05.01-9/13/01-00813

DEPARTMENT OF THE NAVY
COMMANDER
NAVY REGION, MID-ATLANTIC
6506 HAMPTON BLVD.
NORFOLK, VA 23508-1273

IN REPLY REFER TO:
5090
RE950/15/1428

13 SEP 2001

Mr. Jeff Kellam
Department of Health & Human Services
Agency for Toxic Substances & Disease Registry
1600 Clifton Road, E-56
Atlanta, GA 30333

Dear Mr. Kellam:

SUBJECT: DRAFT PUBLIC HEALTH ASSESSMENT FOR NAVAL STATION NORFOLK

In response to the Agency for Toxic Substances and Disease Registry's (ATSDR) DRAFT Public Health Assessment for Norfolk Navy Base, Norfolk, VA, the Navy's medical and technical comments are enclosed.

Should you require additional information, the Region's points of contact are Ms. Winoma Johnson, Atlantic Division, Naval Facilities Engineering Command, (757) 322-4587, or Mr. Randy Sawyer, Navy Region, Mid-Atlantic, Regional Environmental Group, (800) 828-1140 and ask for 887-4990.

Sincerely,

Cherryl F. Barnett

CHERRYL F. BARNETT
Head
Regional Environmental Group
By direction of the Commander

Enclosures

Copy to:
Atlantic Division, Naval Facilities Engineering Command (EV22WJ)

MEDICAL REVIEW OF DRAFT PUBLIC HEALTH ASSESSMENT NAVAL STATION NORFOLK, NORFOLK, VIRGINIA

General Comments:

1. The document entitled "Draft Public Health Assessment, Naval Station Norfolk, Norfolk, Virginia," dated 16 August 2001, was provided to the Navy Environmental Health Center (NAVENVIRHLTHCEN) for review on 20 August 2001. The report was prepared by the Agency for Toxic Substances and Disease Registry.

2. Our strongest concern is that we do not believe ATSDR has differentiated clearly enough between very hypothetical, or speculative exposure routes, and exposure scenarios that are likely to occur. We believe that such discrimination is not only in the purview of ATSDR, but is generally accepted by the public as being the responsibility of ATSDR, and the main purpose of a public health assessment.

In the typical "Foreword Section" to a public health assessment, under the "Health Effects" paragraph, it states "That if the review of the data shows that people have or could come into contact with hazardous substances, ATSDR scientists evaluate whether or not these may result in harmful effects." Nothing is said about evaluating the probability of a potential exposure occurring. However, under the "Conclusions" paragraph, the statement is made that "On the basis of its evaluation of available information, ATSDR has reached the following conclusions."

When theoretical or speculative scenarios are presented, with no discussion or evaluation of the probability of such a scenario occurring, it can be very misleading. The public may believe that a very improbable exposure scenario is as likely to occur as one of the likely exposure scenarios. From our reviews of previous public health assessments, we believed that the probability of occurrence was considered by ATSDR in developing the "hazard ranking" categories for each potential exposure scenario. We believe that this is appropriate and that "no apparent health risk" should be a category used for exposure scenarios that are improbable.

3. The "Foreword Section" page is blank, with a footnote stating that it will be inserted by ATSDR. Please provide a copy of the draft "Forward" section for review prior to the publication of the public comment draft.

Specific Comments and Recommendations:

1. Page 2, "Summary":

Comments:

a. The Summary is the most commonly read portion of the public health assessment document and it is important that it accurately summarize the report's contents in a manner easily understandable by the general public. We believe the Summary needs to be revised in order to meet the needs of the public. Specifically, we feel that the report's conclusions are difficult to understand as written in the summary. However, the conclusions presented in the section entitled "Conclusion" are very clear and easy to understand. Therefore, the report would be easier to read and follow if the "Summary" section contained the conclusions in the same format as the "Conclusions" section on page 48.

b. For ease of understanding provide Sub-titles for specific subject categories throughout the Summary section of the report. For example, the fifth paragraph on page 1, could be sub-titled "Groundwater;" the second paragraph on page 2 could be sub-titled "Groundwater: Neither the Base shallow groundwater Nor the Off-Base Groundwater Pose a Public Health Hazard;" the fourth paragraph could be sub-titled, "Fish/Shellfish;" and the second paragraph on page 3 could be sub-titled "Children at Camp Allen Elementary School."

c. The third paragraph on page 2 would be better understood if placed at the end of the section discussing "Drinking Water." That is, move the third paragraph in front of the second paragraph on page 2.

d. Conclude the last paragraph on page 3 with a sentence stating that there is no public health threat to the students of Camp Allen Elementary School. For example the text could include the sentence, "ATSDR determined that potential environmental exposures do not pose a public health hazard to the children in the vicinity of the Camp Allen School."

e. The public would more easily understand the term "drinking water" than the term "potable."

f. The second to the last sentence in the last paragraph on page 2 is the key message for the
discussion on Fish and Shellfish. The sentence should be moved to the beginning of the paragraph.

g. Page 1, paragraph 5, discusses the elevated copper and lead concentrations detected from "two faucets." No additional information as to the location of the faucets is provided until page 38 of the report.

