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State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director



March 11, 1996

Mr. Gary McSmith
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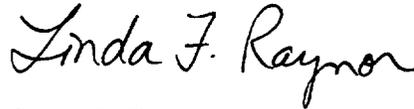
**Subject: Comments on (Draft Final) Remedial Investigation Operable Unit 3
MCAS-Cherry Point, NC**

Dear Mr. McSmith:

The North Carolina Superfund Section has reviewed the subject document.
Enclosed are our comments.

If you have any questions, please do not hesitate to contact me at (919) 733-2801,
extension 340.

Sincerely,



Linda F. Raynor
Environmental Engineer
NC Superfund Section

cc: Jack Butler
Richard Powers
Gena Townsend
Renee Henderson
Matt Cochran

DRAFT FINAL REMEDIAL INVESTIGATION - OPERABLE UNIT 3
(Report Dated October 1995)
Comments from NC Superfund Section

General Comments:

1. Recent information obtained from risk assessment personnel (EPA and State representatives) generates concern regarding the lead levels in soils at Site 7 of OU-3. The lead levels present in Site 7 soils appear to be significantly higher than the 400 ppm of lead that is used as a screening level for residential scenarios, and significantly higher than the 1,300 ppm for industrial scenarios. According to this Remedial Investigation report, soil lead levels ranging from 1,800 to 15,000 ppm exist in much of the land area along Slocum Creek and Luke Rowe's Gut, as well as, other areas of Site 7. Lead contaminated groundwater (above State standards) is also present in a few location at Site 7. The risks associated with these high levels of lead need to be considered when selecting the remedy for this site. The remedy selected must also include groundwater, surface water and sediment monitoring, as per state requirements. Should monitoring results indicate that unacceptable concentrations of contaminants are being discharged into these media, additional remedial efforts and monitoring may be necessary. Discussions based on this comment should be incorporated into the text and tables of this document, as appropriate.

2. Some of the comments previously provided for the draft version (and addressed in the response to comments) were still not incorporated into this document. (Please reference NC Superfund's August 28, 1995 comments 7 and 9 numbers and the corresponding response to comments dated September 13, 1995.) Re: comment 7 - the areal extent of the flyash is still unclear in Plate 4 (and other figures) and a legend explaining the symbols (hatched and dashed lines) was not added to the Plate. Is the flyash area located to the west or to the east of the boundary line shown? Re: comment 9 - The information indicated in the response to this comment regarding the location of the critical areas, ("The NCNHP report will be reviewed again to determine the proximity of the Critical Area to OU3. If it is nearby, it will be included on a figure. If it is some distance from the site, that distance will be noted in the text, as well as the direction (upstream or downstream)") was also not incorporated into this report.

3. Need to remove all text throughout this document where Sites 6 and 7 are referred to as "the former" Sites 6 and 7; these sites still exist and will always be referred to as Sites 6 and 7.

4. The Superfund Section obtained NC surface water standards/criteria for parameters detected in surface water at OU-3 from Ms. Dianne Reid of the state's Water Quality Section. The classification of Luke Rowe's Gut was also discussed with her. Like Slocum Creek, Luke Rowe's Gut is viewed as a Class SC SW NSW surface water. Tables are attached to these comments which indicate the standards/criteria for Class SC

waters. The information included in these tables should be incorporated into the text and tables of this document.

5. Regarding groundwater analytical results - When denoting exceedances of the NC Groundwater Quality standards (in the text, tables and figures/plates), be sure to include those substances detected, which are not naturally occurring, and for which no standard is specified, as exceedances of the standards!

Specific Comments:

1. Page ES-1, 3rd para. - "Around 1970, the fly ash ponds were converted to lime/alum sludge ponds and were used as such until 1994." The 1970 date conflicts with the information stated on page 1-2, which indicates the ponds were used for disposal of lime-alum sludge from December 1980 to mid-1994. Please clarify text.

2. Page ES-3 - The information regarding the work performed during 1994 RI conflicts with the information discussed on page 1-10, especially regarding the installation of new monitoring wells (5 vs 6). Please correct as necessary.

3. ES-7, para. 2 and 3 - Based on general comment 4 above, adjust these paragraphs accordingly. Bis (2-ethylhexyl)phthalate and mercury exceeded the surface water standards/criteria for Luke Rowe's Gut, and mercury exceeded the standards/criteria for Slocum Creek. Also, in paragraph 3, need to mention that lead was also detected, however, at levels below the surface water standard.

4. Page ES-11, 5th para. - "At Site 7, potential residential exposure to both groundwater and soil also presents a concern. The risks are primarily associated with benzene, vinyl chloride, bis (2-ethylhexyl) phthalate, antimony, arsenic, barium and manganese in groundwater, and antimony and copper in soil." The draft version of this report also listed carcinogenic PAHs, Aroclors, dieldrin, dioxins/furans, arsenic and thallium as risks drivers in soils. Why were these chemicals excluded in this version?

