03.01-11/01/93-01040

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

DEHNR

November 1, 1993

Commander, Atlantic Division
Naval Facilities Engineering Command
Code 1823-1
Attention: MCB Camp Lejeune, RPM
Ms. Linda Berry, P. E.
Norfolk, Virginia 23511-6287

Commanding General
Attention: AC/S, Environmental Management
Building 67, Marine Corps Base
Camp Lejeune, NC 28542-5001

RE: Draft Final Remedial Investigation Feasibility Study Work Plan, Sampling and Analysis Plan, and Health and Safety Plan for Operable Unit #4 (sites 41, 69, and 74)

The referenced documents have been received and reviewed by the North Carolina Superfund Section.

Our comments are attached. Note also that comments on the Health and Safety Plan are attached as a memorandum from our Industrial Hygienist, David Lilley to myself. Comments from the NC Division of Environmental Management on the draft versions of these documents are also attached for your consideration. Please call me at (919) 733-2801 if you have any questions about this.

Sincerely,

Patrick Watters

Patrick Watters
Environmental Engineer
Superfund Section

cc: Gina Townsend, US EPA Region IV
Neal Paul, MCB Camp Lejeune
Bruce Reed, DEHNR - Wilmington Regional Office

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4996 FAX 919-733-4810

North Carolina Superfund Comments
Camp Lejeune MCB Operable Unit 4 RI/FS
Work Plan)
Sampling and Analysis Plan

General

I would like to reiterate a comment made during my review of the Operable Unit 7 Project Plans regarding the unnecessary text duplication and the effect this has on document quality and schedule. The level of text duplication between the Work Plan and Sampling and Analysis Plan is such that significantly more review time is required to assure that the documents agree. Spending excessive review time on such "document QA" is not an efficient use of the reviewers resources and takes away from the time needed to review the more substantive and critical aspects. Also, the time required for document preparation and modification is increased due to this level of redundancy.

Another aspect of the redundant text is the potential for errors between the two documents. For example, descriptions of the migration/transport and exposure pathways for each site are provided in different places however they do not completely agree. Different language was sometimes used to describe what appeared to be equivalent pathways for these sites. It was unclear if the different wording was intended to describe real variations from site to site or if it was just another way to describe the same pathway. Also, I found that migration and exposure pathways for a particular site were listed in one section but sometimes absent from other sections covering the same site. As a result, I could not conclusively determine which pathways were or were not being considered.

The bottom line to this comment is consistency. Use the exact same wording for the same pathway that is applicable to more than one site. If the pathways are different, be clear and explicit with the wording. If the pathways for a site have to be described in two places, list the same pathways and use the same wording. The reader should not have to make assumptions to interpret the meaning or applicability. I cite the following as examples of the inconsistencies found in these documents regarding pathway descriptions.

- The transport and exposure pathways listed in Section 3.0 of the Work Plan do not agree with those given in Sections 1.2, 1.3, and 1.4 of the Sampling and Analysis Plan. A third different set of transport and exposure pathways is given in Table 2-1 of the Sampling and Analysis Plan.

- The Sampling and Analysis Plan includes ingestion of aquatic organisms and terrestrial wildlife as a potential pathway. The Work Plan does not include this as a pathway.

- Site 69 has three separate transport pathways for leaching/migration of wastes to the soil and groundwater. Site 74 has two transport pathways and Site 41 has only one pathway for both soil and groundwater.

- All three sites include a transport pathway of groundwater discharge to surface water/drainage areas. The site 41 pathway is described as the shallow groundwater whereas the other sites do not indicate either shallow or deep. It is not clear if there is a distinction being made for Site 41 by including the word "shallow".

- Site 69 lists separate exposure pathways for military versus residential receptors. Sites 74 and 41 do not split the human exposure pathways this way.

- Site 74 has wildlife exposure to soil and subsurface soil as two separate pathways. The other sites do not split the wildlife pathway.

- Site 69 has three separate "Future potential use" exposure pathways. The other sites have only one.

RI/FS Work Plan Specific Comments

1. Pages 2-27 through 2-36, Section 2.2.5
This section on the previous investigations for Site 69 states in several subsections that various inorganics were detected but there is no indication what the detected levels were or if any standards were exceeded.

2. Page 2-44, Section 2.3.5.2
The last three sentences of the first paragraph are confusing as to the status of the original well 74GW3, the Supply Well 654 which was redesignated as 74GW3 and the 74GW3 well that was redesignated as a shallow monitoring well.

3. Page 2-51, Section 2.4.4 and 2.4.5.1
The fifth shallow monitoring well (41GW5) is not shown on Figure 2-14. Section 2.4.5.1 does indicate that 41GW5 is in an upgradient location northwest of the site along U. S. Highway 17. If 41GW5 is outside the range of Figure 2-14, this should be indicated.

4. Figure 2-14 and Page 2-51, Section 2.4.4
This figure is somewhat misleading when taken in context with the groundwater flow discussion in Section 2.4.4. The figure shows definitive groundwater flow directions while the text indicates that there was no static water level measurements to determine flow direction and that some groundwater mounding was expected based on the topography.

5. Page 3-20, Section 3.3.6.2
The first two sentences state that: "No samples have been

collected to assess surface or subsurface soil quality. Potential migration of soil contaminants to groundwater or downslope surface water/sediments cannot be assessed." Does the second sentence mean it cannot be assessed due to a lack of data or that it is impossible to evaluate.

