03.01 - 10/22/93 - 00553

Baker

Baker Environmental, Inc.
Airport Office Park, Building 3
420 Rouser Road
Coraopolis, Pennsylvania 15108

(412) 269-6000
FAX (412) 269-2002

October 22, 1993

Commander
Atlantic Division
Naval Facilities Engineering Command
1510 Gilbert Street (Building N-26)
Norfolk, Virginia 23511-6299

Attn: Ms. Kate Landman
Code 1823

Re: Contract N62470-89-D-4814
Navy CLEAN, District III
Contract Task Order (CTO) 0160
Response to Comments From: USEPA Region IV,
Risk Assessment Section, MCB Camp Lejeune, and
North Carolina DEHNR on the Draft RI/FS,
Project Plans for Operable Unit No. 7,
MCB Camp, Lejeune, North Carolina

Dear Ms. Landman:

Baker Environmental, Inc. (Baker) has reviewed comments from the U.S. Environmental Protection Agency (USEPA) Region IV Risk Assessment Section, Marine Corps Base (MCB) Camp Lejeune, and North Carolina DEHNR Division of Solid Waste Management regarding the Draft Remedial Investigation/Feasibility Study (RI/FS) Project Plans for Operable Unit No. 7 (Sites 1, 28, and 30). The Project Plans include the Work Plan, Field Sampling and Analysis Plan (FSAP), and Health and Safety Plan (HASP). Response to these comments are provided in Attachment A. Further, copies of the comments from USEPA, MCB Camp Lejeune, and DEHNR are provided for convenience in Attachment B. The responses are also included on the enclosed disc under the file names "RESPCL" (MCB Camp Lejeune), "RESPEPA" (USEPA), and "RESPNC" (DEHNR).

The Draft Final Project Plans will be submitted on October 28, 1993 for your review in accordance with the project schedule.

If you have any questions, or would like further information, please do not hesitate to contact me at (412) 269-2063 or Mr. Rich Bonelli at (412) 269-2033.

Sincerely,

BAKER ENVIRONMENTAL, INC.

Daniel L.Bonk
Project Manager

REB/DLB/nd
Attachments

cc: Mr. Neal Paul
Ms. Lee Ann Rapp (w/o attachments)
Ms. Beth Hacic (w/o attachments)

Attachment B

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

October 8, 1993

Commander, Atlantic Division
Naval Facilities Engineering Command
Code 232
Attention: MCB Camp Lejeune, RPM
Ms. Katherine Landman
Norfolk, Virginia 23511-6287

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

RE: Draft Remedial Investigation Feasibility Study Work Plan, Sampling and Analysis Plan, and Health and Safety Plan for Operable Unit #7 (sites 1, 28, and 30)

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

Our comments are attached. In addition, we have received a copy of EPA Region IV comments on these documents and concur with their findings. Note also that comments on the Health and Safety Plan are attached as a memorandum from David Lilley, our Industrial Hygienist, to Peter Burger. Please call me at (919) 733-2801 if you have any questions about this.

Sincerely,

Patrick Watters

Patrick Watters
Environmental Engineer
Superfund Section

Attachment

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 7 RI/FS Project Plans

General

I would like to suggest that we consider modifying the format of future Work Plans and Sampling and Analysis Plans to help the document preparation and review process be more effective and efficient. During my review of these OU 7 documents, I noted what I consider to be an large number of inconsistencies between these two plans. I also noted that there is a considerable amount of text duplication. I believe that this duplication could be easily eliminated without jeopardizing quality and without sacrificing any contractual obligations. The potential benefits from this include the following.

- The volume of these documents could be reduced by as much as 50 percent.
- The potential for document inconsistencies and errors would surely decrease.
- Most importantly, a considerable time savings would be seen in the document preparation and review process which is significant in terms of meeting the expedited schedules.

A possible format to consider would be to make the Work Plan a document that discusses in general terms the scope of work and tasks needed for a particular site. All specifics on the sampling and analyses would then be left to the Sampling and Analysis Plan. Site descriptions and histories would be included only in the Work Plan. Use one set of drawings and figures to describe the sampling scheme only in the Sampling and Analysis Plan.

RI/FS Work Plan Specific Comments

1. Page 2-13, Section 2.2.4
This section states that 7 shallow wells have been installed at French Creek Liquids Disposal Area (FCLDA) however, Section 2.2.5.3 and Figure 2-3 identify only 6 wells.

2. Page 2-14, Section 2.2.5.3
This section states that 5 of the wells were placed down gradient of Sites 1-N and 1-S. If the groundwater flow is predominantly west, then wells 1GW1 and 1GW2 do not appear to be adequately downgradient of Site 1-N.

3. Page 2-14, Section 2.2.5.3
The figure identified as 5-3 should probably be Figure 2-3.

4. Page 2-15, Section 2.2.5.3
The second paragraph on this page reads as if 6 additional groundwater wells were installed in 1984 to go with the 6 wells described on the previous page.

5. Figure 2-4
The units of measurement are not indicated. Groundwater flow direction is not indicated. The text (2-17) indicates that mercury was detected in 1GW1 yet it is not shown on Figure 2-4. Zinc was detected in well 1GW4 yet is not shown on Figure 2-4.

6. Page 2-17, Section 2.2.5.3
Based on Figure 2-4, it is incorrect to state that all groundwater samples from the six monitoring wells show cadmium and lead contamination. Also, the second paragraph on this page indicates that wells 1GW1, 1GW2, and 1GW6 showed levels of mercury and in both wells the concentrations exceeded the state MCL. Clarify which wells showed the mercury contamination.

not included in last change?

7. Page 2-18, Section 2.2.5.4
Are the surface water and sediment samples discussed in this section those indicated as 1SW1 and 1SW2 on Figure 2-4?

8. Page 2-20, Section 2.3.2
The Hadnot Point Burn Dump (HPBD) pond should be indicated on Figure 2-5.

9. Page 2-20, Section 2.3.4
The groundwater flow direction is not indicated on Figure 2-5.

10. Page 2-21, Section 2.3.5
It does not appear that well 28GW4 is far enough away to provide suitable background values.

11. Figure 2-6
Figure 2-6 does not include the units of measurement for the contaminants identified.

12. Page 2-25, Section 2.3.5
Clarify if the "fresh water pond" noted at the top of the page the same as the HPBD pond noted earlier on page 2-20.

