

**Baker**

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MCB CAMP LEJEUNE  
5090.3a

January 19, 1994

**Baker Environmental, Inc.**  
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Commander  
Atlantic Division  
Naval Facilities Engineering Command  
1510 Gilbert Street (Building N-26)  
Norfolk, Virginia 23511-2699

Attn: Linda Berry  
Code 1823

Re: Contract N62470-89-D-4814  
Navy CLEAN, District III  
Contract Task Order (CTO) 0003  
Site Inspections at Sites 43, 44, 63, and 65  
MCB, Camp Lejeune, North Carolina

Dear Ms. Berry:

Baker Environmental, Inc. (Baker) has prepared responses to comments (see Attachment A) submitted by the United States Environmental Protection Agency (USEPA) and the North Carolina Department of the Environment, Health, and Natural Resources (DEHNR) on the Draft Site Inspection (SI) Reports for Sites 43 (Agan Street Dump) and 63 (Verona Loop Dump), and the Draft Final SI Report for Site 44 (Jones Street Dump), Marine Corps Base (MCB), Camp Lejeune, North Carolina. The responses to comments on the Draft SI Report for Site 65 (Engineer Area Dump) have been submitted under separate cover (transmitted January 13, 1994). Also attached for your convenience is a copy of the comments (see Attachment B).

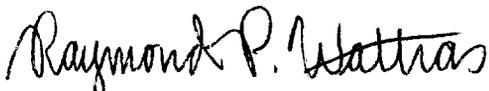
When applicable, the comments have been incorporated into the SI reports. Baker anticipates submitting the Final SI Reports before the end of January.

The responses have been included on the enclosed disc under the file name RESPONSE. The responses are in Word Perfect 5.1 format.

If you have any questions, please do not hesitate to contact me at (412) 269-2016.

Sincerely,

BAKER ENVIRONMENTAL, INC.



Raymond P. Wattras  
Project Manager

Attachments  
RPW/lmn

cc: Ms. Beth Hacic (w/o attachments)  
Ms. Lee Anne Rapp (w/o attachments)



A Total Quality Corporation

**Attachment A**  
**Response to Comments on the**  
**Site Inspection Reports for Sites 43, 44, and 63**  
**MCB, Camp Lejeune, North Carolina**

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**Responses to Comments Submitted by the  
U.S. Environmental Protection Agency, Region IV  
on the Draft Site Investigation Report for  
Site 43 Agan Street Dump  
MCB Camp Lejeune, North Carolina  
Comment Letter Dated 01/20/93**

**Responses to General Comments**

1. Based on the March 1, 1993 meeting with EPA, NC DEHNR, and DoN, a Remedial Investigation/Feasibility Study (RI/FS) will be conducted at Site 43 to more fully characterize the site.
2. Background surface water and sediment samples will be collected as part of the proposed RI/FS to more fully characterize these areas.
3. Please refer to the response for General Comment 1.
4. The shallow or "surficial" aquifer consists of a series of sediments, primarily sand and clay, that commonly extend to depths of 50 to 100 feet. ("Assessment of Hydrologic and Hydrogeologic Data at Camp Lejeune Marine Corps Base, North Carolina," USGS, 1989). The Castle Hayne Aquifer is also a series of sediments lying beneath the surficial aquifer. The confining layer between the two aquifers is not uniform. It is thinner and more discontinuous in the south. Also, the transmissivity of the clay layer varies. These characteristics define the Castle Hayne Aquifer as semi-confined (leaking).

Investigation of the Castle Hayne will be considered during the preparation of the RI/FS Project Plans for Site 43.

5. The SI Report has been revised to only present the data collected during the field investigation. The preliminary risk assessment has been deleted. A human health and ecological risk assessment will be conducted as part of the RI/FS. The baseline risk assessment will be conducted based on current land use (i.e., military base) and future potential land use (i.e., residential).
6. Please refer to the response for General Comment 5. PRGs will be identified in the RI/FS Work Plan.
7. Future drilling activities will follow the decontamination procedures of ECB SOPQAM.
8. A glossary of acronyms will be included in the Draft Final submittal of the Site Inspection Report.

## **Responses to Specific Comments**

1. No response required.
2. The acronym "NEESA" indicates the Naval Energy and Environmental Support Activity and will be shown in the report. This document is the Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program. The purpose of the document is to specify the requirements for the control of the accuracy, precision, and completeness of samples and data from the point of collection through reporting. Sampling performed under the Department of the Navy's Installation restoration Program at MCB Camp Lejeune will be conducted in accordance with ECB SOPQAM.
3. The word "significant" has been replaced with the word "similar". The point of the sentence (and the use of the word "significant") was to indicate that only one soil sample exhibited contamination (low levels of PAHs). Two surface soil samples did indicate low levels of bis (2-ethylhexyl) phthalate, which is not believed to be associated with former disposal practices at the site. This contaminant is a common sampling and laboratory related contaminant.
4. According to the North Carolina Administrative Code, Title 15, Subchapter 2L, "Classification and Water Quality Standards Applicable to the Groundwaters of North Carolina," the Castle Hayne Aquifer should be classified as GA. This classification of groundwater is for existing or potential sources of drinking water supplies for humans. This groundwater classification is for waters which are considered suitable for drinking in their natural state. The classification of the Castle Hayne Aquifer has been included in the Site Inspection Report, Section 2.1.4. The surficial aquifer is classified GC. A GC classification indicates that the aquifer is a source of water other than for drinking.
5. Please refer to the response for General Comment 1.
6. Future drilling activities will be conducted in accordance with ECB SOPQAM.
7. The final Site Inspection Work Plan, which stated the use of polyvinyl chloride (PVC) as a monitoring well construction material, was approved by EPA Region IV.  

