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DEPARTMENT OF THE NAVY
NAVY ENVIRONMENTAL HEALTH CENTER
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5090.5
Ser EP/KK:4106/02786
18 OCT 1995

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

Subj: MEDICAL REVIEW OF INSTALLATION RESTORATION PROGRAM DOCUMENTS FOR NAVAL WEAPONS STATION YORKTOWN, YORKTOWN, VA

Ref: (a) Baker Environmental, Inc. transmittal ltr of 19 Sep 95

Encl: (1) Medical review of "Draft Final Post-Removal Confirmation Sampling Report and Baseline Risk Assessments for Sites 4 and 21, Naval Weapons Station Yorktown, Yorktown, Virginia"
(2) Medical/Health Comments Survey

1. As you requested in reference (a), we completed a medical review of the "Draft Final Post-Removal Confirmation Sampling Report and Baseline Risk Assessments for Sites 4 and 21, Naval Weapons Station Yorktown, Yorktown, 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 points of contact for this review are Ms. Katharine Kurtz or Mr. David McConaughy, Health Risk Assessment Department, Environmental Programs. If you would like to discuss this medical review or if you desire further technical assistance, please call them at (804) 363-5553 or (804) 363-5557, DSN 864.

Y. P. Walker

Y. P. WALKER
By direction

MEDICAL REVIEW OF DRAFT FINAL POST-REMOVAL CONFIRMATION SAMPLING REPORT AND BASELINE RISK ASSESSMENTS FOR SITES 4 AND 21 NAVAL WEAPONS STATION YORKTOWN YORKTOWN, VIRGINIA

Ref: (a) Medical Review of Installation Restoration Program Documents for Naval Weapons Station, Yorktown, Yorktown, VA, 5090.5, Ser EP/KK:4076/02238 of 03 August 1995
(b) Medical Review of Installation Restoration Program Documents for Naval Weapons Station, Yorktown, Yorktown, VA, 5090.5, Ser EP/KK:4081/02237 of 02 August 1995
(c) Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program, June 1988 (NEESA 20.2-047B)
(d) Risk Assessment Guidance for Superfund, Vol. 1, Part A: Human Health Evaluation Manual, Dec 1989 (EPA 540/1-89/002)

General Comments:

1. The draft document entitled "Draft Final Post-Removal Confirmation Sampling Report and Baseline Risk Assessments for Sites 4 and 21, Naval Weapons Station Yorktown, Yorktown, Virginia" (Volumes I and II) was provided to the Navy Environmental Health Center (NAVENVIRHLTHCEN) for review on 27 September 1995. The document was prepared for Atlantic Division, Naval Facilities Engineering Command by Baker Environmental, Inc. under the LANTDIV CLEAN Program Contract N62470-89-D-4814, CTO-0297. (The document formerly was titled "Draft Round Two Remedial Investigation and Baseline Risk Assessment, Sites 4 and 21, Naval Weapons Station Yorktown, Yorktown Virginia"). References (a) and (b) cite previous document reviews from this office concerning this investigation.

2. In general, we feel that the data presented in the Post-Removal Confirmation Sampling Report indicate that contaminants still are present at or in the vicinity of Sites 4 and 21 in concentrations several orders of magnitude greater than reported background levels (inorganics) and, in some instances, exceeding regulatory guidelines (e.g., Site 4 surface soil sample 04-SS-008D reportedly contained 130 milligrams per kilogram (mg/kg) of 2,4,6-trinitrotoluene). Thus, we feel that an adequate understanding of site conditions is not entirely possible at this time.

3. The document identifies numerous data gaps requiring additional investigation and recommends appropriate actions, including:

- installation of additional monitoring wells at Site 4 and downgradient locations.
- additional groundwater sampling and analysis to evaluate the Removal Action for both Sites 4 and 21.
- installation of deep monitoring wells to assess the vertical extent of contamination.

- re-evaluation of groundwater contamination at both sites based upon new Post-Removal Action analytical data.

- additional Post-Removal Action sampling and analysis of surface water and sediment in the unnamed drainage way, Felgate's Creek, and other areas, as applicable.

- collection of fish data from applicable areas.

- collection of additional surface and subsurface soil data to better characterize the contamination boundaries for both sites and determine if there are any potential sources of contamination remaining following the Removal Action.

- preparation of a comprehensive Remedial Investigation/Feasibility Study (RI/FS) that incorporates the new data obtained.

