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DEPARTMENT OF THE NAVY
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15 MAY 1996

From: Commanding Officer, Navy Environmental Health Center
To: Commanding Officer, Atlantic Division, Naval Facilities
Engineering Command, ATTN: D. M. Forsythe, 1510 Gilbert
Street, Norfolk, VA 23511-2699

Subj: MEDICAL REVIEW OF INSTALLATION RESTORATION PROGRAM
DOCUMENTS FOR NORFOLK NAVAL BASE, NORFOLK, VA

Ref: (a) LANTNAVFACENCOM ltr 5090 Ser/1822:DMF:cag of 17 Apr 96

- Encl: (1) Medical Review of "Draft Work Plan and Sampling and Analysis Plan for the Remedial Investigation and Feasibility Study NM Slag Pile (Site 2) Norfolk Naval Base, Norfolk, Virginia"
- (2) Medical/Health Comments Survey

1. Per reference (a), we have completed a medical review of the "Draft Work Plan and Sampling and Analysis Plan for the Remedial Investigation and Feasibility Study NM Slag Pile (Site 2) Norfolk Naval Base, Norfolk, Virginia." The attached comments are included for your information as enclosure (1).

2. Please complete and return enclosure (2). Your comments are needed to continually improve our services to you.

3. The point of contact for this review is Mr. Kenneth G. Astley or Mr. David McConaughy, Health Risk Assessment Department, Environmental Programs Directorate. If you would like to discuss this medical review or if you desire further technical assistance, call (804) 363-5541 or (804) 363-5557. The DSN prefix is 864.

W. E. Luttrell
W. E. LUTTRELL
By direction

**MEDICAL REVIEW OF
DRAFT WORK PLAN AND
SAMPLING AND ANALYSIS PLAN FOR THE
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
NM SLAG PILE (SITE 2)
NORFOLK NAVAL BASE
NORFOLK, VIRGINIA**

- Ref: (a) Risk Assessment Guidance for Superfund, Vol. 1, Part A: Human Health Evaluation Manual, Dec 89 (EPA/540/1-89/002)
(b) Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, June 1988 (NEESA 20.2-047B)

General Comments:

1. The draft document entitled "Draft Work Plan and Sampling and Analysis Plan for the Remedial Investigation and Feasibility Study NM Slag Pile (Site 2) Norfolk Naval Base, Norfolk, Virginia" dated 12 April 1996 was provided to the Navy Environmental Health Center for review on 19 April 1996. The Work Plan and the Sampling and Analysis Plan were prepared for the Atlantic Division, Naval Facilities Engineering Command by CH2M HILL Federal Group, Ltd.

Review Comments and Recommendations: Work Plan

1. Page 3-1, "Background Information for NM Slag Pile RI/FS"
Table 4-1, "Site 2 Summary of Aqueous Samples to be Submitted for Analysis"
Table 4-2, "Site 2 Summary of Soil and Sediment Samples to be Submitted for Analysis"

Comment: The text states on page 3-1 that the NM Slag Pile, (Site 2) was used for the disposal of slag generated by an aluminum smelting operation. Tables 4-1 and 4-2 indicate that surface water, ground water, soil and sediment samples will be taken for Target Compound List (TCL) organics (including volatiles, semivolatiles, pesticides, and PCBs [polychlorinated biphenyls]) and Target Analyte List (TAL) inorganics (including metals and cyanide). We agree with the need to sample for TAL inorganics but the reason to sample for TCL organics, especially pesticides and PCBs, should be explained more fully in the text.

Recommendation: The reason for sampling for TCL organics should be explained in the text.

2. Page 4-5, "Monitoring Well Installation"

Figure 4-1, "Proposed Surface Soil, Composite Soil, and Monitoring Well Locations Site 2"

Field Sampling Plan, Page 1-7, "Groundwater Sampling"

Field Sampling Plan, Figure 1-3, "Proposed Groundwater and Surface Water Sampling Locations-Site 2"

Comment: The text states on page 4-5 that "One monitoring well will be installed in the area formerly occupied by the slag pile to monitor groundwater quality in the suspected contaminated zone. A second monitoring well will be installed hydraulically down gradient of the first well to determine if groundwater contamination has migrated from the former slag pile toward a nearby drainage tributary of Mason Creek." The text states on page 1-7 that "Groundwater samples will be collected from the two newly installed monitoring wells." In our review of the well locations in figures 4-1 and 1-3 we could not determine whether or not groundwater up-gradient to the sites will be adequately addressed. The U. S. EPA recommends a ratio of one up gradient well established for each three down gradient wells to adequately characterize background concentrations. Also, the depths (shallow, intermediate, or deep) of the existing wells should be listed on the figure.

Recommendation: Clearly state both in the text, and in the figures, that the groundwater up gradient to the site will be adequately characterized. Relocate proposed groundwater sampling locations if necessary.

3. Page 4-7, "Soil Sample Numbers and Locations"

Comment: Reference (a) states on page 4-7 that "As such, composite samples may dilute or otherwise misrepresent concentrations at specific points and, therefore, should be avoided as the only inputs to a risk assessment." Reference (a) further states that "For example, "hot spots" cannot be determined using composite samples." The text states that "Composite subsurface soil samples will be collected from three locations by using a hollow-stem auger drill rig with a split-spoon sampler." The text did not justify taking composite subsurface soil samples instead of grab samples.