No organics (with the exception of carbon disulfide) have been detected in groundwater. The groundwater samples were obtained from monitoring wells constructed of PVC. The wells are purged prior to collecting the sample. The probability that leaching or sorption is occurring within hours following purging of the wells are remote, given the site conditions and history.
8. Future groundwater monitoring wells will be installed according to procedures set forth in the ECB SOPQAM.
9. Future decontamination of downhole drilling equipment will include all of the decontamination steps described in the ECB SOPQAM. Although hexane was used during the SI, all sampling equipment was air dried. Based on the analytical results from rinsate samples, no organic or inorganic contamination is believed to have resulted from the use of hexane or distilled water.
10. Page 4-1, 3rd paragraph has been corrected in relation to the use of the term "instrument detection limit".

11. According to USEPA's Guidance for Conducting A Site Inspection Under CERCLA, published regional data may be used as a background concentration for a focused site inspection. Site-specific background concentrations for Site 43 will be ascertained during the proposed RI/FS.
12. The detection limits (as well as the results) for soil samples are reported on a dry weight basis (i.e., adjusted for moisture content).
13. All of the detected values for the original and duplicate samples have been reported below CLP Contract Required Quantitation Limits (CRQLs). Consequently, all of the results are to be considered estimated (J). The matrix of the samples may provide for a discrepancy in the analytical findings. Because soil samples are nonhomogeneous in nature, analytical findings may have a larger relative percent difference than aqueous findings. Therefore, the reported findings do not indicate a laboratory problem, but more an indication of the analytical method or duplication of the sample media during sampling.
14. There is no rationale to think that mercury is present at this site. The lone positive detection for mercury was just above the Contract Required Detection Limit (CRDL). In addition, the duplicate result for this sample was below the CRDL.
15. Given the limitations on the methodologies and the soil matrix for two of the samples, examination of the analytical findings would determine an acceptable relative percent difference of less than 25 percent.
16. The detection limits (as well as results) for sediment samples are reported on a dry weight basis (i.e., adjusted for moisture content).
17. Samples collected from groundwater and soil were obtained at locations within the former disposal area. The former disposal area is well defined. It is surrounded by woods on three sides and is overgrown with vegetation. Based on the sampling locations, the concentrations detected have to be assumed to be representative of the site. Additional soil samples will be collected during the RI to more fully characterize the soil at the site.
18. This section has been deleted from the SI report since quantitative risk assessment will be conducted as part of the RI.
19. This section has been deleted from the SI report since quantitative risk assessment will be conducted as part of the RI.
20. The specific table was presented in the Risk Assessment section of the report, which has been deleted.
21. The baseline risk assessment will include an estimation of risks based on current land use (i.e., military base) and future potential use (i.e., residential).
22. This section has been deleted from the SI report since quantitative risk assessment will be conducted as part of the RI.
23. This section has been deleted from the SI report since quantitative risk assessment will be conducted as part of the RI.

24. **Site-specific background values for soil will be collected during the RI.**
25. **This comment will be considered when the baseline risk assessment is conducted during the RI.**
26. **Soil may be analyzed for TOC during the RI. This value will be used in place of a literature value.**
27. **This section has been deleted from the SI report since quantitative risk assessment will be conducted as part of the RI.**
28. **TOC may be analyzed for in soil during the RI.**
29. **Aquifer Classification has been added to Section 2 of the SI Report.**
30. **A Remedial Investigation/Feasibility Study (RI/FS) will be conducted at Site 43.**

**Response to Comments Submitted by the  
North Carolina Department of Environment, Health, and Natural Resources  
on the Draft Site Inspection Report for  
Site 43 Agan Street Dump  
MCB Camp Lejeune, North Carolina  
Comment Letter Dated 01/04/93**

**Responses to Specific Comments**

1. The 3rd paragraph on Page ES-1 will be revised to read "Agan Street borders the site on the west".
2. The 3rd sentence in the 2nd paragraph of Section 1.0 on page 1-1 will be revised to read Site 43 instead of Site 63.
3. The size of the lamp [10.2 electron volt (eV)] will be referenced when discussing the HNu in the 2nd paragraph of Section 1.2.1, page 1-8.
4. Section 2.2.2 ("Surface Water Hydrology") will be revised to indicate that Edwards and Strawhorn creeks are classified "SC" according to North Carolina state guidelines.

Section 2.2.7 ("Water Supply Wells") will be revised to indicate that the Castle Hayne Aquifer is classified "GA," according to North Carolina state guidelines, and "IIA" according to EPA water classification designations.