Recommendations:

a. Include the location of the faucets in the summary.

b. Provide the conclusions in the summary in a similar format as used in the Conclusion Section on page 48.

c. On page 2, move the third paragraph in front of the second paragraph.

d. Replace the word "potable" with the work "drinking."

e. Move the last sentence in the last paragraph on page 2 to the beginning of the paragraph.

2. Pages 32 to 39, "Community Concerns":

Comment: Page 38 of the report states that lead and copper levels exceeded CVs in samples collected at the Marine Corps Exchange (MC-1) between 1993 and 1996 but were below CVs on 3 subsequent samples collected from 1996 to 1998. The Navy discontinued routine sampling because it was no longer required due to the low levels of copper and lead detected in the water. The second paragraph on page 39 states, "If levels of lead and copper *continue to exceed* CVs, ATSDR recommends that the Navy take appropriate measures that people are not exposed to these concentrations, either by remediating the sources of lead and/or copper or ensuring that the faucets are not used for drinking water." The levels of lead and copper at the Marine Corps Exchange do not exceed ATSDR CVs and should not be included with the recommendations for Building Z-103.

Recommendation: Revise the report to reflect that the lead and copper concentrations from the faucet located at the Marine Corps Exchange no longer show a pattern of being elevated. Corrections need to be made to the text, to the "conclusions," and to the "recommended actions."

3. Page 15, "Evaluation of Environmental Contamination, Exposure Pathways, and Public Health Implications," Concern: Exposure to Off-site Drinking Water," "Conclusions":

Comments:

a. The text describes a potentially completed pathway whereby chemicals infiltrate the potable water lines lying in utility conduits, then the chemicals are transported to water taps where they are consumed by the affected population.

b. The third paragraph on page 15 describes a series of conditions that must all exist simultaneously for there to be a possibility for Volatile Organic Compounds (VOC) such as styrene butadiene rubber (SBR) to permeate water pipes, and then become transported to potable water taps. The conditions that govern whether contamination could occur are listed as:

- Intersection of the plume by a pipeline for several hundred feet, at a minimum.

- Relatively small diameter pipe (8-inch diameter).
- 8-hour or longer stagnation period per day, for water in the lines, such as might occur during each night
- Volume of water flow through the pipes.
- Gaskets consisting of materials which might be affected by solvents.
- Sufficiently high level of groundwater contamination (which would vary depending on the length of pipeline exposed to the groundwater plume).

c. The Conclusion Section on page 49 list this as an indeterminate public health hazard. We do not agree with this ranking category. As described above the completed exposure scenario is speculative at best.

Recommendation: Recategorize the exposure to contaminants that may have infiltrated water lines to *no apparent public health hazard.*

d. References of Berens 1985 and Glaza et al. 1992 were referred to on page 15. There is no listing of Berens 1985 or Glaza et al. 1992 in the "Reference" section.

4. Page 48, "Conclusions":

Comment: The second comments states, Samples from two NSN faucets (at MC-1 and Z-103) have shown a pattern of elevated levels of lead and/or copper." As stated earlier there *was* a pattern of elevated lead levels from the faucet located at the Marine Corps Exchange (MC-1) between 1993 and 1996, however 3 subsequent samples collected between 1997 and 1998 proved otherwise. No additional sampling or investigation of the drinking water is required for the Marine Corps Exchange.

Recommendation: Remove the MC-1 location from the Conclusion Section on page 48 and the Recommendation Section on page 52. Adjust the remainder of the report to reflect that the lead concentrations detected at the Marine Corps Exchange do not exceed the CVs.

5. Page 2, "Summary":
Page 15, "Conclusions":

Comment: We are also concerned that ATSDR has included in this public health assessment areas and sites that are outside of the Norfolk Navy Base, particularly in reference to potential risks from ingestion of tap water at Capehart Military Housing Area, implying that the potential health risks posed by sites on Norfolk Navy Base may in some way be connected with health risks posed by this site. To our knowledge, this site has never been part of Norfolk Navy Base, and has nothing to do with potential contamination at areas on the Navy Base.

Recommendation: The Capehart Military Housing Area should not be discussed in this report since it is not considered part of the area under review.

6. Page 4, "Site Description and History":

Comment: A reference of CH2MHILL 1999 was referred to on page 4. There is no listing of CH2MHILL 1999 in the "References" section.

