



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 1  
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BOSTON, MASSACHUSETTS 02114-2023

N62661 AR 002020  
NAVSTA NEWPORT RI  
5090 3a

February 9, 2006

Curtis Frye  
U.S. Department of the Navy  
Naval Facilities Engineering Command  
Northern Division  
10 Industrial Highway  
Code 1823, Mail Stop 82  
Lester, PA 19113-2090

Re: Technical Review Comments on the draft Work Plan for the Basewide Background Study  
at Naval Station Newport

Dear Mr. Frye:

EPA reviewed the draft Work Plan for the Basewide Background Study in light of the 1998 version and Navy's responses to previous EPA comments. This Work Plan describes the process for selection of background sample locations, field tasks, sampling methods, analytical parameters, and plans for data analysis. The main objective of the Basewide Background investigation is to determine concentrations of metals in surface and subsurface soils from undisturbed locations within or near Naval Station Newport (NAVSTA). These data will be used to evaluate soils from NAVSTA sites that are under investigation as part of the Installation Restoration (IR) Program, the Underground Storage Tank (UST) program, and other programs. The proposed background study will be conducted according to guidelines promulgated by Navy (NFEC, 2002) and the Environmental Protection Agency (USEPA, 2002). Detailed comments are provided in Attachment A.

Overall, this report is thoughtfully written and well-organized. Soil types and sample locations are presented clearly on the figures and provide excellent visualization of number of samples to be collected and their distribution. The total number of proposed surface and subsurface samples (78 and 120, respectively, excluding QA/QC samples), representing the primary soil types present on NAVSTA Newport sites, and 20 to 40 bedrock samples from the two lithologies underlying NAVSTA Newport, should enable adequate characterization of background conditions across the facility. Navy has accommodated EPA's request to review and incorporate background data from other investigations at NAVSTA Newport, as appropriate. Data from 42 background samples collected during previous IR site investigations will be incorporated into the Basewide Background database, giving a total number of 20 surface and 20 subsurface samples for each of the six dominant soil types found across NAVSTA Newport, in accordance with Navy guidance (NFEC, 2002).

In reviewing the 2006 Work Plan, EPA notes several significant modifications of the proposed Work Plan of December 1998 (Tetra Tech NUS, 1998):

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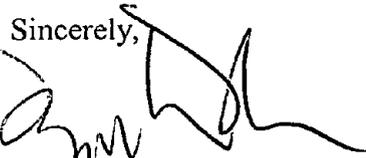
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1. *Surface and subsurface soils will be sampled.* The current draft indicates that samples will be collected from both surface (0- 1 ft) and subsurface soils (4-6 ft) for each soil type. In a previous comment from EPA, Navy acknowledged the need to collect subsurface samples in order to establish a background data set for soils at depth, as this information is relevant to some of the NAVSTA Newport sites. Per EPA Region 1's policy, subsurface soil should be changed to 1 to 10 feet for each soil type.
2. *Bedrock will be sampled at two locations.* To supplement metals data from the surficial and subsurface soils, bedrock cores will be obtained from the two lithologies underlying NAVSTA Newport. Although bedrock mineralogy may or may not be accurately reflected in the trace-metal composition of the overburden due to physical transport processes, geochemical segregation during soil formation, etc., GF endorses this effort to acquire additional information that may support interpretations and conclusions based on the soil background data set.
3. *PAHs are not addressed in this draft Basewide Background Study.* In the earlier version of this document, ambient levels of PAHs were to be determined as part of the background investigation. It is apparent from the subject document that soil background data will be collected for TAL metals only. GF concurs with the change.
4. *Section 5 (Data Analysis and Statistical Testing) has been revised.* The text now provides a substantially more detailed and more comprehensive discussion of the steps to be taken for data evaluation and interpretation. The tabulation of different statistical tests (Tables 5-1 through 5-4), in which assumptions, advantages, and disadvantages of each test are summarized, is particularly helpful for the non-specialist. It is encouraging to see that Navy intends to incorporate some understanding of naturally occurring geochemical processes (i.e., ratios of trace metals to a reference element such as iron or aluminum) in the interpretation of the background data and in future site-to-background comparisons.

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of Naval Station Newport. Please do not hesitate to contact me at (617) 918-1385 should you have any questions or wish to arrange a meeting.