5. This area is prone to flooding, as evidenced by the two-day delay experienced during the field investigations because of heavy rains. The creeks bordering Site 43 on the north, east and south are all surrounded by marshes and/or swamps. Site 43 lies just outside the 100 year floodplain, as defined by the 4 foot contour, however, occasional encroachment of flood/creek water could occur during periods of extended heavy rains.
6. Figure 4-1 on page 4-2 will be revised to include the concentration units.

**Response to Comments Submitted by the  
U.S. Environmental Protection Agency, Region IV  
on the Draft Final Site Inspection Report for  
Site 44 Jones Street Dump  
MCB Camp Lejeune, North Carolina  
Comment Letter Dated May 14, 1993**

**Response to Specific Comments**

1. Figure 1-3 on page 1-7 has been revised to show the correct groundwater surface elevations.

The elevations and locations of monitoring wells 44MW01, 44MW02 and 44MW03 will be verified under the RI/FS.

2. The degree of hydraulic continuity between the surficial aquifer and the Castle Hayne Aquifer in the vicinity of Site 44 is not known at this time.

The relationship between the surficial aquifer and the Castle Hayne Aquifer, as well as the characteristics of the intermediate strata that separate the two layers will be better defined upon completion of the RI/FS.

Section 2.1.8 of the Site Inspection Report has been revised to include a description of the relationship between the two aquifers.

3. Section 4.2.2 of the text has been revised to reflect that the maximum concentration (for ground water samples collected under the Site Inspection) of arsenic exceeds the state standard and the federal MCL.

4. The laboratory analysis data sheets for sample 44MW0100D are included in Appendix F (QA/QC Data) since this sample represents a duplicate sample.

The elevated detection limits for the volatile organics analysis of sample 44MW0106 are due primarily to sample preparation, and (to a lesser extent) to the moisture content of the soil sample. The "medium level" preparation that was implemented for this sample involves less sample volume and subsequently necessitates higher detection limits. Higher moisture contents (such as 22% for this sample) also increase the detection limits for soil samples.

5. Table 4-1 has been revised to include the numerical values of results for sample 44SB0600 that were rejected during data validation.

**Responses to Comments Submitted by the  
U.S. Environmental Protection Agency, Region IV  
on the Draft Site Investigation Report for  
Site 63 Verona Loop Dump  
MCB Camp Lejeune, North Carolina  
Comment Letter Dated 12/03/92**

**Responses to General Comments**

1. Based on the March 1, 1993 meeting with EPA, NC DEHNR and DoN, a Remedial Investigation/Feasibility Study (RI/FS) will be conducted at Site 63. The comments on the Draft Site Inspection (SI) Report will be considered during the preparation of the RI/FS Project Plan for Site 63.
2. The SI report has been revised to only present the data collected during the field investigation. The preliminary risk assessment has been deleted. A human health and ecological risk assessment will be conducted as part of the RI/FS. The baseline risk assessment will be conducted based on current land use (i.e., military base) and future potential land use (i.e., residential).
3. No response required.
4. Please see the response to General Comment 1.
5. Furthering sampling of the soil and groundwater to more fully characterize the site will be undertaken as part of the proposed RI/FS.
6. The purpose of the Site Investigation (SI) was to determine whether a release or potential release of hazardous substances had occurred. The SI was not intended to determine the extent of contamination.

Requirements for installation of additional groundwater monitoring wells, and soil and groundwater sampling to more fully characterize the site will be addressed in the RI/FS work plan.

7. The sampling and analysis program for the proposed RI/FS will be presented in the RI/FS work plan. Samples collected for the RI/FS will be analyzed for full Target Compound List organics and Target Analyte List inorganics.

## **Responses to Specific Comments**

1. No response required.
2. The acronym "NEESA" indicates the Naval Energy and Environmental Support Activity and will be shown in the report. This document is the Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program. The purpose of the document is to specify the requirements for the control of the accuracy, precision, and completeness of samples and data from the point of collection through reporting. Sampling performed under the Department of Navy's Installation Restoration Program at MCB Camp Lejeune will be conducted in accordance with ECB SOPQAM.
3. According to USEPA's Guidance for Conducting A Site Inspection Under CERCLA, published regional data may be used as a background concentration for a focused site inspection. Specific background concentrations for Site 63 will be ascertained during the proposed RI/FS.
4. The shallow or "surficial" aquifer consists of a series of sediments, primarily sand and clay, that commonly extend to depths of 50 to 100 feet. ("Assessment of Hydrologic and Hydrogeologic Data at Camp Lejeune Marine Corps Base, North Carolina," USGS, 1989). The Castle Hayne Aquifer is also a series of sediments lying beneath the surficial aquifer. The confining layer between the two aquifers is not uniform. It is thinner and more discontinuous in the south. Also, the transmissivity of the clay layer varies. These characteristics define the Castle Hayne Aquifer as semi-confined (leaking).

If it is determined that contamination has spread to the drinking water aquifer, the proper land-use scenario would be incorporated into the PRA and/or baseline risk assessment.