Recommendation: Identify which CH2MHILL 1999 reference is referred to on page 4.

7. Page 17, "Discussion":

Comments:

a. A reference of City of Norfolk 2000 was referred to on page 17. There is no listing of City of Norfolk 2000 in the "References" section.

b. A reference of Newton 2001 was referred to on page 17. There is no listing of Newton 2001 in the "References" section.

Recommendations:

a. Include City of Norfolk 2000 in the "Reference" section.

b. Include Newton 2001 in the "Reference" section.

8. Pages 13 to 31, "Evaluation of Environmental Contamination, Exposure Pathways, and Public Health Implications":

Comment: Throughout the report reference is made to "comparison values" (CV). The reader is not certain as to what CV the text is referring. For example, the text states on page 20 that "A dozen contaminants have been detected at levels exceeding CVs." We assume that the CV is referring to the ATSDR MRL for drinking water. On page 28 the text compares surface water samples collected from Willoughby Bay to "CVs". Because the surface water from Willoughby Bay is a non-potable source, the reader has no idea as to which CV the samples are being compared. We would hope that these samples are not being compared to MRLs for drinking water.

Recommendation: Specify the specific CV the text is comparing the sample concentrations. Ensure that the CV being used is appropriate for the type of sample media.

9. Page 33, "Community Health Concerns":

Comment: This Public Health Assessment states that there were two community health concerns. One of the concerns was "flooding of a residential yard in Glenwood Park." This was a natural weather related occurrence. In February 1998, the Tidewater area, including Norfolk, was hit by a major storm. Most of the City of Norfolk, not just Glenwood Park, was flooded.

Recommendation: Please state in the Final Public Health Assessment, the cause for this flooding. There is no possible safety hazard that can be addressed in that this may or may not occur again.

10. Figure 2, " Installation Restoration Program Sites at Naval Station Norfolk":
    Figure 3, " Solid Waste Management Units at Naval Station Norfolk":

Comment: The two above-mentioned Figures reproduced very poorly. It is very difficult to read and identify sites within these maps.

Recommendation: Try to obtain better reproducible maps.

11. Figure, "ATSDR's Exposure Evaluation Process":
    Figure, "Camp Allen Landfill Area B and Vicinity":

Comment: On our copy of Public Health Assessment, the two above-mentioned Figures are not numbered.

Recommendation: Ensure the Figures are numbered to facilitate easy reference.

Winoma Johnson
LANTDIV Environmental
7 September 2001

Draft Public Health Assessment
Naval Station, Norfolk

1. Page 1, Summary, Paragraph 1
Change "The base is comprised of two installations previously know as Naval Air Station Norfolk and Naval Base, Norfolk" to "The base is comprised of the two installations previously known as Naval Air Station Norfolk and Naval Station Norfolk.

2. Page 2, Summary, Paragraph 1
Paragraph discusses the off-site extension of groundwater north, west and southeast of the Camp Allen area. The groundwater is hydraulically controlled in the Camp Allen Groundwater Treatment Plant. This prevents the off-site migration of contaminated groundwater.

3. Page 2, Summary, Paragraph 2
Paragraph states that research has been shown that under certain conditions VOCs have the potential to infiltrate pipes, particularly through their gaskets. Does research include an associated VOC concentration for this to occur?

4. Page 2, Summary, Paragraphs 1, 2 and 3
The groundwater monitoring data for the Camp Allen Landfill Area B demonstrates there is a line of monitoring wells, located downgradient from the landfill, between the Landfill Area B and the Capehart Military Housing Area showing that the VOC concentrations are below Federal MCLs. Therefore, elevated levels of VOCs are not likely migrating from the Landfill Area B to the Capehart Military Housing Area. In addition, groundwater monitoring and modeling data for the groundwater remediation system at Camp Allen confirm that the capture zones for the groundwater remediation wells at Camp Allen Landfill extend beyond the VOC plume. Therefore, any contaminated groundwater in the vicinity of Camp Allen Landfill is migrating towards the remediation wells rather than towards the housing area. Furthermore, The water pipelines in the Camp Allen area are pressurized lines that have bolted flanges, not gaskets. Based on this information, any leakage through the line would be outward exfiltration from the lines rather than infiltration into the lines. As a result, it is highly unlikely that VOCs, if present in the groundwater at the water lines, would permeate into the water lines.

5. Page 4, Site Description and History, Paragraph 2
Change "Effective 1999, the installation then known as Naval Base Norfolk and Naval Air Station Norfolk..." to "Effective 1999, the installations then known as Naval Station Norfolk and Naval Air Station Norfolk..."