13. Page 2-25, Section 2.4.1 and Figure 2-7
Based on Figure 2-7, the two streams that comprise the headwaters of French Creek are west of Site 30 instead of east.

14. Page 3-7, Section 3.2.3
The structure of the last sentence in this section includes birds and reptiles as types of mammals.

Comments
Page 3

15. Page 3-10, Section 3.2.6.3
The second sentence of this section needs to be restructured for clarity. We interpret what is written to mean that site groundwater and soils data will be used to help assess the human health and ecological risks and determine the impact on surface water/sediment quality.

16. Page 3-11, Section 3.3.3
Regarding the last sentence of this section, see comment 14 regarding birds and reptiles as mammals.

17. Page 3-11, Section 3.3.4.1
The third sentence references Hadnot Point Industrial Area (HPIA) instead of the Fuel Tank Sludge Area (FTSA).

18. Page 5-3, Section 5.4.1.2
The first sentence in the third paragraph should indicate that test borings will be augered and not angered. Use of the word angered for augered was noticed in several other places in the Work Plan and the Sampling and Analysis Plan.

19. Page 5-16, Section 5.4.1.3
The first sentence of the fourth paragraph indicates that there are 7 existing wells on site 1. Figure 5-2 shows only 6 existing wells (or 8 if the unknown wells are included in this count).

20. Page 5-19, Section 5.4.1.5
It appears from Figure 5-2 that some surface water/sediment samples should be taken directly west of the 1-N area.

21. Page 5-23, Section 5.4.2.2
What would be the criteria that would trigger the need for trenching?

22. Page 5-24, Section 5.4.1.3 (should be 5.4.2.3)
The second paragraph indicates that there are three existing monitoring wells on Site 28. Figure 5-4 shows five existing wells.

23. Page 5-24, Section 5.4.1.3 (should be 5.4.2.3)
The third paragraph identifies two shallow monitoring wells as 28GW5 and 28GW6. The 28GW6 well is not shown on Figure 5-4.

24 Page 5-24, Section 5.4.1.3 (should be 5.4.2.3)
The last paragraph identifies the deep monitoring wells as 28GW7D, 8D, and 9D. Well 7D is not shown on Figure 5-4. Also, this paragraph states that these wells will be used "...to further evaluate the vertical extent of contamination within the two burn dump areas and also to evaluate background

conditions." This sentence needs to be restructured to clearly delineate which well(s) are for evaluating contamination and which are intended for evaluating background conditions.

25. Page 5-28, Section 5.4.1.3
This section indicates that well 1GW1 will be sampled for engineering parameters at Site 28. This should be 28GW1.

26. Pages 5-29 and 5-30, Section 5.4.1.4
The discussion on surface water/sediment samples indicates a total of 15 sampling locations. Figure 5-5 indicates 16 locations (which are apparently misidentified as "Existing Monitoring Wells").

27. Page 5-33, Section 5.4.3.2
The second paragraph of this section calls for 6 soil borings/monitoring wells for background sample locations. Figure 5-6 only shows five locations.

28. Page 5-36, Section 5.4.1.3 (should be 5.4.3.3)
The use of only one monitoring well outside the area of concern to define the extent of groundwater contamination downgradient of Site 30 does not appear to be adequate.

29. Pages 5-32 through 5-40, Section 5.4.3
There is no discussion of the intended surface water/sediment sampling to be conducted on Site 30.

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

30. General
None of the figures referenced throughout Section 3.0 (3.1 through 3.10) were included in our copy of the S&AP.

Also note that the majority of the remaining comments are due to inconsistencies between the commitments described in the Work Plan versus those in the S&AP.

31. Table 2-1
The RI/FS objectives are not consistent with those listed in Table 4-1 of the Work Plan.

32. Page 3-2, Section 3.1.2.1
This section calls for 4 borings to confirm the thickness of fill material. Page 5-3 of the Work Plan (Section 5.4.1.2) estimated five borings would be needed.

Comments
Page 5

33. Page 3-3, Section 3.1.2.1 (Acid and POL Disposal Area 1-S)
This section projects a total of 18 soil borings to be used for the soil investigation. Page 5-3 of the Work Plan states that 13 soil borings will be used.

The S&AP states that 5 background soil borings will be used while the Work Plan indicates that 4 will be used.

This section of the S&AP calls for 8 borings to be used to characterize the contamination source with 10 additional soil borings to evaluate the extent of the contamination. The Work Plan listed only 5 and 8 soil borings respectively as required for this work.

34. Pages 3-5 through 3-7, Section 3.3.3.2 (POL and Acid and POL Disposal Areas 1-N)
The description of the sampling schemes for these two areas are combined in Section 3.3.3.2 of the S&AP whereas they are split into two parts in the Work Plan (Section 5.4.1.2). This change in format added to the difficulty in reviewing these documents.

This section of the S&AP states that exploratory test borings may be used. The Work Plan states on pages 5-6 and 5-12 that they will be used.

Suffice to say that the number of soil borings described in this section of the S&AP is totally different than that described in the Work Plan. I site the following as examples.

The S&AP states that three borings will be used to confirm the thickness of fill material. The Work Plan states on page 5-6 that 5 borings will be used for POL Disposal Area 1-N. The Work Plan also states on page 5-12 that 5 soil borings will be used for the Acid and POL Disposal Area 1-N.

The S&AP calls for 19 soil borings on page 3-6 for these disposal areas. The Work Plan indicates a total of ~~15~~ 14 on pages 5-11 and 5-13.

The S&AP states on page 3-6 that 5 background soil borings will be used while the Work Plan indicates that 4 will be used.

Page 3-7 of the S&AP indicates that 2 samples will be taken for engineering parameters. The Work Plan identifies 4 samples on pages 5-12 and 5-14.

Comments
Page 6

35. Page 3-10, Section 3.1.4.2
The S&AP states that groundwater samples will be collected from each existing well on Site 1. The Work plan states that only 5 of the 7 existing wells will be sampled.

36. Page 3-20, Section 3.2.3.2
This section indicates that groundwater samples from 28GW1 and 28GW7D will be analyzed for engineering parameters. The Work Plan has only 1GW1 as being sampled for engineering parameters. (see also comment # 25) WP pg 5-28

37. Page 3-21, Section 3.2.4.2
This section indicates that 9 surface water samples are necessary for Cogdel Creek. The Work Plan lists 8 samples as required on page 5-29.

