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11 SEP 1996

U. S. Environmental Protection Agency
Region III
Attn: Mr. Robert G. Thomson, P.E.
Remedial Project Manager (3HW50)
VA/WV Superfund Federal Facilities Section
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Re: Response to Comments on the Draft Remedial Investigation for Sites 6 and 7 , Naval Weapons Station Yorktown, Yorktown, Virginia

Dear Mr. Thomson:

The Navy is pleased to provide responses to comments for the subject report. We are awaiting Black and Veatch data to incorporate into the Draft Final Sites 6 and 7 RI. If the data is received within the next week, we anticipate that the Draft Final RI will be submitted during late September or early October 1996. Any additional concerns should be resolved within 30 days after issuance of the Draft Final RI in accordance with Section 20.2 of the Federal Facility Agreement.

If you have any questions concerning these responses to your comments Draft RI for Sites 6 and 7, please contact Mr. Richard Stryker at (757) 322-4778.

Sincerely,

N. M. JOHNSON, P.E.
Head
Installation Restoration Section
(North)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Enclosure

RESPONSE TO COMMENTS SUBMITTED BY EPA REGION III ON THE DRAFT REMEDIAL INVESTIGATION REPORT SITES 6 AND 7, NAVAL WEAPONS STATION YORKTOWN YORKTOWN, VIRGINIA

COMMENT LETTER DATED AUGUST 2, 1996

GENERAL COMMENTS

Remedial Investigation

1. USEPA's contractor collected additional samples at Site 6 in July 1996. Once the data and information pertaining to this additional data is obtained by the Navy, it will be incorporated into the Draft Final RI Report. The Navy does not think that additional sampling (beyond Black & Veatch's effort) at Site 7 is necessary for the purpose of the RI/FS.

2. The scope of the Round Two RI for Site 7 was to investigate the drainage ditch leading from the Plant 3 complex to Felgates Creek and focus on its potential receptors. The intent of the RI was not to investigate all of the buildings within the plant. The ditch associated with Site 7 was the primary mechanism for explosive waste water to enter the environment. It is highly unlikely that another "source" of contamination exists. The concrete channel and associated earthen ditch was the most convenient method for waste water disposal. To assume that another source exists is highly speculative and should not be based solely on the concentrations found in 7GW01. It is very possible that the contaminants detected in monitoring well 7GW01 is from the disposal in the ditch. The Navy does not think that additional sampling at Site 7 is necessary for the purpose of the RI/FS.

3. The geological cross-sections (Figures 3-3 through 3-7) will be enhanced, but vertical flow nets will not be added to the cross-sections. Flow nets are not necessary for the purpose of the RI.

The geological cross-sections will be enhanced so that they can be utilized in the analysis of the nature and extent of contamination. Key COPCs and their concentrations detected in the monitoring well samples will be added to the cross-sections. Isopleth of these concentrations (vertical and horizontal) may be interpreted, and the text in Section 4.0 will be revised to include an analysis of these results.

Hydropunch data will only be presented for areas where monitoring wells were not installed. The purpose of the hydropunches was to identify potential locations for monitoring wells. Due to the potential for turbid samples, the analytical results from the hydropunches may not be representative of groundwater quality.

The discussion regarding the aquifer systems at Sites 6 and 7 will be revised in Section 3.0 to clarify the existence (or non-existence) of each aquifer at the sites. In addition, the discussion of contaminant distribution within the Cornwallis Cave aquifer will be clarified so that it is not misleading. If only one monitoring well is located in the aquifer, the text will be revised to indicate this fact.

The approved Work Plan for the Round Two RI did not include the evaluation of the biotransformation of organic compounds, and therefore, the text in Section 5.0 of the RI will not be changed per this comment.

Human Health Risk Assessment

4. Only subsurface soil data were used to evaluate future construction workers and not surface soil data, since it is assumed that surface soil exposures are expected to be insignificant relative to subsurface soil exposures. Surface soil data were used to evaluate

the much more conservative future residential scenario. In addition, only subsurface soil exposures were evaluated for other sites at the Station. For consistency with the risk assessments with the other sites at the Station, only subsurface soil exposures will be evaluated for Sites 6 and 7.