4. We agree with the recommendations re-stated above, to include a RI/FS to clarify the effects of the Removal Action and to assess the human health impact from the residual contamination remaining at Sites 4 and 21. We are available to review the Sampling Plans for future soil, groundwater, and fish sampling. Additional comments and recommendations are provided below.

Review Comments and Recommendations:

1. Page 2-16, Section 2.2, "Overview of Background Investigation Activities"
   Table 2-2, "Summary of Round One RI Soil Samples Collected from Monitoring Well Boreholes"
   Pages 4-8, 4-9, Section 4.3.1.3, "Standards and Criteria Used"

   Comments:

a. Background concentrations of inorganics frequently exceeding standards were used to justify elimination of Chemicals of Potential Concern (COPCs) in the current report. Although the report briefly mentions the recent (Baker 1995) study of background conditions at U. S. Naval Weapons Station (WPNSTA) Yorktown, it is not clear to what degree this background study was used in this investigation to select potential COPCs due to the earlier time-frame of the Round-One Investigation.

b. In addition, we feel that average background values rather than maximum background concentrations should be calculated for each chemical to be more representative of actual site-specific background conditions because of the inordinately high background levels reported for certain inorganics (e.g., 2,940 milligram per kilogram (mg/kg) for manganese background in soil).

Recommendations:

a. Consideration should be given to using background values more representative of conditions at WPNSTA Yorktown by using average concentrations of background inorganic chemicals (Baker 1995) rather than maximum values for selection of COPCs for analytes detected.

b. Suggest additional site-specific background samples be taken for confirmation purposes and a figure provided with background sampling areas shown.

2. Page 1-16, Section 1.4.9, "Removal Action"
Pages 2-18 - 2-27, "Overview of Removal Action Activities"
Pages 4-23, 4-24, Section 4.5.1.2, "Subsurface Soils"

Comments:

a. A general discussion of the Removal Action activities is included in the report. Specific details concerning the exact areas of excavation, the sampling depth, analytical methods used to test for additional contaminants remaining, and detection limits of the methods are still not certain. The text suggests that the depth of excavation varied depending on the presence of buried debris, such as batteries (e.g., two to six feet depth).

b. Inclusion of additional figures from the Removal Action Report would help to clarify the excavation activities that took place during the Removal Action. Illustrate areas that received backfill and depth of fill, as applicable. (New figures were not included or changed for the final draft report for Sections 1.0, 2.0, and 3.0).

c. Indicate if the boundaries of the site are to be expanded based on the sample results reported and the levels of contamination found.

Recommendation: Either include a copy of the IT Removal Action Report or provide more specific details of the Removal Action activities in the report. Add figures that show the areas excavated, the depth of backfill, and other Removal Action operational details, to include a discussion of the actual geographic areas considered part of the sites' boundaries. Perform confirmatory surface and subsurface sampling for Sites 4 and 21 to verify the success of the Removal Action.

3. Page 2-22

Comment: The text indicates that seven drums containing unknown liquids were discovered at Site 21. Field analysis of the waste using the Hazard Categorization (HAZCAT) technique was used to determine waste category for disposal. The text does not specify whether

additional analysis was attempted to help to identify potential site-related COPCs based on the analytical results obtained.

Recommendation: Include any additional analytical data and/or drum identification information available concerning unknown liquid to aide in identification of potential site-related contaminants (liquid reportedly disposed of as a D008 Hazardous Waste).

4. Page 4-10, Section 4.3.2.4, "Field Duplicate Analyses"

Comment: The text indicates that Quality Assurance/Quality Control (QA/QC) samples collected as part of the removal action were limited to trip blanks. An additional explanation is not provided. Thus, it appears that Equipment Rinsates and Field Blanks were not collected as part of the Removal Action sampling efforts. Reference (c) provides guidance concerning specific QA/QC field sampling and laboratory requirements.

Recommendation: Either provide an additional explanation for the limited QA/QC data associated with the Removal Action sampling efforts or consider following the guidance provided in reference (c) to ensure the sampling and analytical efforts meet the minimum requirements needed to validate the data obtained.