6. Page 4, Site Description and History, Paragraph 2
Change "naval air station" to "Naval Air Station".

7. Page 18, Paragraph 2
The first sentence of the paragraph states that shallow groundwater extends off-site in the Camp Allen area contradicts the last sentence of the paragraph, which states that the ditch serves as a hydrogeologic barrier that prevents shallow groundwater contamination from moving offsite. The site monitoring data supports the last sentence and shows that the VOC concentrations between the Camp Allen Landfill and Glenwood Park community meets Federal MCLs. In addition, the groundwater remediation system has reversed the groundwater flow direction such that the groundwater flow is from the shallow aquifer to the deep aquifer then eastward from Glenwood Park towards Camp Allen Landfill. Based on this information, it is highly unlikely for the contaminated groundwater from Camp Allen Landfill to migrate to the Glenwood Park community.

8. Page 18, Paragraph 3
The groundwater contamination is not likely migrating offsite to the southeast. The groundwater monitoring data for the Camp Allen Landfill Area B demonstrates there is a line of monitoring wells, located downgradient from the landfill, between the Landfill Area B and the Capehart Military Housing Area showing that the VOC concentrations are below Federal MCLs. Therefore, elevated levels of VOCs are not likely migrating from the Landfill Area B to the Capehart Military Housing Area. The report referenced (Baker, 1994b) is not representative of the current groundwater conditions at Camp Allen Landfill and was prepared prior to the implementation of a groundwater remediation system at Camp Allen Landfill. Groundwater monitoring and modeling data for the groundwater remediation system at Camp Allen demonstrate that the capture zones for the groundwater remediation wells at Camp Allen Landfill extend beyond the VOC plume. Therefore, any contaminated groundwater in the vicinity of Camp Allen Landfill is migrating towards the remediation wells rather than towards the housing area.

9. Page 19, Paragraphs 1 and 2
The report referenced (Baker, 1994b) is not representative of the current groundwater conditions at Camp Allen Landfill and was prepared prior to the implementation of a groundwater remediation system at Camp Allen Landfill. Several monitoring wells have been installed in the Capehart Military housing area and have been sampled on numerous occasions (1997, 1998 1999, 2000) since the Remedial Investigation was completed. Groundwater monitoring and modeling data for the groundwater remediation system at Camp Allen demonstrate that the capture zones for the groundwater remediation wells at Camp Allen Landfill extend beyond the VOC plume. Therefore, any contaminated groundwater in the vicinity of Camp Allen Landfill is migrating towards the remediation wells rather than towards the housing area.

10. Page 20, Paragraph 2
The site monitoring data since 1993 shows that the VOC concentrations in the deep groundwater between the Camp Allen Landfill and Glenwood Park community to the meets Federal MCLs. In addition, the groundwater remediation system has reversed

the groundwater flow direction such that the groundwater flow is eastward from Glenwood Park towards Camp Allen Landfill. Based on this information, it is highly unlikely for the contaminated groundwater from Camp Allen Landfill to migrate to the Glenwood Park community.

11. Page 20, Paragraph 3
The report referenced (Baker, 1994b) is not representative of the current groundwater conditions at Camp Allen Landfill and was prepared prior to the implementation of a groundwater remediation system at Camp Allen Landfill. Several monitoring wells have been installed in the Capehart Military housing area and sampled these wells on numerous occasions (1997, 1998 1999, 2000) since the RI was completed Groundwater monitoring data for the deep aquifer at the area southeast of Area B meets MCLs.

12. Page 23, Paragraph 1
The groundwater monitoring data for the Camp Allen Landfill Area B demonstrates there is a line of monitoring wells, located downgradient from the landfill, between the Landfill Area B and the Capehart Military Housing Area showing that the VOC concentrations are below Federal MCLs. Therefore, elevated levels of VOCs are not likely migrating from the Landfill Area B to the Capehart Military Housing Area. In addition, groundwater monitoring and modeling data for the groundwater remediation system at Camp Allen confirm that the capture zones for the groundwater remediation wells at Camp Allen Landfill extend beyond the VOC plume. Therefore, any contaminated groundwater in the vicinity of Camp Allen Landfill is migrating towards the remediation wells rather than towards the housing area. Furthermore, The water pipelines in the Camp Allen area are pressurized lines that have bolted flanges, not gaskets. Based on this information, any leakage through the line would be outward exfiltration from the lines rather than infiltration into the lines. As a result, it is highly unlikely that VOCs, if present in the groundwater at the water lines, would permeate into the water lines.

13. Page 32
The only information repository for Naval Station Norfolk is Kirn Memorial Branch, Norfolk Public Library. Delete all other repositories listed since they are no longer used.

14. Page 62
Column in Table 1 designated as "Current Designation" should be "Original Designation". Column in Table 1 designated as "Original Designation" should be "Current Designation".