher than the Region IX PRG-Tap Water. Therefore, the EPA's comment has still not been addressed.

37. Appendix C, Page 9, Response to PREQB Comment No. 2 - PREQB's concern relative to PAHs is still relevant given the common practice of oiling dirt roads in some regions as a dust suppression measure. Also, the response contradicts the revised text on Page 2-5, Paragraph 1 of the May 2004 document, which states that 3 samples will be selected randomly.

38. Appendix C, Page 9, Response to PREQB Comment No. 3 - Although background data is not screened against risk-based criteria, the detection limits should be within the range of risk-based levels. Non-detect background data above risk-based levels should not be compared to site data for those chemicals that show elevated risks. Elevated detection limits do not provide data sufficient to eliminate chemicals from cleanup that show an elevated risk at a site. PREQB's goal is for the background and site data to be collected to a similar level of analytical performance to maximize comparability between the site and background data sets.

39. Appendix C, Page 10, Response to PREQB Comment No. 5 - Additional physico-chemical properties of background and site soils that should be determined include total organic carbon and pH.

40. Appendix C, Page 11, Response to PREGB Comment No. 6 –
    a. The response adequately addresses the issue of sample size estimation. However, as an additional measure it might be worthwhile to use the results of the 29 surface soil and 29 subsurface soil samples to generate a prespecified variance. The prespecified variance can then be used to calculate the number of additional surface and/or subsurface samples required (if any).
    b. Clarify the importance of assuming that the samples are collected within an area of relatively homogeneous contamination. The discussion should include how this assumption impacts the statistical evaluation being conducted.
    c. Comment on what range of prespecified coverages and a range of prespecified confidence levels would be met if the Qb and/or Tl soil types were found to be statistically different from the rest of the background data base (i.e., if "n" were equal to 8 or 12). Clarify if a satisfactory basis for the calculation of tolerance and confidence limits will be established.

41. Appendix C, Page 18, Response to PREQB Comment No. 21 – PREQB recognizes the utility of having both filtered and unfiltered metals data in the background database for comparison purposes and agrees with the consistent collection of both unfiltered and filtered metals data from the background well locations. However, EPA Region 3 guidance notwithstanding, EPA Region 2 has stated that unfiltered sample data should be used in HHRAs and that large discrepancies between filtered and unfiltered data should be discussed in the uncertainty section of the HHRA.

42. Appendix C, Page 29, Response to USFWS Comment No. 6 – USFWS Comment No. 6 is consistent with PREQB's concern over the use of generic depths for characterization of surface and subsurface soil contamination. Specifically, PREQB is concerned with only collecting surface soil samples from 0 to 6 inches as representative of surface soils defined as 0 to 2 feet below grade for the

purpose of evaluating future residential exposure. PREQB believes the depth of the surface soil sample should be based on where contamination is likely to occur based on that particular site's history rather than selecting generic sample depths to be used at all sites. Historic releases of volatiles will not be detected in the top 6 inches nor will historic releases be detected in shallow surface soil where surface grading has occurred. Background samples should be collected from depth zones consistent with what is needed to effectively characterize soil contamination at the SWMUs and AOCs.

43. Appendix C, Page 32, Response to USFWS Comment No. 14 - The response to the USFWS Comment No. 14 states that 10 percent of the soil samples will be analyzed for semivolatile organic compounds (SVOCs) and not just polynuclear aromatic hydrocarbons (PAHs). However, there are some discrepancies in the report which do not reflect this response. First, Section 2.3.2 states that 10 percent of the surface soil samples will be analyzed only for PAHs (not SVOCs). Second, Table 4-1 lists only PAH analyses in soil samples, not SVOC analysis. Table 4-2 is the only location where SVOC analysis is designated for soil samples. The analysis of SVOCs versus PAHs only must be clearly presented in the entire document.