- Also, a brief discussion about lead risks, based on general comment 1 above, should be included.

5. Page ES-12, para. 5 - This version states "For the fox, antimony and barium contributed the majority of the Hazard Index." The draft version stated, "For the fox, **dioxins** contributed the majority of the Hazard Index along with antimony, barium, and **chromium**."

- Also, this version states "**Soil ingestion** contributed 97 percent of the fox's risk," while the draft version stated "**Prey items** contributed to 90 percent of the fox's risk."

- Also, this version states, "The red-tailed hawk was also most affected by ingestion of soil containing antimony and zinc," while the draft version stated "The red-tailed hawk was also affected by ingestion of soil containing antimony, **mercury**, zinc and **dioxins**." (Bolded text indicates general differences.)

Please explain why these changes were made in this draft final version.

6. Page ES-13 - “The results indicate that several metals are present in surface water, sediment, and/or surface soil at concentrations that exceed appropriate reference toxicity criteria.” The draft version stated that pesticides, PAHs dioxins/furans were also present in these media at concentrations that exceed appropriate reference toxicity criteria. Why were these other parameters excluded in this version?

- Also on this page it is stated “However, no obvious signs of ecosystem stress were noted in the field, and the fact that the sites have remain relatively unchanged for 20 or more years may have allowed the ecosystem to stabilize.” Please elaborate. How was the ecosystem stress measured in the field? What type of observations were made to justify this statement? If this statement cannot be supported by true observations or fact, delete it.

7. Page 1-2 (bottom) - “During this time, each of the ponds was dredged on an annual basis. Each event resulted in the removal of approximately 5,000 cubic yards of sludge from each lagoon.” Need to add information concerning the handling and ultimate disposal of this sludge.

8. Page 1-9 (top) - “The ponds are currently empty.” Does this mean dry, or do they contain rainwater and no sludge?

9. Page 1-10, 4th para. - “A sampling and analysis....installation of five new monitoring wells (OU3MW01 through OU3MW05)...” Correction necessary - “five” should be “six” monitoring wells, and “OU3MW05” should be “OU3MW06”.

10. Page 2-5, Table 2-1 - It is very difficult to determine where the water table is located relative to the screened intervals of each well. Need to add information to this table so that this information can be easily determined. Perhaps static water level data, based on the most recent sampling event measurements, along with the a reference point, should be added somehow to provide this information. This type of information should also be supplied for the hydropunch locations.

11. Page 2-6, 2nd para. - “Wells 7GW01 and 7GW02 are approximately 25 feet deep, and well 7GW03 was designed to provide data on the deeper portion of the surficial aquifer at a screened depth of 19 to 34 feet.” Table 2-1 indicates that well 7GW03 is a lower surficial aquifer well, while the well symbol on Plate 2 indicates that well 7GW03 is an upper surficial aquifer well, rather than a lower surficial aquifer well. Please correct as necessary.

12. Page 2-6 and 2-7 - To avoid confusion, need to indicate date of each round of groundwater and surface water/sediment sampling in the text, so that comparisons can be made to the corresponding tables in Section 4. For example, the first round of groundwater sampling listed in Table 4-6 for well 7GW03 (dated 10/85) does not correspond to the parameters listed in the text on page 2-6. Is the 10/85 sampling date the second round, and the first round data missing from Table 4-6?

- Also, the text in Section 2.1.3 indicates that the first round of sampling of surface water/sediment sampling for 7SW01 included the same parameters as those listed for groundwater, however, the selected toxic metals listed in footnote 2 in Table 4-6 (Summary of Groundwater Sampling Program) does not match the metals listed in footnote 2 in Table 4-22 (Summary of Surface Water Sampling Program). Please recheck corresponding tables (and footnotes) in Section 4 for accuracy against those parameters listed in Sections 2.1.2 and 2.1.3, other errors may exist. Also, indicate in the text and tables whether the surface water and groundwater samples were unfiltered or not.

13. Page 2-7 - “The RIIR concluded that surface waters and sediment were not contaminated, therefore no additional surface water **or sediment** samples were collected until 1994.” Remove “or sediment” since sediment samples were indeed collected in 1991, as indicated in Section 2.2.

14. Page 2-19, 2nd para. - The analytical parameters listed here for surface water and sediment sampling do not correspond with the corresponding tables in Section 4 - (Table 4-22, (Summary of Surface Water Sampling Program) and Table 4-26 (Summary of Sediment Sampling Program)). Please correct as necessary.

15. Page 2-22, Section 2.5 - 5th bulleted item - “Survey” is misspelled. Also, the last sentence in this section pertains to OU-1, rather than this OU-3. Please correct.