38. Page 3-24, Section 3.3.2.1
See comment 34 and page 5-35 of the Work Plan regarding the use of may versus will. Draft Final pg 3-25

This section requires 4 soil borings to assess the thickness of the fill material. Page 5-35 of the Work Plan states that 5 to 10 soil borings will be used for this purpose.

August 25, 1993

TO: Peter Burger

FROM: David Lilley DBL

RE: Comments prepared on the Draft Remedial Investigation/Feasibility Study Health and Safety Plan for Operable Unit No. 7 (Sites 1, 28, and 30), MCB Camp Lejeune, NC

1. 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?

2. 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.

3. Appendix A, Safe Boat Operations: "Federal Requirements for Recreational Boats" is not included in this appendix as stated.

4. Cartridge respirators are not recommended for use on site 1 because 1,1,2,2-tetrachloroethane has inadequate warning properties.

5. Cartridge respirators are not recommended for use on site 28 because manufacturer's literature states that cartridge respirators should never be used to protect against vinyl chloride.

6. Page 5-1: How sure are you that the chemicals listed on Table 3-1 are the only chemical contaminants present on site 30? If the site has been extensively sampled and you are very sure these are the only contaminants present, level C protection may be appropriate. If not, level C will not be appropriate.

DL/dl/wpcommen.doc/14

UNITED STATES MARINE CORPS
ENVIRONMENTAL MANAGEMENT DEPARTMENT
INSTALLATION RESTORATION PROGRAM
CAMP LEJEUNE, NORTH CAROLINA

ATTN:

FAX #:

FROM: WALT

Post-it™ brand fax transmittal memo 7671 | # of pages 10

To DAN BONK	From KATE LANDMAN
Co. BAKER	Co. ORNTDIV
Dept.	Phone # 804-322-4818
Fax # 412-269-2002	Fax # 804-322-4805

COMMENTS: OU # 7 COMMENTS.

DAN -

Note that comments on bottom of page 5 got cut off. I'll send a correction as soon as I get it.

-Kate

IF TI CALL
(919) IVON).
FAX NUMI ITOVON).

PAGE 1 OF 10 PAGES

Draft

Remedial Investigation/Feasibility Study Health and Safety Plan

for Operable Unit No. 7 (Sites 1, 28, and 30)

Marine Corps Base, Camp Lejeune, North Carolina

Reference:
Contract
N62470-89-D-4

CTO-0160

June 1993

Prepared For:

Department of the Navy
Atlantic Division
Naval Facilities
Engineering Command

Norfolk, Virginia

Under the

LANTDIV CLEAN Program

Comprehensive Long-Term
Environmental Action Navy

Baker

Baker Environment

FOSTER WH

WEST

Facility	Phone Number	Contact*
Security (Police)	911 or (919) 451-4555	Response Operator
Fire	911	Response Operator
Ambulance (On-Base)	911	Response Operator
Ambulance (Off-Base)	(919) 455-9119	Response Operator
Hospital (On-Base)	(919) 451-4551	Response Operator
Onslow County Hospital (Off-Base)	(919) 577-2240	Response Operator
ULOCO	1-800-632-4949	Response Operator
Hazardous Waste Dispatcher	911	Response Operator
On-Scene Coordinator	911	Fire Chief
Public Works Department (Underground Utilities via EMD Contact)	(919) 451-5874	Mr. Neal Paul
Poison Control Center	1-800-672-1697	Response Operator
National Response Center	1-800-424-8802	Response Operator
CHEMTREC	1-800-424-9300	Response Operator

* Remaining points of contact will be identified prior to the start of activities.

8.4 Assembly Area

Personnel will be instructed before the start of operations the designated meeting point in the event of an emergency. At this location, emergency needs will be provided, such as:

- Assembly for evacuated personnel
- First aid for injured personnel
- Decontamination material
- Communications.

ADD:

EMD	(919) 451-5063	MR. NEAL PAUL MR. Tom MORRIS MR. WALTER HAVEN

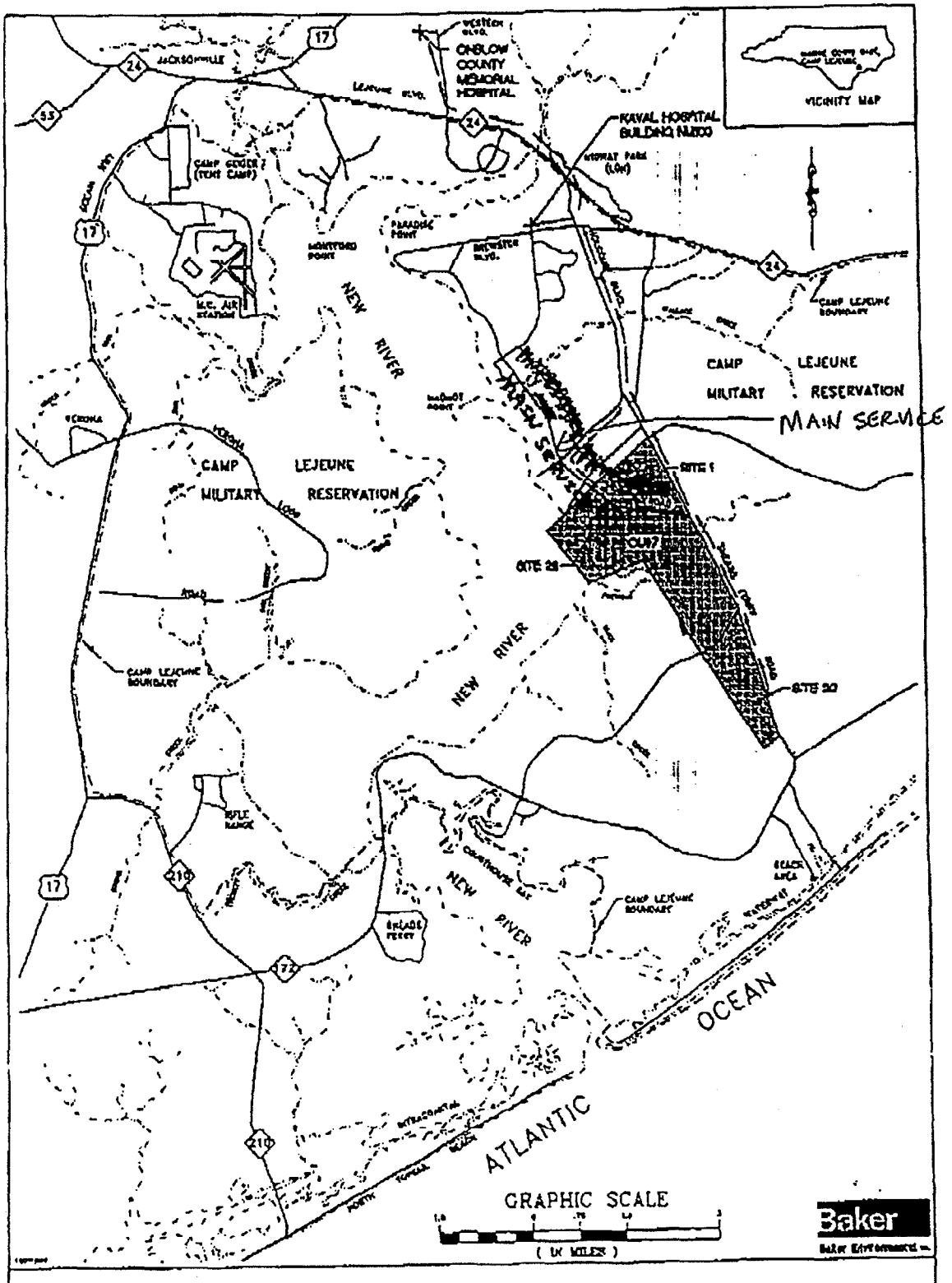

FIGURE 8-1
EMERGENCY HOSPITAL ROUTE
SITES 1, 28, AND 30

MARINE CORPS BASE, CAMP LEJEUNE
NORTH CAROLINA

8.6 Emergency Hospital Route

An emergency hospital route map showing the location of the local and base hospital, will be posted at strategic locations throughout the site. Personnel will be informed of the location of the map and the directions to the hospital.

Directions to the Onslow County Memorial hospital (317 Western Boulevard) (Refer to Figure 8-1):

1. Leave base through the Main Gate (via Holcomb Boulevard).
2. Take Highway 24 West to Western Boulevard and turn right.
3. Continue on Western Boulevard to the fifth stop light and hospital will be on the left.
4. Follow directions to the emergency room entrance.

Directions to the Base Naval Hospital (Building NH 100) from Site 1 (Refer to Figure 8-1):

1. Travel east on Main Service Road to Sneads Ferry Road.
2. Turn left and travel north on Sneads Ferry Road to Holcomb Boulevard and bear right at yield sign.
3. Travel north on Holcomb Boulevard to traffic light and turn left on Brewster Boulevard.
4. Continue on Brewster Boulevard until intersecting with driveway to Naval Hospital on right (approximately 0.75 miles)
5. Follow signs for emergency room entrance.

Directions to Base Hospital (Building NH 100) from Site 28 (Refer to Figure 8-1):

1. ~~Follow only exit road to W Street and make right turn.~~
2. ~~Follow N Street to circle and make right onto circle and another right onto Holcomb Boulevard.~~

1. FOLLOW EXIT ROAD TO JULIAN C. SMITH ROAD. TRAVEL ~~WEST~~ NORTHWEST ON JULIAN C. ROAD TO "O" STREET (FIRST STREET ON RIGHT) AND MAKE RIGHT TURN.
2. – MAIN SERVICE ROAD AND TURN LEFT.

ANOTHER RIGHT ONTO HOLCOMB ~~BLVD~~ BOULEVARD.

4. ~~3~~ Travel NORTH EAST THEN north on Holcomb Boulevard to THIRD traffic light and turn left on Brewster Boulevard.

5. ~~4~~ Continue on Brewster Boulevard until intersecting with driveway to Naval Hospital on right (approximately 0.75 miles).

6. ~~5~~ Follow signs for emergency room entrance.

Directions to Base Hospital (Building NH 100) from Site 30 (Refer to Figure 8-1):

1. Follow tank trail to Sneads Ferry Road.
2. ~~Follow N Street to circle and make right onto circle and another right onto Holcomb Boulevard.~~
2. TURN LEFT AND TRAVEL NORTH ON SNEADS FERRY ROAD TO HOLCOMB BOULEVARD AND BEAR RIGHT AT YEILD SIGN.
3. Travel north on Holcomb Boulevard to traffic light and turn left on Brewster Boulevard.
4. Continue on Brewster Boulevard until intersecting with driveway to Naval Hospital on right (approximately 0.75 miles).
5. Follow signs for emergency room entrance.

8.6 Emergency Medical Treatment

Emergency Services

The nearest public hospital is Onslow County Memorial Hospital located at 317 Western Boulevard, Jacksonville, NC, phone No.: (99) 577-2240 (on base) and (919) 577-2240 or 911 (off base).

Note: In instances of extreme emergency or for stable patient transfer to nearby public hospitals, personnel may be transported to Building NH 100 (Naval Hospital).

DRAFT

REMEDIAL INVESTIGATION/ FEASIBILITY STUDY WORK PLAN FOR OPERABLE UNIT NO. 7 (SITES 1, 28, AND 30)

MARINE CORPS BASE CAMP LEJEUNE, NORTH CAROLINA

CONTRACT TASK ORDER 0160

Prepared For:

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND
Norfolk, Virginia

Under:

LANTDIV CLEAN Program
Contract N62470-89-D-4814

Prepared by:

BAKER ENVIRONMENTAL, INC.
Coraopolis, Pennsylvania

JUNE 29, 1993

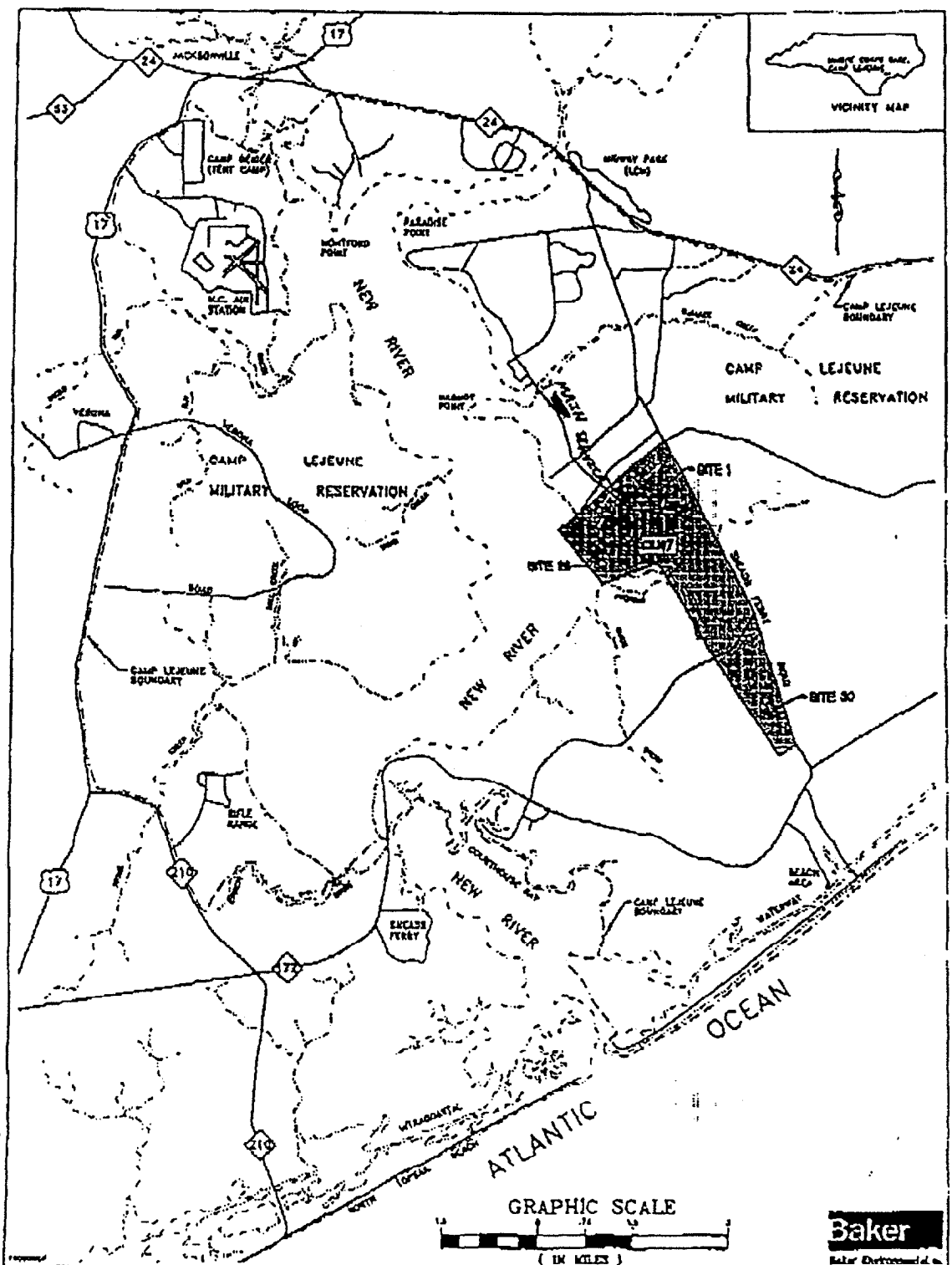

FIGURE 1-1
LOCATION MAP FOR OPERABLE UNIT NO. 7
SITES 1, 28, AND 30
REMEDIAL INVESTIGATION CTO-0160

MARINE CORPS BASE, CAMP LEJEUNE

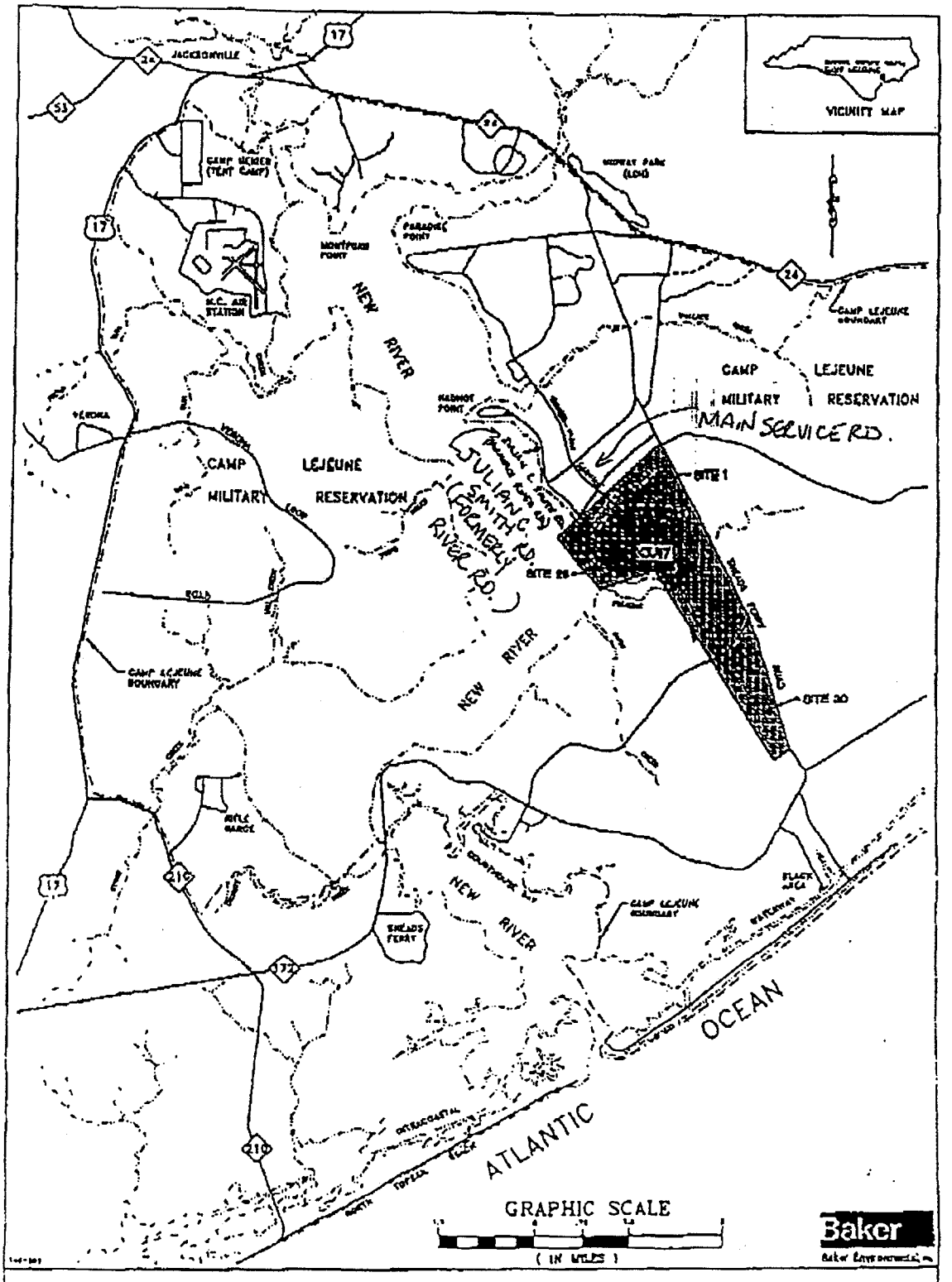

FIGURE 2-1
LOCATION MAP FOR OPERABLE UNIT NO. 7
SITES 1, 28, AND 30
REMEDIAL INVESTIGATION CTO-0160

Aquatic/Ecological Survey

Aquatic/ecological surveys will be conducted in the New River, Cogdels Creek, unnamed tributaries to Cogdels Creek, and the site pond to evaluate potential ecological impacts from past activities at Site 28. The Aquatic/Ecological Survey will include the collection of benthic macroinvertebrate and fish samples to assess environmental stresses posed by Site 28. To assess ecological stresses to the aquatic community posed by stream quality, faunal densities, species richness, and species diversity will be determined for benthic macroinvertebrates at each sampling station. In addition, fish samples will be collected for population statistics and subsequent laboratory analysis of whole body parts and fillets. Each fish sample chemically analyzed will represent a different trophic levels (if possible) as follows: top carnivores, forage fish, and bottom feeders. All fish analytical samples will be analyzed for TCL organics and TAL inorganics.

A total of six benthic macroinvertebrate and fish stations will be established and samples will be collected from 500-foot stretches (i.e., sampling areas) along the New River, Cogdels Creek, and the site pond: upgradient of Site 28, adjacent to Site 28; and downgradient of Site 28 (see Figure 5-5). The stations will be located to correspond with surface water and sediment sampling locations.

Benthic macroinvertebrates will be collected with a Standard Ponar. Fish will be collected at the stations by electroshocking procedures, seining, and/or gill nets.

Specific sampling and analysis procedures are described in the FSAP.

5.4.3 Site 30 - Sneads Ferry Road Tank Fuel Sludge Area

The following investigations and support activities will be conducted at Site 30:

- Surveying
- Soil investigations
- Groundwater investigations
- Surface water/sediment investigation

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Linda Berry
Department of the Navy - Atlantic Division
Naval Facilities Engineering Command
Code 1823
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site
Operable Unit 7, Sites 1, 28 and 30
Jacksonville, North Carolina

Dear Ms. Berry:

Attached are the risk review comments from the Environmental Protection Agency for the document titled "Draft Remedial Investigation/Feasibility Study Work Plan for Operable Unit No. 7, (Sites 1, 28 and 30)" dated June 1993.

If you have any questions or comments, please call me at (404) 347-3016.

Sincerely,

Gena D. Townsend
Senior Project Manager

Attachment

cc: Patrick Watters, NCDEHNR
Neal Paul, MCB Camp Lejeune

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 4