5. Page ES-2 and Figure 4-2 have been changed to indicate the detected concentrations of arsenic and nickel.
6. An AWQC has not been developed for aluminum, therefore, a comparison to surface water concentrations cannot be provided. In addition, the chronic fresh water AWQC for iron is 1000 micrograms/liter ( $\mu\text{g/L}$ ), concentrations detected in the surface water (1040  $\mu\text{g/L}$ , 1110  $\mu\text{g/L}$ , and 1090  $\mu\text{g/L}$ ) exceeded this criteria. As part of the proposed RI/FS, additional surface water samples will be collected to assess surface water quality.
7. These comments are not contradictory. Iron was the only contaminant detected in the surface water which exceeded criteria. Because the levels may be attributable to other factors (i.e., sampling, suspended matter, analytical variance) it is felt that the surface water has not been impacted from groundwater or runoff. However, if these levels are confirmed in the RI/FS potential impacts to aquatic life are possible.
8. The word "potential" should have been "preliminary." Chemical-specific Preliminary Remediation Goals (PRGs) are concentration goals for individual chemicals for specific medium and land use combinations at CERCLA sites. There are two general sources of chemical specific PRGs: (1) concentrations based on ARARs and (2) concentrations based on risk assessment. The risk assessment or risk-based calculations set concentration limits under specific exposure conditions.

This definition can be found in USEPA 1991, Risk Assessment Guidance for Superfund Volume 1 Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals). Office of Emergency and Remedial Response. Publication 9285.7-01B.

9. The statement has been revised to state that hazardous wastes are not reported to have been disposed at the site.
10. According to the North Carolina Administrative code, Title 15, Subchapter 2L, "Classifications and Water Quality Standards Applicable to the Groundwaters of North Carolina," the Castle Hayne Aquifer should be classified as GA. This classification of groundwater is for existing or potential sources of drinking water supplies for humans. This groundwater classification is for waters which are considered suitable for drinking in their natural state. The classification of the Castle Hayne Aquifer has been included in the Site Inspection Report, Section 2.1.4. The surficial aquifer is classified as GC. A GC classification indicates that the aquifer is a source of water other than for drinking.
11. Please see the response to General Comment 1.
12. Additional upgradient surface water and sediment samples will be collected and analyzed as part of the proposed RI/FS.
13. Future decontamination of downhole drilling equipment will include all of the decontamination steps described in the ECB SOPQAM.
14. Future sampling activities will include the use of deionized and organic-free water for decontamination of sampling equipment.
15. Sections 2.2.4 provides field information on approximate depths to groundwater encountered during drilling of the boreholes. This information can not be referenced to an elevation. Groundwater readings from the installed monitoring wells provide the most accurate levels of groundwater.
16. The specifics on the composition and quantity of "bivouac waste" disposed in the landfill is unknown. Typically, this waste is comprised of food and camping refuse.
17. The results presented in this table are for soil samples collected at Site 63. The detection limits meet the Contract Required Quantitation Limit (CRQL) for soil reported on a dry weight basis. Comparison of this data to Maximum Contaminant Levels (MCLs) is not applicable.
18. The placement of specific types of waste within the dump area may account for the disparity in the concentrations across the site. However, the database is too small to verify this. Additional sampling will be performed as part of the RI/FS to characterize the former disposal area.
19. Samples collected from groundwater and soil were obtained from the former disposal area. The former disposal area is well defined. It is surrounded by woods and is overgrown with vegetation. Based on the sampling locations, the concentrations detected have to be assumed to be representative of the site. Additional soil samples will be collected within the disposal area during the RI to more fully characterize the soil at the site.

20. This section has been deleted from the SI report since a quantitative assessment will be conducted as part of the RI.
21. The baseline risk assessment will include an estimation of risks based on current land use (i.e., military base) and future potential land use (i.e., residential)
22. This section has been deleted from the SI report since a quantitative risk assessment will be conducted as part of the RI.

The aquifer classification has been added to Section 2 of the Site Inspection Report. The surficial aquifer is classified GC and the Castle Hayne Aquifer is classified as GA.

23. Site-specific background values for soil will be collected during the RI.
24. This section has been deleted from the SI report since a quantitative risk assessment will be conducted as part of the RI.
25. Inorganic contamination detected in the groundwater may be the result of data being reported for Total rather than Dissolved. If there were elevated levels of sediment or if the groundwater samples were turbid, the inorganic concentration may have been elevated and may appear to be a source. Future samples should be analyzed both filtered and unfiltered. The baseline risk assessment will only utilize unfiltered samples. Background samples will be obtained from the shallow aquifer to assess whether the elevated inorganic levels are site related. The shallow aquifer has exhibited elevated concentrations of total metals throughout the base at various sites, including upgradient monitoring wells.

**Response to Comments Submitted by the  
North Carolina Department of Environment, Health, and Natural Resources  
on the Draft Site Inspection Report for  
Site 63 Verona Loop Dump  
MCB Camp Lejeune, North Carolina  
Comment Letter Dated 03/15/93**

**Responses to General Comments**

1. Based on the March 1, 1993 meeting with EPA, NC DEHNR and DoN, a Remedial Investigation/Feasibility Study (RI/FS) will be conducted at Site 63.
2. No inadequacies in field techniques or QA/QC procedures were determined upon review. Additional sampling and analysis for the proposed RI/FS will more fully define site characteristics.
3. The SI report has been revised to only present the data collected during the field investigation. The preliminary risk assessment has been deleted. A human health and ecological risk assessment will be conducted as part of the RI/FS. The baseline risk assessment will be conducted based on current land use (i.e., military base) and future potential land use (i.e., residential).