Recommendation: The text should justify the use of composite subsurface soil samples.

4. Page 4-7, "Soil Sample Numbers and Locations"

Field Sampling Plan, SOP Shallows: Shallow Soil Sampling, "Procedures and Guidelines"

Comments:

a. The text states on page 4-7 that surface soil samples will be collected from depths of 0-1 foot. However, the Field Sampling Plan Shallow Soil Sampling Standard Operating Procedure indicated surface soil samples should be taken to a depth of about 6 inches.

b. Reference (a) defines "surface soil" samples as samples taken from depths of zero to six inches. The ATSDR Public Health Assessment Guidance Manual (1994) (Agency for Toxic Substance and Disease Registry) defines "surface soil" samples as soil samples collected from depths of zero to three inches below ground surface, and "subsurface soil" samples are defined as samples taken at depths greater than three inches.

Recommendations:

a. The discrepancies between the text on page 4-7 and the Field Sampling Plan Shallow Soil Sampling Operating Procedure should be corrected.

b. We are encouraging the adoption of "zero to three inches" as the norm for surface soil sample collection for any future site soil sampling investigation and/or monitoring efforts that may be undertaken. The adoption of this sampling protocol will not be in controversy with current U. S. EPA guidance because reference (a) does direct that surface soil samples should be collected "from the shallowest depth that can be practically obtained" accurately to reflect potential surface soil exposure pathways.

5. Page 4-17, "Baseline Human Health Risk Assessment"

Comments:

a. The text states on page 4-17 that "When a primary and duplicate sample are collected, the maximum concentration will be used as the sample concentration." The use of duplicate sample data in this manner is confusing. If the duplicate sample data is to be used in this manner it should be discussed in the "Uncertainty Section" of any future Human Health Risk Assessment (HHRA).

b. There is no discussion in the text of any background samples taken at or nearby this site. Reference (a) states that "background sampling is conducted to distinguish site-related contamination from naturally occurring or other non-site-related levels of chemicals and should be collected from each medium of concern." A significant number of samples should be collected in order to statistically calculate the risk of background so that it could be compared to the onsite risk.

Recommendations:

- a. If the duplicate sample data is used in this manner the reason should be discussed in the “Uncertainty Section” of any future HHRA.
- b. Provide information on any background samples and locations. Discuss adequacy of background sample site selection on the basis of uniform site characteristics (e.g., geological, hydro geological, analytical results).

Review Comments and Recommendations: Field Sampling Plan

6. Page 4, “SOP MWSamp: Groundwater Sampling from Monitoring Wells”

Comments:

a. The text states on page 4 concerning water samples that “Filtration must occur in the field immediately upon collection. Inorganics, including metals, are to be collected and preserved in filtered form.” Reference (a) states that “unfiltered groundwater data should be used to determine the exposure point concentration.”

b. We recommend using both filtered and unfiltered types of samples in a risk assessment. Although the regional EPA guidance requires use of unfiltered sample results in the quantitative HHRA, if risk estimates for both filtered and unfiltered samples are developed, both values can be discussed in the HHRA. Because some heavy metals absorb strongly to soil/sediment particles, the difference between the resultant risk estimates from filtered and unfiltered sampling results can be large. Providing comparison values can therefore be very useful in demonstrating that the risk estimates from unfiltered groundwater samples are too conservative.

Recommendation: Develop risk estimates for both filtered and unfiltered groundwater samples, and discuss both values in the HHRA.

Review Comments and Recommendations: Quality Assurance Project Plan

7. Page 10-1, Table 10-1, “QC [quality control] Collection Frequencies”

Comment: Reference (b) requires equipment rinsate blanks be taken at a frequency of one per day versus one every other day as stated in table 10-1.

Recommendation: Revise the text to reflect the correct number of equipment rinsate Quality Assurance /Quality Control samples, as required by reference (b).

FROM: _____
 (YOUR NAME/COMMAND)
 TO: NAVENVIRHLTHCEN, ENVIRONMENTAL PROGRAMS
 FAX: COM: (804) 444-7261/DSN: 564-7261

MEDICAL/HEALTH COMMENTS - YOUR VIEW

Please help us improve our review process by indicating the extent to which you agree or disagree with the comments we provided your activity.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. "Value added" to IR/BRAC process?	1	2	3	4	5
2. Received in a timely manner?	1	2	3	4	5
3. High level of technical expertise?	1	2	3	4	5
4. Very useful to the RPM?	1	2	3	4	5
5. Contractor incorporated comments?	1	2	3	4	5
6. Easily readable/useful format?	1	2	3	4	5
7. Overall review was of high quality?	1	2	3	4	5
8. NAVENVIRHLTHCEN was easily accessible?	1	2	3	4	5
9. NAVENVIRHLTHCEN input during scoping or workplan development would be "value added"?	1	2	3	4	5
10. Added involvement in IR/BRAC document needed?	1	2	3	4	5

Please return by fax using the box provided at the top of this page. If you have any other comments, please list them below or call Mr. David McConaughy, Head, Health Risk Assessment Department, at (804) 363-5557, DSN 864, at any time to discuss your viewpoint. As our customer, your comments and suggestions of how we can improve our services to you are important!