6. Page 4-6, Section 4.2
The second RI objective given for Site 74 is to "Evaluate groundwater quality around the disposal areas." The second RI objective for Site 69 is to "Evaluate on-site and off-site groundwater quality (shallow and deep)." Please explain why these objectives are worded differently. If these objectives are intended to be the same then use the same wording to avoid misinterpretation. (See General comments)

7. Page 4-8, Section 4.2.2, Item number 3
This sentence should be restructured for clarity.

8. Page 4-8, Section 4.2.3
The second sentence of the second paragraph is unclear regarding this information that "conflicts".

9. Page 4-10, Section 4.3.1
The sentence after the three objectives indicates there are four objectives.

10. Page 5-19, Section 5.3.2.3
Visual evidence of contamination would not include odors.

11. Pages 5-24 and 5-25, Section 5.3.3.4
The first paragraph on 5-24 indicates that the trenches at Site 41 are 3-10 feet deep and several feet in width. One of the mission objectives for the STOL system is to locate buried ordnance to a depth of 0.5 meters. It appears that the stated depth effectiveness of the STOL system would not be sufficient for these trenches.

12. Pages 5-35 through 5-51, Sections 5.5 through 5.8
It appears that Site 41 was inadvertently omitted from these sections.

RI/FS Sampling and Analysis Plan (S&AP)

13. Page 1-1, Sections 1.0 and 1.1
The reference to the RI/FS Work Plan should be 1993.

14. Page 1-22, Section 1.2.3
The first sentence under Wastes and Debris would be clearer if it was structured as follows: "The types of wastes disposed of at Site 69 have been...".

15. Page 1-23, Section 1.2.3
The discussions on Surface Water and Aquatic Life are not included in the Work Plan.

16. Page 2-5, Section 2.2
The items listed for soil Data Needs do not include any soil sampling restrictions for chemical agents as was presented in the Work Plan.

17. Page 3-15, Section 3.2.3
The last sentence on the page indicates that 2 background samples will be collected for Site 74. Section 5.3.2.3 of the Work Plan states that 4 background samples will be collected.

18. Page 3-16, Section 3.2.3
See comment # 10 regarding odors as visual evidence of contamination.

19. Page 3-29, Section 3.3.6
The last paragraph simply references the Sampling and Analysis Plan with regard to well development and purging. It would be more meaningful to identify the section (5.2.3) specific to the topic being addressed.

October 14, 1993

TO: Patrick Watters

FROM: David Lilley DBL

RE: Comments prepared on the Draft Remedial Investigation/Feasibility Study Health and Safety Plan for Operable Unit No. 4 (Sites 41, 69, and 74), MCB Camp Lejeune, NC

1. Page 5-1, Section 5.2, third sentence: The meaning of this sentence is unclear to the reader.

2. Page 5-1: What stimulants are to be detected on this site?

3. Page 5-1: Please provide more information on exactly what a "Minicam Model FM-3000" is, who makes it, what environmental parameters it measures, and what conditions activate the alarm.

4. Page 5-1: Chemicals cannot be identified with the proposed instrumentation, therefore, a concentration expressed as a volume to volume ratio such as ppm is meaningless. The recommended term is "meter units" (mu).

5. Cartridge respirators are not recommended for use on this site for the following reasons:

   a. Manufacturer's literature states that cartridge respirators should never be used to protect against methyl chloride, methylene chloride, and vinyl chloride.

   b. Chemicals that have inadequate warning properties include chloroform, 1,1,2,2-tetrachloroethane, vinyl chloride, and lindane.

6. Page 5-2: Parameters for when to stop work in combustible atmospheres are given. On page 5-1, it is stated breathing zone air will be sampled. Will other areas (such as trenches) be sampled for combustible atmospheres?

7. Page 5-2: It is unclear to the reader what information is being conveyed by differentiating between external and internal probes for radiation survey meters.

8. Page 6-1: According to the table, gloves are not included in level D protection, however, they are listed as part of level D protection on page 7-1.

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

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
A. Preston Howard, Jr., P.E., Director

DEHNR

September 20, 1993

M E M O R A N D U M

TO: Patrick Waters
Environmental Engineer/Super Fund Section

FROM: Preston Howard JHB

SUBJECT: Draft Remedial Investigation/Feasibility Study Work Plan
Operable Unit No. 4
Marine Corp Base
Camp Lejeune
Onslow County
Project #93-29

As requested the Division of Environmental Management has reviewed the subject document. The comments from our Water Quality, Air Quality, and Groundwater Sections are provided below.

Water Quality Section Comments:

The Water Quality Section would like to know how the purge water from the monitoring wells will be disposed of. If the water is disposed of into a POTW, then a pretreatment permit would be required. Also, the Water Quality Section and Groundwater Section would like to see a more comprehensive intrusive study performed around the actual disposal areas of Site 69.

Air Quality Section Comments:

The Air Quality Section has no comments to offer at this time.

Groundwater Section Comments:

The Groundwater Section has no relevant comments to offer, other than those listed in the Water Quality Section comments above.

P.O. Box 29535, Raleigh, North Carolina 27626-0535 Telephone 919-733-7015 FAX 919-733-2496

Thank you for the opportunity to review the subject document. Should you have any comments or wish additional discussion on this matter please contact Rick Shiver at (919) 395-3900.

NT/nt/RCRA/RL

cc: Arthur Mouberry
Steve Tedder
Sammy Amerson
Rick Shiver
Nargis Toma