5. Appendix L was organized by receptor in the following order:

- Current Civilian Worker
- Future On-site Recreational Users (Adults and Adolescents)
- Future Residents (Adults and Young Children)
- Future Adult Construction Workers

Spreadsheets for applicable environmental media for which each receptor was evaluated are presented in the following order:

- Shallow Soil (Site 6 Drainage Area - Round One)
- Shallow Soil (Site 6 Drainage Area - Round Two)
- Shallow Soil (Site 6 Excavated Area)
- Shallow Soil (Site 7 Study Area)
- Groundwater (Site 6)
- Groundwater (Site 7)
- Surface Water (Site 6 Drainage Area)
- Surface Water (Site 6 Impoundment Area)
- Surface Water (Site 7)
- Sediment (Site 6 Drainage Area)
- Sediment (Site 6 Impoundment Area)
- Sediment (Site 7)

No changes to Appendix L will be made.

The Round One data were not combined with the Round Two and Supplemental data since the Round One data were acquired in 1992 and are not as representative of current site conditions.

6. Only 25 percent of the child body surface area was assumed available for dermal contact with the investigated surface water bodies at Sites 6 and 7 due to the shallow and/or intermittent nature of the surface waters at these sites.

Ecological Risk Assessment

7. Ecological toxicity profiles for explosives will be provided that present environmental fate, chemistry, and toxicity information. It is acknowledged that various matrix interferences most likely occur in the analyses for explosives; however, the usefulness of interference information at this phase of the reporting is questionable.

8. The ecological risk assessment for Sites 6 and 7 was conducted to provide a piece in the puzzle of the overall ecological integrity of Felgates Creek. Previous studies (Site 16/SSA 16) as well as future investigations (Sites 2, 4, 8, and SSA 14) within Felgates Creek will contribute to the overall "picture" of the ecological environment within the creek. The purpose of the ecological investigation conducted at Sites 6 and 7 was to identify potential risks to the environment from site-related contaminants specific to Sites 6 and 7. It is acknowledged that several different areas within and outside of WPNSTA Yorktown potentially impact Felgates Creek. However, due to the tidal nature of the creek, it is difficult to specifically pinpoint sources of contamination, particularly pertaining to surface water contamination. The ecological risk assessment that was conducted for the RI was sufficient in nature and scope. Additionally, EPA approved the Master Work Plans and Site Specific Work Plans for the Sites 6 & 7 work. It would be nice to have a virtual unlimited amounted of data to make better ecological risk decisions. However, we are challenged to obtain "sufficient" information during the course of a Remedial Investigation to make ecological risk based decisions. BTAG approves Work Plans and

then provides lengthy comments about the inadequacy of the ecological risk assessment, and requests sampling beyond the scope of this investigation. We support getting BTAG involved early in the investigation process and will continue to try and do so. However, the manner in which BTAG has recently been involved is counter-productive to making forward progress. We maintain that the ecological risk assessment was sufficient.

9. Refer to the response to general comment number 8.

10. The determination of appropriate screening levels for the selection of Contaminants of Potential Concern (CPOCs) and for the selection of the appropriate background was based upon the salinity grade of the surface water and the type of vegetation surrounding the sampling locations at each Area of Concern (AOC). The Drainage Area at Site 6 was the only AOC identified as a true freshwater station; therefore, only freshwater screening levels and freshwater background concentrations were used. It would be inappropriate to compare freshwater screening levels and freshwater background concentrations to the tidally influenced AOCs at Sites 6 and 7. The following table presents each AOC, the salinity habitat, and the screening levels used in the COPC selection:

Area of Concern	Salinity (parts per thousand)	Salinity Habitat	Screening Levels
Site 6 - Drainage Area	0.0	freshwater	freshwater
Site 6 - Tributary	5.0 - 19.5	oligohaline/mesohaline/ polyhaline	estuarine
Site 7 - Study Area	18.0 - 21.0	high mesohaline/ polyhaline	estuarine
Felgates Creek (main stem)	16.0 - 19.0	mesohaline/polyhaline	estuarine

11. The tables presented do not need to be reevaluated. Tidal influence is observed in the impoundment area (during high tides and storm events), Site 6 - Tributary, Site 7 - Tributary, and the main stem of Felgates Creek; therefore, comparison to freshwater screening levels would not be appropriate.