**Responses to Specific Comments**

1. North Carolina Groundwater Standards will be added to the phrase "Federal Drinking Water Standards" on page E-3, 2nd paragraph.
2. Please see the response to General Comment 1.
3. As part of the proposed RI/FS, current information on topography will be obtained and incorporated into final site maps and figures.
4. The protocol established by EPA Region IV will be followed on future site work.
5. The specifics on the composition and quantity of "bivouac waste" disposed in the landfill is unknown. Typically, this waste may consist of food debris (e.g., empty cans/containers) and camping debris (plastic, wood, wire, rope, etc.).
6. Table 5-4 will be corrected to show the State Groundwater Standard for iron as 0.3 milligrams/liter (mg/L).

**Attachment B**  
**Comments Submitted by EPA Region IV and the North Carolina DEHNR**  
**on the SI Reports for Sites 43, 44, and 63**  
**MCB, Camp Lejeune, North Carolina**

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV  
345 COURTLAND STREET  
ATLANTA, GEORGIA 30365

NAVY CLEAN

REGION IV

Date Received: 1/27/93

Project Manager: RPW

GTO Number: 0003

cc: PRGM F (orig): MDBartman; CMcasadei;  
RPWattras/PF

Subfile No.: 8

JAN 20 1993

4WD-FFB

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Byron Brant  
Department of the Navy - Atlantic Division  
Naval Facilities Engineering Command  
Code 1822  
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site  
Site 43 - Agan Area Dump  
Jacksonville, North Carolina

Dear Mr. Brant:

EPA has reviewed the document titled "Draft Site Inspection Report - Site 43 Agan Area Dump" dated October 12, 1992. Comments on the draft documents are enclosed. These documents have been given a cursory review to provide you with guidance in developing an approach at the site to completing the site evaluation. EPA concurs with the recommendation for additional work. At the completion of the additional sampling the report should be resubmitted with a recommendation as to the final disposition of the site.

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

Sincerely,

Michelle M. Glenn  
Senior Project Manager

Enclosure

cc: Peter Burger, NCDEHNR  
George Radford, MCB Camp Lejeune

Post-It™ brand fax transmittal memo 7671		# of pages	8
To	Ray Wattras	From	Byron Brant
Co.	Baker	Co.	LANTDIV
Dept.	CLEAN	Phone #	804-445-2931
Fax #	412-269-2002	Fax #	44 44 - 6662

MORE FROM EPA!

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contaminated, there is a major concern over whether

COMMENTS  
DRAFT SITE INSPECTION REPORT  
SITE 43 AGAN AREA DUMP  
MARINE CORPS BASE CAMP LEJEUNE

GENERAL COMMENTS

1. The Draft SI Report presents valid conclusions that chemicals of concern have been detected at levels exceeding Federal and state risk-based standards and screening criteria in samples collected from the shallow groundwater aquifer, surface water and sediment at the site, and exposure to these chemicals poses potential human health and ecological risks. The Draft SI Report also acknowledges the inadequacy of sampling data to evaluate the site conditions and contaminant migration. Additional samples should be collected from groundwater, surface water, sediment and soil to generate "a statistically significant" sampling database to further assess the extent of contamination at the site.
2. It is also concluded in the Draft SI Report that "surface water and sediments are contaminated with inorganics above standards for the protection of aquatic life/biota." However, "no conclusions can be made with respect to whether the inorganic levels are a result of the disposal activities or whether the levels are elevated throughout the ... marshes and streams." In this case, background control samples should be collected.
3. The first recommendation of the two presented in the Draft SI Report states that the site should not be investigated further since there are no significant impacts to the environment or current human health risks that could be attributed to sludge disposal. This statement appears to contradict the conclusions in the Draft SI Report and the second recommendation which proposes additional sampling at the site. Clarification should be provided.
4. The groundwater section of the Draft SI Report is deficient and contains inconsistent statements describing the Castle Hayne aquifer. The Castle Hayne aquifer, which underlies the shallow aquifer and is being used for drinking water supply, is described as being both "confined" and "semiconfined." Clarification should be provided as to whether the shallow aquifer and the Castle Hayne aquifer beneath the site are hydraulically interconnected. Since more than 90 water supply wells draw water from the Castle Hayne aquifer, and since the shallow aquifer is contaminated, there is a major concern over whether

2-

contaminants from the shallow aquifer have migrated to the Castle Hayne aquifer, creating a public health risk. Therefore, groundwater samples should be collected from the Castle Hayne aquifer to provide useful information to determine whether migration of contaminants from the shallow aquifer has occurred. The thickness of the aquifer and confining units as well as the screened monitoring well intervals for this area should also be included and presented on a cross-section figure.