To Ray Watters	From Linda Berry
Co. Baker	Co.
Dept.	Phone #
Fax # 412 269 2002	Fax # 404 322 4805

EPA comments

Comments on the Draft Work Plan
Sites 1, 28 & 30

1. Page 5-35 (Section 5.4.3.2), last paragraph on page - Regarding the sampling of the top six inches of soil, EPA Region IV generally considers the top twelve inches as surface soil for the purposes of deriving a concentration term for direct human contact in the baseline risk assessment. Therefore, contaminant data should be obtained from soil areas within the top twelve inches that has the highest anticipated contaminant concentrations for surface soil characterization.

2. Page 5-47 (Section 5.7.1.5) - Current EPA toxicology databases should be used in the risk assessment (IRIS, 1993; HEAST, 1993)

3. Section 5.7 - The risk assessment should include health-based remedial goal options (RGOs) for chemicals which significantly contribute to unacceptable risks. Chemical-specific remedial goals should be presented which correspond to carcinogenic risk of 10^{-6}, 10^{-5}, 10^{-4}, and to hazard quotient values of 0.1, 1, and 10 for noncarcinogens as well as any ARAR values (state and federal). (see attached)

Attachment (2 pages)

Development of Preliminary Remediation Goals, REmediation Goal Options, and Remediation Levels

GIETechS Article by Julie W. Keller
Office of Health Assessment
Waste Management Division

The Office of Health Assessment (OHA) issued a supplemental guidance to "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part A)" titled "Supplemental Region IV Risk Assessment Guidance" in March 1991. Additional guidance has been added to this supplement from time to time. The evolution of risk assessment is continually ongoing and the OHA sees the need for a more extensive updated guidance. It is anticipated that this new guidance will be developed in the next few months. One clarification to appear in the new risk assessment guidance is the development of Preliminary Remediation Goals (PRGs), Remedial Goal Options (RGOs) and Remediation Levels (RLs).

Preliminary Remediation Goals (PRGs) are established at scoping for toxic substances known to be present at the site in order to provide a basis for the feasibility study consideration of all appropriate remedial alternatives that may achieve the target levels. PRGs serve as the basis of the development of the sampling and analysis plan to ensure that the proposed methods will achieve adequate quantitation limits. PRGs are based on ARARs or risk-based calculations to set concentration limits. The use of PRGs will limit the number of alternatives included in the feasibility study and streamline the process. Calculation of PRGs should be done in accordance with "Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual, Part B, Development of Risk-based Preliminary Remediation Goals." PRGs are intended as initial guidelines and do not establish that cleanup to these goals is warranted.