Sincerely,



Kymberlee Keckler, Remedial Project Manager  
Federal Facilities Superfund Section

Attachment

cc: Paul Kulpa, RIDEM, Providence, RI  
Cornelia Mueller, NETC, Newport, RI

Chau Vu, USEPA, Boston, MA  
Jennifer Stump, Gannet Fleming, Harrisburg, PA  
Steven Parker, Tetra Tech-NUS, Wilmington, MA

## ATTACHMENT A

<u>Page</u>	<u>Comment</u>
p. 1-1, §1.1	The first sentence of the first paragraph refers to background levels near IR sites that were determined through "[P]revious investigations." Please add the appropriate citations for these investigations.
p. 2-3, §2.2.2	The primary soil types comprising the background data set are listed here by their abbreviations, <i>e.g.</i> "...Ma, Mm, Ne..." <i>etc.</i> However, the names and descriptions of these soil types do not appear until the following page; please consider editing the text to explain these abbreviations where they first appear in this section.
p. 2-7, §2.2.3	In the discussion of the udorthents-urban land complex (UD) soil characteristics, it is noted that 38 samples of this soil type were collected during the OFFTA Background Soil Investigation (Tetra Tech NUS, 2000). Furthermore, some of these samples reported "...anomalous concentrations of one or more metals." As indicated in the text, these outliers may lie within the range of concentrations for this soil type when the Basewide database is assembled. Please indicate either here, or on §2.2.5, p. 2-10, 2, whether or not background soil data from the OFFTA study will be incorporated into the Basewide data set and what criteria (statistical or otherwise) will be the basis for this decision.
p. 2-11, Table 2-1	The tabulated summary of soil samples indicates that 44 surface samples are available; addition of the numbers in the table suggests that the total is 42. Please correct this discrepancy.
Section 3.2	<p>It is EPA Region 1's policy to consider residential/commercial exposures to surface soil from 0 to 1 foot deep and subsurface soil at 1 to 10 feet deep. The surface soil depth was established based on the assumption that residents are likely to contact this soil through daily activities like gardening or children playing in the soil. Subsurface soil is defined based on the general depth of frost penetration in New England soils. Subsurface soils would likely be excavated during construction where mixing of soil can occur. As a result, this soil can be brought to the surface for contact under future land use scenario. Subsurface soil samples can be collected at 2 foot intervals as mentioned in this section. Please see Region 1's Risk Update #3 (August 1995) for more details on soil depths.</p> <p>This section does not clarify the depths of proposed surface and subsurface soil samples. This needs to be mentioned in the work plan.</p>

p. 3-8, §3.3,  
& Table 4-1

The text in §3.3 (first sentence of the last paragraph in this section) states that “[B]edrock samples will be analyzed for TAL metals only.” In Table 4-1, the analytical method for TAL metals in bedrock samples is given as TBD (To Be Determined). When will the analytical method be selected? How will comparability to the soil analytical method be determined? Analysis of underlying bedrock may provide important insight into differences in chemical compositions of the various soil types. However, it should be noted that the analytical method(s) to be used for the bedrock samples may or may not effectively extract all of the constituents of interest, unless a total digestion procedure is used.

p. 5-8, §5.3, ¶¶2 to 6

This section on data analysis and statistical testing begins with the statement that the data obtained in this investigation will be analyzed according to Navy and EPA guidance (NFEC, 2002; USEPA, 2000a; USEPA, 2000b). In addition, it is apparent that Navy intends to incorporate some knowledge of reasonably well understood, naturally occurring geochemical processes (e.g., adsorption by hydrous ferric oxide surfaces) in determining background conditions. In particular, Navy indicates that element ratios - the ratio of the concentration of a trace metal of interest, such as arsenic, to the concentration of a reference element such as iron or aluminum - can be used in comparisons of background and site data. Element ratios that are characteristic of background are relatively constant, while outliers (e.g., a sample enriched in arsenic relative to iron) signal possible contamination. Consideration of the geochemical processes (for example, adsorption of arsenic by hydrous ferric oxide) allows for the possibility that a soil sample containing elevated arsenic may also contain a high concentration of iron, yet both may be naturally occurring and not due to anthropogenic input. If As and Fe are present in the same ratio in the site soil as in the background data, the site soils may be drawn from the same population as the background soils, even though individual samples may exceed regulatory criteria for arsenic.

#### **REFERENCES:**

Gannett Fleming, 2005, *Trace metals in soils from the Avon Park Air Force Range: a geochemical protocol for site-to-background comparisons (Final Report)*. Prepared for US EPA Region 4, Avon Park Air Force Range.

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United States Environmental Protection Agency (USEPA), 2000a, *EPA Guidance for the Data Quality Objective Process*. EPA/600-R-96-055.

United States Environmental Protection Agency (USEPA), 2000b, *Guidance for Data Quality Assessment: Practical Methods for Data Analysis*. EPA/600/R-96/055. August 2000.

United States Environmental Protection Agency (USEPA), 2002, *Guidance for Comparing Background and Chemical Concentrations in Soil at CERCLA Sites*. EPA 540-R-01-003, OSWER 9285.7-41. September 2002.