16. Page 2-23, re: groundwater sampling - The hydropunch well construction records do not correspond with the hydropunch information on the sampling log sheets. Were the hydropunch well screens pulled up to intersect the water table before sampling the groundwater? Please add explanation to text, well construction records and sampling log sheets, as necessary, to clarify.

17. Page 2-27, Table 2-2 - The entry for TPH’s solid analytical method is listed as “NA” (not analyzed) however, Table 4-1 (Summary of Soil Sampling Program) indicates that TPH was analyzed for numerous background soil samples. Please correct tables - place method for soils in Table 2-2, and list method in footnote 3, Table 4-1.

18. Page 3-7 (top) - “The areal extent of the fly ash is illustrated on Plate 4 and defined as the approximate location of Site 6.” Plate 4 shows a line indicating the boundary of the flyash area, however, is flyash located to the west and/or east of this line? (7SB01, OU3MW02, 7SB02 and 7SB03 contain fly ash and are located east of this line, however, other information indicates the flyash area is west of this line.) Need to clarify in the text and on figures.

19. Page 3-17, 2nd and 3rd para. - Shouldn’t the dates of the slug tests be 1991, rather than 1990?

Note: In Appendix F, the installation dates listed on the Monitoring Well Data Summary sheet do not correspond with the dates on the slug test data and the well construction sheets. Please correct as necessary.

20. Page 4-3, Table 4-1- Need to denote which samples listed in this table are pond sediment samples vs. the sludge sample. Is sample OU3SD11-0507 located on Plate 2?

21. Page 4-7, Table 4-2 - Need to check this table for accuracy. Shouldn't endrin **aldehyde** be listed here, rather than endrin **ketone**?

22. Page 4-25, para. 3 and 4 - These paragraphs discuss volatiles, semi-volatiles and metals in subsurface soils. Need to include information on the presence of pesticides/PCBs.

23. Page 4-47, Table 4-11 - Detection limit listed for copper should be 2.0 rather than 10.

24. Re: Groundwater Data Tables in Section 4 - Based on general comment 5 above, the following tables need to show exceedances of detected substances, where no NC groundwater standard is specified: Tables 4-14, 4-18, 4-19, 4-20 and 4-21. (Please also check other tables to see if any others exist.) Add groundwater exceedances information to tag maps on Plate 11 (and corresponding figure), accordingly.

25. Page 4-77, Table 4-22 - Shouldn't cyanide be included in this sampling summary table for 1994 samples? Also, please check footnote listings for accuracy.

26. Tables 4-23, 4-24 and 4-25 - Numerous errors exist on these tables. (See attached tables with corrections denoted.)

- Also, for last column in Tables 4-23 and 4-25 delete "Human Health" (when aquatic levels and human health standards are given, the most stringent standard applies for surface water), entitle the heading of last column as "NC Class SC Standard/Criteria," and insert surface water quality stds/criteria as denoted on the attached tables.

- Also, denote exceedances of standards/criteria.

27. Page 4-83, Table 4-26 - This table indicates that sediment samples OU3SD2, OU3SD3, and OU3SD4 were sampled for dioxin analysis, however, no dioxin results exist for these samples. Please correct as necessary.

28. Page 4-84-86, Table 4-27 - Dieldrin @ 0.17 ug/kg missing from this table. The concentration range for vanadium in sample 7SD03 should be "3.4 mg/kg" and "16.3" for zinc, rather than those values listed in the table. Also, Table 4-27 does not include acetone, however, acetone is listed as a sediment contaminant in Table 4-36. Please correct as necessary.

29. Page 4-90, last para. - Change "sample sin" to "samples in".

30. Section 6.0 - Baseline Human Health Risk Assessment - (See attached comment by Mr. David Lilley.)

31. Page 6-11, 4th para - "As discussed in Section 4.4, pesticides, PCBs, and metals were commonly detected in sediment samples at OU3." If PCBs have been detected, which samples contain PCBs? (Sample results reviewed do not include detection of PCBs, nor do sample summary tables indicate such.)

32. Page 6-49, last para. - Change "9RBCs" to "RBCs".

33. Page 6-66-67 - Re: Sections 6.4.2.4 (Health Effects Associated with Exposure to Lead) and Section 6.4.3 (Summary) - Expand and adjust these sections, as necessary, based on general comment 1 and 4 above.

34. Page 7-17-18 - "This Ecological Risk Assessment is based only on surface water and sediment samples collected in 1994 and on soil data collected in 1993 through 1995." Why weren't the 1985-87 and 1991 sample results for sediment used? Why weren't the soil sample results collected prior to 1993 used? (The draft version indicated 1991 soil samples were also included.)

35. Section 8 - Summary and Conclusions - This section needs to be adjusted accordingly, based on all comments above.

36. Appendix H - For laboratory results listed in the appendix, need to indicate somehow which sample number and corresponding results actually represents the average values calculated for a sample and its duplicate.