The baseline risk assessment should include a section which outlines the remedial goal options (RGOs) for the contaminants and media of concern. This section should include both ARARs and health based cleanup goals. This section should contain a table with media cleanup levels for each chemical that contributes to a pathway that exceeds a 10^{-4} risk (or what ever risk level is chosen as the remediation "trigger" by the risk manager) or HI of 1 or greater for each scenario evaluated in the baseline risk assessment. Chemicals contributing risk to these pathways need not be included if their individual carcinogenic risk contribution is less than 10^{-6} or their noncarcinogenic HQ is less than 0.1. The table should include the 10^{-4}, 10^{-5}, and 10^{-6} risk levels for each chemical, media and scenario (land use) and the HQ 0.1, 1 and 10 levels as well as any ARAR values (state and federal). The values should be developed by rearranging the site-specific average-dose equation used in the baseline risk assessment to solve for the concentration term; RAGS Part B is not appropriate at this stage in the risk assessment process. The purpose is to provide the RPM

with the maximum risk-related media level options on which to develop remediation aspects of the Feasibility Study and Proposed Plan.

Remediation Levels (RLs) are chosen by the risk manager for the chemicals of concern and are included in the Proposed Plan and the Record of Decision. These numbers derived from the RGOs are no longer goals and should be considered required levels for the remedial actions to achieve.

Attachment A

ATTACHMENT A

**Response to Comments Submitted by the
State of North Carolina DEHNR - Division of Solid Waste Management
on the Draft RI/FS Project Plans for Sites 1, 28, and 30,
(Operable Unit No. 7), MCB Camp Lejeune, North Carolina
Comment Letter by Mr. Patrick Watters,
Received by Baker Environmental, Inc. via Fax on 10-8-93**

Response to Specific Comments - Work Plan (Comments 1 through 29)

1. Six existing wells are present at Site 1. This change was made in the text.

2. This sentence was rewritten to state that wells 1GW3, 1GW4, and 1GW5 are downgradient of the site. Sentence does not mention 1GW3, 4 or 5 & it is a run-on sentence!

3. Figure 5-3 will be corrected in the text as Figure 2-3.4

4. Six additional wells were not installed at the site. This statement was clarified.

5. Concentration units (ug/l) and groundwater flow direction were added to the Figure 2-4. → should be on chart, not just in legend!

   The mercury (1GW1) and zinc (1GW4) concentrations were added to Figure 2-4.

6. Lead and cadmium were not detected in all six samples. Further, monitoring wells 1GW1, 1GW2, and 1GW6 exhibited mercury concentrations above the NCWQS. These changes were made in the paragraph. — not included in text change?

7. The surface water and sediment stations discussed in Section 2.2.5.4 are the same stations depicted on Figure 2-4.

8. The Hadnot Point Burn Dump pond (i.e., Orde Pond) was added to Figure 2-5. → should refer to it by name on Fig 2-5 & in text. 2-6, 5-3, 5-4 etc.

9. The groundwater flow direction will be added to Figure 2-5. → I don't see it!

10. Well 28GW4 will not serve as a site specific background well for the upcoming RI investigation. A new background well is proposed for this investigation. Text has been modified to remove the reference to 1GW4 as a background well.

11. Units of concentration (ug/l) will be added to Figure 2-6.

12. The term "fresh water pond" also refers to Orde Pond. — see #8 response

13. The two streams that comprise the headwaters of French Creek are west of Site 30 instead of east as stated in the text. This change was made.

14. The word mammals was replaced with the word animals.

15. The information presented in the sentence is correct. Site groundwater and soils data will be used to help assess the human health and ecological risks and determine the impacts on the surface water/sediment quality.

16. The word mammals was replaced with the word animals.

17. The correct term, "FTSA", will replace "HPIA" in the paragraph.

18. The word "augered" will replace "angered" throughout the text.

19. There are a total of six existing wells at Site 1 which were installed in 1984. Well 1GW5, however, is damaged and will not be sampled. Two of the unknown wells will be sampled. Accordingly, a total of seven wells will be sampled during this RI.
Still Not clear in text. See Table 5-2 pg 5-15, 5-16 - Unknown wells now labelled?

20. Two surface water/sediment samples were collected directly west of Site 1 during the investigation at Operable Unit 1 which was conducted in May 1993. These results will be used to characterize Cogdels Creek in the vicinity of Site 1 for this RI. Text has been changed to clarify use of 2 samples from 1993 to west of 1-N and 2 new samples from area west of 1-S

21. Trenching will be performed if the waste material is encountered during drilling and if the material is less than five feet from ground surface. Text has been modified to indicate this.

22. There are four existing wells at Site 28 (28GW1 through 28GW4) not three. This change was made in the text.

23. Proposed shallow well 28GW6 will ~~be added to Figure 5-4.~~ was improperly labelled as 28GW7 on Figure 5-4. Figure 5-4 has been corrected.

24. Proposed deep well 28GW7D will be added to Figure 5-4. Proposed shallow well 28GW7S and

Deep wells 28GW7D and 28GW8D will be installed to evaluate the vertical extent of contamination within the two burn dump areas and well 28GW9D will be used to evaluate background conditions. These changes will be made in the text.

25. Well 1GW1 will be replaced by well 28GW1 in the text.
Still 2 references to 1GW1 on Pg 5-27

26. Section 5.4.1.4 and Figure 5-5 will be revised to indicate that a total of 14 surface water/sediment stations will be sampled.
this should be 5.1.2.4

27. Section 5.4.3.2 and Figure 5-6 will be revised to indicate that a total of five borings will be advanced for background samples.

28. The use of only one well downgradient is justified since past groundwater sampling events have not revealed evidence of contamination on site or in the existing downgradient well.

29. A discussion of the surface water/sediment investigation at Site 30 will be added.

Response to Specific Comments - FSAP (Comments 30 through 38)

30. Section 3.0 figures will be included in Draft Final FSAP.

31. Table 2-1 in the FSAP will be revised to be consistent with Table 4-1 of the Work Plan. Now the objectives match, but table no longer reflects conceptual site model. Also only includes Site 1, what about sites 28 & 30?

32. The actual number of borings should be four as stated in the FSAP. This change will be made in the Work Plan.

33. The actual number of borings should be 18 as stated in the FSAP. This change will be made in the Work Plan.

The actual number of borings should be 5 as stated in the FASP. This change will be made in the Work Plan.