5. The Draft SI Report presents a preliminary risk assessment (PRA) that compares the concentrations of contaminants detected to Federal and state applicable or relevant and appropriate requirements (ARARs), to be considered (TBC) guidelines and advisories and risk-based preliminary remediation goals (PRGs). The PRA concludes that soil contamination poses no human health risk. However, it should be noted that the PRGs calculated for soil exposure were based on limited sampling data and reflect only the current setting of military residential land use at the site; neither a residential nor commercial/industrial future land-use scenario has been considered. Furthermore, for potential human receptors, the site-specific exposure duration value for noncarcinogenic risks was assumed to be 2 years, compared to a standard default value of 30 years under a normal residential land-use scenario. This value of 2 years was used in the calculation and resulted in an age-adjusted ingestion factor of 30 milligram-year/kilogram-day (mg-yr/kg-day) which is significantly lower than the EPA default value of 114 mg-yr/kg-day.
6. It is important to remember that the risk-based PRGs are initial guidance. They do not establish that cleanup to meet these goals is warranted. The PRGs may be revised based on the consideration of appropriate factors including, but not limited to exposure factors, uncertainty factors and technical factors. Included under exposure factors are the cumulative effect of multiple contaminants, the potential for human exposure from other pathways at the site, population sensitivities, potential impacts on environmental receptors and cross-media impacts of alternatives. Factors related to uncertainty may include the reliability of alternatives, the weight of scientific evidence concerning exposures, individual and health effects and the reliability of exposure data. Technical factors may include detection/quantification limits for contaminants, technical limitations to remediation, the ability to monitor and control movement of contaminants and background levels of contaminants. The final selection of the appropriate risk level is made when the remedy is selected based on the balancing of criteria.

-3-

7. The decontamination procedures for drilling and sampling equipment described in the Draft SI Report are deficient. The decontamination protocols should comply with the ECB SOPQAM and should be implemented for the additional sampling to be conducted at the site to ensure Level IV data quality for the sampling analyses.
8. A glossary of the acronyms used in the Draft SI Report should be compiled and included for easy reference purposes.

#### SPECIFIC COMMENTS

1. Page ES-1, 2nd paragraph - If the answer to item number one is "yes", then the answer to number three is "yes".
2. Page ES-2, Bullet 5 - Indicate what "NEESA" represents. The quality assurance/quality control sample collecting methods used should be no less stringent than the criteria set forth in the ECB SOPQAM.
3. Page ES-2, paragraph 1 - Define what is considered to be "significant organic soil contamination."
4. Page ES-3, 2nd paragraph - The classification of the aquifer is of more significance than the current use.
5. Page ES-4, "Recommendations" - The decision on whether or not an RI/FS will be required may be deferred until additional information has been collected.
6. Page 1-8, 5th paragraph - The use of hollow stem augers with an internal diameter of 4.25 inches does not meet the ECB SOPQAM (Section E.3.1) requirements for annular spacing for monitoring wells. A minimum annular spacing of 2 inches is required between the inside diameter of the auger and the outer diameter of the monitoring well during installation.
7. Page 1-9, 1st paragraph, Bullet 1 - Utilizing polyvinyl chloride (PVC) for construction of monitoring wells is not in compliance with the ECB SOPQAM (Section E.5.1). PVC is not acceptable for monitoring organic compounds because of its sorption and leaching properties. The ECB SOPQAM recommends that the well casing and screen be constructed of stainless steel (304 or 316) or Teflon.

-4-

8. Page 1-9, 2nd paragraph, 3rd bullet - The installation of a 0.5-foot bentonite seal is not in compliance with the ECB SOPQAM. The minimum thickness is 2 feet above the sand pack.
9. Page 1-10, 4th paragraph, Bullets 4, 5 and 6 - The use of hexane is not in compliance with the ECB SOPQAM (Appendix B.1) for decontaminating equipment. Pesticide-grade isopropanol is recommended. Because hexane is not miscible in water, it is not effective unless the equipment is completely dry. The use of hexane requires further justification. In addition, potential impacts on sample results or integrity should be included in the discussion of sampling results.

The use of distilled water rinse also is not in compliance with ECB SOPQAM. Distilled water may contain trace concentrations of organic and metal compounds. The water rinses should include deionized water rinse first and an organic-free water rinse following the solvent rinse.

The effect of these two deviations from the SOP should be discussed in light of the sample results.

10. Page 4-1, 3rd paragraph - The use of the term "instrument detection level" is inaccurate. The term "quantitation limit" should be used in the context rather than "instrument detection level." The instrument detection level, or detection limit (DL), is the lowest level of a chemical that can be detected by an instrument. A chemical present below that level cannot be distinguished reliably from the normal, random noise of an analytical instrument or method. DLs are chemical-specific and instrument-specific and are determined by statistical treatment of multiple analyses in which the ratio of the lowest amount observed to the electronic noise level (i.e., the signal-to-noise ratio) is determined. Due to the irregular nature of instrument or method noise, reproducible quantitation of a chemical is not possible at the DL. Generally, a factor of 3 to 5 is applied to the DL to obtain a quantitation limit (QL), which is considered to be the lowest level at which a chemical may be accurately and reproducibly quantitated. DLs indicate the level at which a small amount would be "seen," whereas QLs indicate the levels at which measurements can be "trusted."
11. Page 4-1, 6th paragraph - Regional background concentrations are not suitable for determining acceptable background concentrations. Background concentrations

-5-

should be collected in an area close to the site but unaffected by contaminants from the site or any other potentially contaminated sites in the area. The background concentrations for organic and inorganic compounds need to be presented in the table for comparison with the contaminants analyzed for the site.