12. The selection of sample Quantitation limits (SQLs) for this investigation were established prior to the publishing of the BTAG screening levels (January 1995). The amount of time and effort involved in backtracking and comparing SQLs to BTAG screening levels would not outweigh the benefit of this information.

13. The background title on the sediment COPC selection tables refers to sediment collected from background tidal freshwater streams. The title will be amended to clarify that background data is actually sediment and not surface water.

14. Probing birds were not identified in the habitat evaluation conducted at Sites 6 and 7. In addition, probing birds such as the sand piper are highly migratory with 100% of their diet consisting of small invertebrates. Therefore, calculation of a sand piper model would result in the same uncertainty and highly conservative results as the short-tailed shrew because the small invertebrate concentrations would have to be assumed to be equivalent to the sediment concentrations. Also, it would be assumed that 100% of the probing bird's diet would be obtained year round from Felgates Creek, which would only compound the uncertainty in the model. We do not intend to evaluate this scenario.

15. Due to the uncertainty involved with the shrew model and the high quotient indices calculated in the shrew model for background areas, the shrew model was eliminated from the draft version of the report. Reference to the shrew model was inadvertently retained in Section 7.5.1.2 and the actual shrew models were inadvertently retained in Appendix O.2. The text and appendix will be revised to remove any references to the shrew.

16. Refer to the response to general comment #15.

17. Refer to the response to general comment #15. In addition, it is noted that short-tailed shrew is not used in the calculation of the red fox model. The uncertainty associated with the shrew model would only compound uncertainty in the red fox model.

SPECIFIC COMMENTS

Remedial Investigation

1. Page ES-4, last paragraph.

The second sentence will be revised to read, "VOCs identified as chlorinated solvents were detected in the drainage area leading to the impoundment area." Select concentration ranges for the VOCs identified will be added to the text (similar to the nitramine discussion in the same section).

2. Page ES-5, second paragraph.

Select concentration ranges for the VOCs detected in the monitoring well samples will be added to the text in this paragraph. Hydropunch concentrations will not be listed since the intent of the hydropunches were to identify locations for monitoring wells and not to provide representative groundwater quality data.

3. Page ES-5, last sentence.

The statement that the buildings are possible sources but are no longer in operation is true. The sentence regarding the buildings no longer being in operation is in the text so that it is known that the explosives-related operations formerly conducted at these buildings are no longer being performed. It is not intended to indicate that the buildings are no longer potential sources. No changes to the text will be made.

4. Page ES-6, first paragraph.

Select concentration ranges of the detected VOCs in surface water will be provided in the paragraph.

5. Page ES-6, 3rd paragraph.

The existing text does not state that the impoundment is a more significant source of contamination than anything else. Following the receipt of the analytical results from the USEPA July 1996 soil samples, the conclusions regarding the potential sources of contamination in the subsurface will be re-evaluated.

6. Page ES-7, first paragraph.

The reference to "anthropogenic contamination and general storm water runoff from the roadways which cross the site" will be deleted from this paragraph.

7. Page ES-7, last paragraph.

The second sentence will be deleted from this paragraph.

8. Page ES-20, first bullet.

The phrase, "with the exception of zinc in one location" will be added to the first bullet.

9. Page ES-21, second bullet.

The text regarding the aquifer systems will be further detailed in Section 3.0 of the RI. As a result, the nature and extent of contamination within the shallow aquifer will be re-evaluated in Section 4.0. The Executive Summary (page ES-21) will be revised to reflect the changes in conclusions for Section 4.0.