The actual number of borings should be 8 and 10 as stated in the FSAP. This change will be made in the Work Plan.

34. The description of the sampling schemes for the two areas were combined in the Work Plan to match the FSAP.

The statement will be rewritten to read "exploratory test borings may be used" in both documents.

The actual number of borings to be used to confirm the thickness of the fill material is three as stated in the FSAP. This change will be in the Work Plan.

did you address all inconsistencies?

The actual number of borings for these disposal areas is 19 as stated in the FSAP. This change will be made in the Work Plan.

The actual number of background borings is five as stated in the FSAP. This change will be made in the Work Plan.

The actual number of borings for engineering parameters is two as stated in the FASP. This change will be made in the Work Plan.

Need to review this section & note any remaining inconsistencies...

35. Groundwater samples will be collected from five of the six existing 1984 wells and two of the unknown wells for a total of seven wells. These changes will be made in both documents. pg 5-13 of Work Plan - still not clear - If Baker concurs, note add'l chgs to clarity in Final version.

10 existing, 7 to be sampled →

36. Engineering parameters will be sampled from deep well 28GW7D and shallow well 28GW1. This change will be made in the Work Plan.

37. The actual number of surface water/sediment stations to be sampled in Cogdels Creek is seven. These changes will be made in both documents.

38. The verbiage will be revised to state "may" instead of "will".

The actual number of borings to assess the thickness of the fill material is four as stated in the FSAP. This change will be made in the Work Plan.

Draft Final WP says "approx" FSAP says exactly 4 → Final version should agree

Response to Specific Comments - HASP (Comments 1 through 5)

1. The combustible monitoring on Page 5-2 is in Section 5.2 and titled Point Source Monitoring. As stated in Section 5.2, point source monitoring refers to air monitoring performed at the source of the sampling/investigative activity. Sampling/investigative activity refers to the various site work areas. This is designed to have air monitoring conducted in all areas of potential concern and not just breathing zone areas.

2. This radiation meter has two separate probes. The external probe is the Scintillator tube which has a setting for milliroentgen (m/R) per hour scale. This probe is used for higher energy gamma sources. Whereas, the GM Pancake internal probe is a

different probe used with a separate setting on the instrument. The internal probe measures beta and lower energy gamma and registers as counts per minute.

3. The remaining portion of Section 7.0 - Safe Boat Operations has been inserted with the HASP revision.

4. Based on Baker's previous work experience when conducting the types of work tasks for this project, the low concentration from previous analytical results, the limited amount of time individuals are actually in situations where volatilization can occur, rapid dispersion of vaporization from a contaminant occurs rapidly in the outdoors, Baker is more concerned with a skin contact exposure than an inhalation exposure. Baker's previous experience performing this type of work is that occasional point source air monitoring readings are obtained, however, breathing zone readings remain at background. Based on the conservative air monitoring results that would trigger protection upgrades or work stoppage, Baker's protection levels are adequate.

5. The revised HASP states that "if vinyl chloride is detected in the breathing zone with Drager tubes, work will stop, the Project Health and Safety Officer will then be consulted.

6. Based on previous analytical results, the site history, and work tasks planned, Baker anticipates that the required personal protection levels and work stoppage situations presented in Section 5.1 are adequate.

ATTACHMENT A

**Response to Comments Submitted by the
Marine Corps Base, Camp Lejeune
Environmental Management Department
on the Draft RI/FS Project Plans for Sites 1, 28, and 30,
(Operable Unit No. 7), MCB Camp Lejeune, North Carolina
Comment Letter by Ms. Kate Landman Code 1823,
Received by Baker Environmental, Inc. via Fax on 10-5-93**

Response to Specific Comments - Health and Safety Plan

1. The names of the three Camp Lejeune EMD personnel, Mr. Neal Paul, Mr. Tom Morris, and Mr. Walter Haven, will be added to the table on Page 8-3.
2. Figure 8-1 will be revised to eliminate River Road.
3. The directions to the Base Hospital from Site 28 will be revised.
4. The directions to the Base Hospital from Site 30 will be revised.

Response to Specific Comments - Work Plan/FSAP

1. Figures 1-1 (Work Plan) and 2-1 (FSAP) will be revised to eliminate River Road. Eliminate
2. The typographical error on page 5-32 in the Work Plan will be corrected. in WP 2-1 FSAP 1-1

ATTACHMENT A

Response to Comments Submitted by the
U.S. Environmental Protection Agency, Region IV
Risk Assessment Section
on the Draft RI/FS Project Plans for Sites 1, 28, and 30,
(Operable Unit No. 7), MCB Camp Lejeune, North Carolina
Comment Letter by Ms. Gena Townsend,
Received by Baker Environmental, Inc. via Fax on 9-24-93

Response to Specific Risk Assessment Comments - Work Plan

1. Samples will be collected from the top 12 inches of soil (surface sample) for the purposes of deriving a concentration term for direct human contact in the baseline risk assessment. This change will be made throughout the text.

2. The current USEPA toxicology database will be used in the risk assessment.

3. The National Contingency Plan preamble indicates that, typically, Preliminary Remediation Goals (PRGs) are developed at scoping or concurrent with the initial RI/FS activities (i.e., prior to completion of the baseline risk assessment). By developing PRGs early in the decision making process, the design staff may be able to streamline the consideration of remedial alternatives. In addition, chemicals (specific PRGs) can be used as concentration goals for individual chemicals for a specific medium and land use combinations (i.e., selection of analytical detection limits). Therefore, PRGs will be incorporated in the Work Plan in order to aid in the selection of analytical methods and initiate the remedial alternative selection process.

   Risk-based PRGs are initial values and require future clean-ups to meet these levels. Therefore, upon completion of the baseline risk assessment, a review of the media, the chemicals of potential concern, future land use, and exposure assumptions originally identified at scoping is required. These risk-based PRGs will be used in conjunction with ARARs in the Feasibility Study (FS). Site-specific PRGs will be finalized subsequent to the screening of remedial alternatives in the FS as Remediation Levels (RL) in the Record of Decision (ROD).

   As part of the FS, site-specific risk-based PRGs will be calculated, based on the results of the baseline risk assessment for the selection of remedial alternatives. Therefore, the FS report is the logical place to present the site-specific PRGs.

does not appear that Baker has fully addressed this. Let EPA Comment on response - revise as needed.