12. Page 4-3, Table 4-1 - Why are the detection limits so high for the semi-volatile compounds?
13. Page 4-5, Table 4-1 - What is the explanation for the differences in concentration in sample 43MW0100 and the duplicate? These results seem to indicate a laboratory problem. What was the effect on the rest of the samples?
14. Page 4-8, Table 4-2 - What is thought to be the source of the mercury?
15. Page 4-12, Section 4.5, bottom of page - How can this statement be correct given the large differences identified in Table 4-1? How is this statement reconciled with those results?
16. Page 4-13, Table 4-4 - Once again, why were the detection limits so high? Significant contamination could exist and not be detected.
17. Page 5-1, Section 5.0 - This section should be heavily caveated in that the source of the various compounds detected is virtually unknown. It is very likely that elsewhere at this site, higher concentrations of the contaminants found exist.

In addition, this section has not been reviewed by the EPA Office of Health Assessment. Due to the current workload, only Baseline Risk Assessments (BRA) and BRA segments of work plans are under review.

18. Page 5-1, 2nd paragraph - More specific terms such as "groundwater pathway" and "surface water pathway" should be referred to in the discussion of contaminant migration pathways instead of the term "water pathway."
19. Page 5-2, 3rd paragraph - The paragraph states that the site is well vegetated except for a small area located in the center of the site; therefore, the potential for fugitive dust generation has been assumed insignificant. This assumption was made without sufficient site-specific assessment and discussion of contaminants migration potential through leaching, tracking and fugitive dust generation/deposition. Site conditions under a future land-use scenario should also be addressed.

-6-

20. Page 5-3, Table 5-1 - The Henry's Law constant cited for the chemical butyl benzyl phthalate is incorrect.
21. Page 5-5, 1st paragraph - The text states that "future residential use of the site itself has not been considered due to the fact that the area is swampy and highly infested with insects." Rationale should be provided to justify this assumption. A qualitative assessment should be made of the likelihood that the assumed future land-use will occur.
22. Page 5-6, Section 5.3.1, 1st paragraph - The statement "If compliance is achieved prior to any invasive remedial activity, the remedial action is the no action alternative." is unsettling and possibly misleading. Please delete the statement.
23. Page 5-6, Section 5.3.1, 3rd paragraph - It seems that this area may well be a floodplain and/or a wetlands. Please revisit the question of location-specific ARARs.
24. Page 5-7, 5th paragraph - The concentrations of inorganic contaminants detected in the soil samples should be compared to site-specific soil background concentrations, not the concentrations in the soils of eastern United States.
25. Page 5-8, Table 5-2 - The cancer slope factors of inhalation exposure for the chemicals of concern should be presented in this table.
26. Page 5-13, 1st paragraph - The total organic carbon (TOC) analysis should be conducted for the soils at the site to obtain a site-specific TOC value.
27. Page 5-18, 2nd paragraph - The second sentence is confusing. Please clarify.
28. Page 5-27, 2nd paragraph - This paragraph states that the mass fraction of organic carbon in the soil was not analyzed; therefore, a default mass fraction value from the open literature rather than a site-specific value was used in the calculation, resulting in uncertainty. This uncertainty could be eliminated if a mass fraction value was determined for the soils at the site.

-7-

29. Page 5-28, 1st paragraph - The statement: "It should be restated, however, that the shallow aquifer is not currently used as a drinking water source; thus there is currently no actual threat of risk." is misleading. While there may be no actual threat, for purposes of CERCLA, the classification of the aquifer drives remediation decisions.
30. Page 6-2 - EPA concurs with the conclusion that additional data is necessary prior to determining the disposition of this site.



State of North Carolina  
Department of Environment, Health, and Natural Resources  
Division of Solid Waste Management  
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor  
William W. Cobey, Jr., Secretary

William L. Meyer  
Director

January 4, 1993

NAVY CLEAN

Commander, Atlantic Division  
Naval Facilities Engineering Command  
Code 1822

Date Received: 1/11/93

Project Manager: RWattaras

CTO Number: 0003

Attention: MCB Camp Lejeune, RPO: PRGM F (orig.): CMcasadei ; MDBartman ;  
Mr. Byron Brant, P.E. RWattaras/PF  
Norfolk, Virginia 23511-6287 File No.: 8

Commanding General  
Attention: AC/S, Environmental Management  
Building 1, Marine Corps Base  
Camp Lejeune, North Carolina 28542-5001

RE: MCB Camp Lejeune, Jacksonville, NC  
Onslow County  
Draft Site Inspection Report, Site 43

Dear Mr. Brant:

The North Carolina Superfund Section has reviewed the referenced document and concurs with the recommendation not to investigate in a RI/FS stage.