37. Plates (and corresponding figures) - In general, please review all plates and corresponding figures, to address all comments listed above.

- Also, for Plate 7 - The 2378 TCDD Equivalents listed in the box below the legend do not appear to be correct (or match those listed in the text on page 6-47). Adjust values listed on tag maps, as necessary.

- Plate 11 - Place all exceedances of groundwater (see general comment 5 and specific comment 24 above) on this plate.

- Plate 12 - Indicate which of the habitat types listed in the legend are considered to be wetlands.

Linda: information copy

FAX, 3 Sheets
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Atlantic Division, Naval Facilities Engineering Command
Code 18234

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*Good Job Gary.
I suggest if you continue to have problems w/ quality, mention in monthly progress reports and award fee evaluation.
I suggest you fax this to your team members.
LS*

**Executive Summaries:
Expectations**

1. Executive Summaries are placed in documents to give decision makers an organized, concise, well written, summary that:

- Identifies the conditions at the site
- Identifies the results of investigations
- Raises and answers each major question or concern regarding media, contaminants, risk, remedial options or special circumstances
- Specifically recommends further action for questions or concerns that are not already answered
- Leaves no open-ended questions. Either the question is resolved by the document in hand, or the exact actions recommended to answer the question are stated.

The decision makers who use the executive summary include scientists and engineers in the Navy/Marine Corps, EPA, State, Contractors, TRC/RAB, and the Public. While this is a technical document, jargon should be kept to a minimum in the Executive Summary and technical terms that are beyond a high school graduate's understanding should be readily identified by the context of the paragraph or specifically defined.

2. Executive Summaries are summaries and should not exceed a dozen pages if at all possible.

3. Executive Summaries are best when they have no redundancy. The technique of creating sections within the Executive Summary that mimics sections in the document

leads to repeating the same information over and over again. It is best to write the summary without these divisions, in a coherent manner, and presenting all of the information only once. Currently, the Summary of Site Investigations, Nature and Extent of Contamination, Contaminant Fate and Transport, Baseline Human Health Risk Assessment, and Ecological Assessment repeat much of the same information. The reader is required to flip back and forth between the pages to fill in the gaps or keep notes of questions raised in previous sections to insure that they are answered in subsequent sections. This is irritating and inefficient. Executive Summaries are best when the complete information regarding each media is presented all at once, instead of getting it piecemeal from several different sections.

4. The first paragraph of the Executive Summary should convey the gist of the entire document so that the reader can read that first paragraph and have a general understanding of the findings in the document. This is similar to the first paragraph of a term paper or any well written technical document.

5. Executive Summaries are best when they maximize the use of bullets to present information so that it can be readily seen and understood by the reader without the need to digest lengthy sentences punctuated by multiple commas.

6. Executive Summaries are best when they present the conclusions of the RI/FS document in the Executive Summary itself so that the reader does not have to flip back to a Summary and Conclusions section in the back of the document that just rehashes the Executive Summary. Eliminate the unneeded Summary and Conclusions section and place the Conclusions at the end of the Executive Summary.

7. Executive Summaries are not the place for a detailed discussion of site background and previous investigations. What are the physical characteristics of the study area? What contaminants were found in each media? What are the receptors for each media? What are the published standards or risk based cleanup levels? What are the recommended actions? The fact that NUS did an RIIR in 1988 is information for the body of the document but of little value in the Executive Summary.

8. Conclusions should have no tables that are not referenced and explained in the text of the conclusion. Conclusions should be presented in bullets-- each significant question or concern should be stated and answered. If the information is not available to answer a question or concern, then the Navy RPM should be contacted well in advance of document publication so that the data can be gathered if possible. If the data must be gathered at a later time, the conclusion should state specific recommendations of future actions.

9. Executive Summaries and Conclusions should never have conflicting statements or statements that can be construed to conflict.

10. Executive Summaries should be read and reviewed by Matt or Greg as team members and Betsy Horne for impact to the public before they are issued. And they should be proofread by someone at Brown and Root for grammar, word choice, ease of reading and clarity. These dozen pages represent an investment of over a half million dollars in most cases and they should be crafted with exemplary technical accuracy and communications skills.

11. The same standards of excellence that apply to Executive Summaries apply to the rest of the RI/FS document. The document should support the conclusions in the Executive Summary and should have no internal conflicts. The tables and data presented in the document should be correct and without error before it is issued by B&RE. Given that even you guys aren't perfect, you can be expected to make a FEW mistakes. BUT I very much do not appreciate it when the State and EPA correctly and consistently point out errors, oversights and conflicts in our documents. They are NOT our proofreaders. Let's do everything we can to maximize the quality of our DRAFT documents so that the FINAL documents will require less rework.

Sincerely,