10. Page 2-7, last paragraph.

The sampling was conducted as per the Standard Operating Procedures (SOPs) implemented at all of the WPNSTA Yorktown sites. These SOPs are presented in the Master Work Plan and Site-Specific Work Plan. Only the organic matter is removed prior to collecting a sample not several inches of soil as the existing text states. The third sentence in this paragraph will be revised to indicate that organic matter and matted roots were removed prior to sample collection.

11. Table 2-7.

The aquifers will be discussed in more detail in Section 3.0 of the RI. Table 2-7 summarizes the sampling program, and is adequate as is.

12. Figure 2-1.

The sampling locations 6S26 through 6S30 were from the Supplemental Investigation. They will be added to a figure in Section 2.0.

13. Page 4-2, Section 4.1.1, second paragraph.

The blank information was provided in Section 4.0 for reference only. The blanks were used for data validation purposes. The sampling program for Sites 6 and 7 was part of a larger program involving Site 12, Site 16, and Site Screening Area 16. Therefore, it was too complicated of a field effort to keep individual blanks to specific groups or batches of samples. The use of the blank data followed risk assessment guidance.

14. Page 4-4, Section 4.1.2.

The existing text does not state that the background data provides exclusive evidence of whether the detected inorganics are naturally occurring or originated from site-specific operations.

15. Page 4-7.

A heading for the surface soil investigation results will be added within Section 4.2.1.1 as per the comment.

16. Page 4-8, fourth paragraph.

The term "essential nutrients" will remain in the text as is for clarity since it is a risk assessment term used later in the report.

17. Page 4-11, first paragraph.

The discussion regarding the aquifer systems at the sites will be revised, and the conclusions regarding the shallow aquifer contamination will be re-evaluated based on the information presented in the comment.

18. Page 4-18, last paragraph.

The aquifer systems will be detailed in Section 3.0 of the RI. The location of the monitoring wells and hydropunches with respect to the aquifers will be included in the Section 3.0 discussion. Based on this information, the conclusions regarding the shallow aquifer will be re-evaluated in Section 4.0.

19. Page 4-24, last paragraph.

The reference to "PAHs being commonly found in the environment" will be deleted from this paragraph.

20. Page 4-25, last paragraph, fifth line.

The depth interval for the sample collected at 6SB08 will be corrected.

21. Page 4-25, last paragraph.

Comment noted.

22. Page 4-26, second paragraph under Section 4.3.1.2.

The discussion regarding the Cornwallis Cave aquifer will be revised and will indicate data to support the conclusions made regarding the contamination in the aquifer.

23. Page 4-26, third paragraph under Section 4.3.1.2.

The TCE concentration found in 6HP08 will be discussed. The discussion will also include that the hydropunches were installed at the sites for the purpose of identifying potential locations for monitoring wells. Hydropunch 6HP08 was hand augered and was very turbid. Therefore, the analytical results are not entirely representative of groundwater quality.

24. Page 4-27, second paragraph.

Comment noted.

25. Page 4-27, last paragraph.

The paragraph will be revised as per the comment.

26. Page 4-28, Section 4.3.1.4, second paragraph.

The reference to the SVOC source will be deleted from this paragraph.

27. Page 4-29, first two lines.

The term "deeper" is a reference to distinguish between two sampling horizons. No changes to text will be made.

28. Page 4-29, third paragraph.

The reference to the SVOC source will be deleted from this paragraph.

29. Page 4-30, Section 4.3.2.2.

The discussion on the shallow aquifer contamination will be revised as indicated in earlier responses.

30. Page 4-32, first paragraph.

The determination of the effects of tidal cycles to surface water sample results was not part of the scope of work for the Round Two RI. The surface water data collected should be sufficient for the purpose of the RI/FS process.

31. Page 5-4, second paragraph under Section 5.2.1.

The existing text states that it is a "potential" pathway not the "only" pathway. Therefore, the text will remain as it is.

Human Health Risk Assessment (Section 6.0)

32. Page 6-2, Section 6.2.1.

Comment noted.

33. Page 6-5, Section 6.2.1.

Iron was not quantitatively evaluated in the risk assessment since it is considered a metal that is not only a nutrient but is naturally abundant in the earth's crust. In addition, although the iron was detected at concentrations exceeding background, the presence of iron in the soils throughout each site may not be (and is probably not) homogeneous. Rather, there may be areas where the concentration of iron is more prevalent than in other areas. No change to the text will be made.