5. Page 4-11, Section 4.3.2.3, "Equipment Blanks"

Comment: The text indicates analyses of Equipment Blanks showed that low concentrations of inorganics were detected at levels typically less than 1.0 milligram per liter (mg/L). The purpose of this rinsate sample is to prove that equipment was decontaminated properly and that no carry over is occurring between samples collected in the same equipment. At a minimum, no analytes of interest should be present above the method detection limit. The quality of the water used for the rinsate is not given.

Recommendation: Provide additional information concerning the detection of inorganics in the Equipment Blanks and include detection levels for any COPCs detected. Discuss the source and testing results of the water supply used as the rinsate.

6. Page 4-14, Section 4.4.1, "Analysis of Soils"
Page 4-21, Section 4.5.1, "Analysis of Soils"
Page 6-7, Section 6.2.3.1, "Site 4"

Comments:

a. The text indicates that not all data available for both sites was used to calculate risk (e.g., the Round One surface soil data for Site 4 is not used to evaluate risk). Only the Removal Action surface soil data for Sites 4 and 21 are used for this purpose. We feel that the report does

not adequately explain why data that meets the risk assessment guidance of reference (d) were eliminated.

b. The text indicates that data from surface soil samples collected during the Remedial Investigation (RI) were not used to calculate risk because this soil was removed during the Removal Action. We do not believe that the report has provided sufficient documentation to indicate that all of the contaminated soil present was removed. Actually, results of the Removal Action suggest that areas of soil contamination still remain. (In addition, subsurface soil samples were not collected at Site 4).

Recommendation: Either include additional justification for exclusion of risk assessment data or consider recalculating the risk using all the appropriate available risk assessment data.

7. Table 4-15, "Site 4 - Removal Action Surface Soil Explosives"

Comment: The Sample Number (No.) Table Column Heading is listed as 04-SS-04 instead of 04-SS-040 in the table.

Recommendation: Correct the sample number in the table.

8. Page 6-1, Section 6.0, "Human Health Risk Assessment"

Comment: Numerous incomplete sentences, duplicate sentences, and other editorial type errors appear throughout the report. For example, the second line of the first paragraph in this section is missing information.

Recommendation: Recheck the document from an editorial perspective and correct errors found.

9. Page 6-25, 6-26, Section 6.3.4.1, "Site 4"

Comment: The text indicates that the subsurface soil exposure pathway was not evaluated for the Site 4 Construction Worker due to lack of sampling data. We feel that this potential exposure pathway currently should be evaluated in a qualitative manner. When additional subsurface soil sampling data is available, this exposure pathway can be readdressed. The lack of quantitative information should be discussed in the Uncertainty Section of the report.

Recommendation: Evaluate the Future Construction Worker subsurface soil exposure pathway for Site 4 in a qualitative manner until additional sampling data is available to perform a quantitative assessment.

10. Page 6-30, Section 6.3.5, "Quantification of Exposure"

Comment: The text indicates that because a plume of contamination was not evident in either sites' groundwater samples, the maximum detected concentrations from only two groundwater wells at each site were used to calculate risk. We feel that to exclude data from the other monitoring wells potentially may misrepresent the actual sites' risk posed by the contamination detected in the groundwater.

Recommendation: Consider performing additional calculations using all the appropriate groundwater monitoring well data available for both sites.

11. Page 6-36, section 6.3.6.1, "Current Adult On-Site Civilian Worker"

Comment: The text refers to current military personnel, which does not agree with the section heading. Civilian workers would be expected to have different exposure durations to site contaminants than military personnel due to differences in their respective anticipated length of service in one area. Military personnel usually rotate at either every three- or five-year intervals whereas civilian workers may remain at one activity for longer periods of time.

Recommendation: Correct discrepancies between text and heading. Indicate if both civilian and military personnel currently work at either of the sites.

12. Page 6-25, Section 6.3.4.1, "Site 4"

Comment: The text indicates that groundwater exposure in the current case will not be evaluated as it currently is not used for potable purposes at the site. The report discusses the need to install additional shallow groundwater monitoring wells both at Site 4 and in a downgradient location for both sites. Additionally, the vertical extent of contamination is not known at present due to the lack of deep groundwater monitoring wells. Installation of deep groundwater monitoring wells to assess the impact of the areas' contamination reportedly is planned for the near future. We feel that the results of these additional groundwater investigations will help to determine the current potential groundwater exposure risk.

Recommendation: The additional groundwater sampling analytical results should be evaluated when available to determine whether exposure to groundwater poses a potential human health risk to area receptors.