34. Page 6-7, Section 6.2.3.

The Round One, Round Two and Supplemental Investigation sampling locations are presented in Figures 1-6, 2-1 and 2-2, respectively. These figures will be referenced in the cited text.

35. Page 6-29, Section 6.3.2.3.

The cited text, as well as Table 6-17A, will be modified from "4-DNT" to "4-amino-2,6-DNT".

36. Figure 6-1.

Only subsurface soil data were used to evaluate future construction workers and not surface soil data, since it is assumed that surface soil exposures are expected to be insignificant relative to subsurface soil exposures. Surface soil data were used to evaluate the much more conservative future residential scenario. In addition, only subsurface soil

exposures were evaluated for other sites at the Station. For consistency with the risk assessments for the other sites at the Station, only subsurface soil exposures will be evaluated for Sites 6 and 7.

Ecological Risk Assessment (Section 7.0)

37. Section 7.3.3

The pathways evaluated for the ecological receptors at WPNSTA Yorktown have been presented and approved by the USEPA in the Final Master Project Plans for WPNSTA Yorktown (Baker, 1994). Refer to Response to general comment #14.

38. Section 7.3.4

The pathways evaluated for the ecological receptors at WPNSTA Yorktown have been presented and approved by the USEPA in the Final Master Project Plans for WPNSTA Yorktown (Baker, 1994).

39. Pages 7-15 and 7-21

The flooding frequency of the impoundment area will be clarified in the draft final report.

40. Section 7.6

The COPCs will not be reevaluated. Please refer to the response to general comment #10. In addition the Shrew model was eliminated from the draft version of this report (refer to response to general comment #15).

41. Sections 7.6.2 and 7.6.3

The determination of risk from contaminant exposure cannot be quantitatively determined. The calculation of a quotient index (QI) greater than one indicates potential exposure to contamination. The calculation of overall site QIs provides a general magnitude of potential exposure to contaminants detected in the environmental media.

42. Section 7.7

If there was not an established screening level for a specific contaminant, the contaminant was retained throughout the risk assessment. An attempt was made to identify other screening criteria when BTAG levels were not available. The ACQUIRE database will be accessed to determine any additional toxicological values that were not available at the draft stage of this report.

43. Table 7-3a

Due to the fact that explosives are site-related contaminants at Site 6, RDX will be reincluded in the ecological risk assessment.

44. Table 7-3b

HMX and RDX were eliminated as COPCs because the concentrations were detected below screening levels. Reference to lab contaminations for HMX and RDX will be deleted from Table 7-3c.

45. Table 7-3c

Due to site history information, HMX and RDX will be reincluded in the risk assessment.

46. Table 7-8b

Mercury will not be retained as a COPC because the detected concentration was within the general range of the background concentrations of mercury.

47. Tables 7-12, 7-13, 7-14

Tables will be revised. The headings will be generically titled "Benthic Macroinvertebrates".

48. Tables 7-28, 7-29, 7-30, 7-31

The calculation of QIs for surface water and sediment have been discussed with the Region III BTAG prior to the onset of the ecological risk assessment conducted for WPNSTA Yorktown. The calculation of QIs follows Region III ecological risk assessment guidance (USEPA, 1994). The purpose of the QIs is to provide the magnitude of exceedences of the COPCs and to also provide an overall risk QI for each media within each AOC. The surface water and sediment are only qualitatively evaluated. The calculation of the QIs is used in a weight-of-evidence approach providing a semi-quantitative evaluation of the environmental media without additional investigations and provides an assessment beyond a screening level comparison.

Re: Response to Comments on the Draft Remedial Investigation for Sites 6 and 7 , Naval Weapons Station Yorktown, Yorktown, Virginia

Copy to:
VDEQ (Mr. Steve Mihalko)
WPNSTA Yorktown (Mr. Jeff Harlow, Code 09E)
Baker Environmental, Inc. (Mr. Rich Hoff)

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