Based on our review of the document and the recommendation made, it appears additional sampling is proposed to better assess the site specific background levels of contaminants noted in the sediment, groundwater, and surface water, and to assess the source of PAH's in the soil. It appears this site presents a very low, if non-existent, potential for risk to human, aquatic, or fauna receptors. If a recommendation for no further action is made, the state will consider this.

Post-It™ brand fax transmittal memo 7671		# of pages > <u>6</u>
To <u>Ray Wattaras</u>	From <u>Byron Brant</u>	
Co. <u>Baker</u>	Co. <u>LANTDIV</u>	
Dept. <u>CLEAN</u>	Phone # <u>804-445-2931</u>	
Fax # <u>412-269-2002</u>	Fax # <u>" " -6662</u>	

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Mr. Brant  
1-4-93  
Page 2

An attachment has been provided with our review comments.

Very Truly Yours,



E. Peter Burger, P.E.  
Environmental Engineer  
NC Superfund Section

PB/dk/21

Attachment

cc: George Radford, MCB Camp Lejeune  
Michelle Glenn, US EPA Region IV

**Review Comments  
Site Inspection Report, Site 43  
MCB Camp Lejeune  
Jacksonville, Onslow County, North Carolina  
January 4, 1992**

- Executive Summary, page ES.1, 3rd paragraph.

Change 4th sentence to read, "Agan Street borders the site on the west".

- Section 1.0 Introduction, page 1-1, 2nd paragraph.

Change "Site 65" to "Site 43" in 3rd sentence.

- Section 1.2.1 Soil Investigation, page 1-8, 1st paragraph.

Please indicate size lamp when discussing HNu.

- Section 2.2 Site 43- Agan Street Dump.

Please indicate in this section the water classifications for Surface, Tidal, and Fresh waters. These are SC NSW and "C" respectively. The deep aquifer which is a source of potable water is classified "GA"; this should also be identified.

- Section 2.2.3 Geology and Soils, page 2-7, 1st paragraph.

Please support the statement that "humic material may be a result of frequent flooding...".

- Figure 4-1, page 402.

Please indicate concentration units in legend.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

MAY 14 1993

4WD-FFB

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Byron Brant  
Department of the Navy - Atlantic Division  
Naval Facilities Engineering Command  
Code 1822  
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site  
Site 44 - Jones Street Dump  
Jacksonville, North Carolina

Dear Mr. Brant:

EPA has reviewed the document titled "Draft Final Site Inspection Report - Site 44 Jones Street Dump" dated March 30, 1993. The majority of the comments submitted to the Navy by EPA have been incorporated. A few remaining comments are attached, these should be addressed prior to finalization of the document.

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

Sincerely,

A handwritten signature in cursive script that reads "Michelle M. Glenn".

Michelle M. Glenn  
Senior Project Manager

Enclosure

cc: Peter Burger, NCDEHNR  
Neal Paul, MCB Camp Lejeune

## SPECIFIC COMMENTS

1. Response to EPA Specific Comment No. 8 on the Draft Report, Page 1-7, Figure 1-3:

The groundwater elevation values were revised as requested, but there are still discrepancies between the groundwater elevations and ground surface elevations presented in Figure 1-3 and in Table 2-1. For example, based on Figure 1-3 the ground surface elevation near monitor well MW03 is between 5 and 10 feet above mean sea level (msl). Table 2-1 indicates that ground surface at this location is 14.95 feet above msl. The groundwater elevation indicated in Figure 1-3 for monitor well MW03 is 14.95 feet, and in Table 2-4 the groundwater elevation is 10.17 feet. The figure and/or table should be corrected.

2. Response to EPA Specific Comment No. 12 on the Draft Report, Page 2-5, Paragraph 4:

Contrary to the Navy's response, the Draft Final Report was not modified to include a description of the degree of hydraulic continuity between the surficial aquifer and the Castle Hayne aquifer.

3. Response to EPA Specific Comment No. 17 on the Draft Final Report, Section 4.2:

The Navy states that arsenic concentrations are not above the maximum contaminant level of 50 ug/l. However, the laboratory data sheet for monitor well 44GW-011 in Appendix C indicates that arsenic occurs at 570 ug/l.

4. Response to EPA Specific Comment No. 18 on the Draft Report, Page 4-1:

The Navy was unresponsive to both parts of EPA Comment No. 18 concerning missing analytical data for sample no. 44MW0100D and the use of high detection limits.

5. Response to EPA Specific Comment No. 19 on the Draft Report, Page 4-6, Table 4-1:

Contrary to the Navy's response, Table 4-1 has not been revised to address EPA's comment. Numerical values for results rejected during validation were not included in the table.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

DEC 03 1992

4WD-FFB

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Byron Brant  
Department of the Navy - Atlantic Division  
Naval Facilities Engineering Command  
Code 1822  
Norfolk, Virginia 23511-6287

RE: Marine Corps Base Camp Lejeune NPL Site  
Site 63 - Verona Loop Dump  
Jacksonville, North Carolina

Dear Mr. Brant:

EPA has reviewed the document titled "Draft Site Inspection Report - Site 63 Verona Loop Dump" dated October 8, 1992. Comments on the draft documents are enclosed. These documents have been given a cursory review to provide you with guidance in developing an approach at the site to completing the site evaluation. EPA concurs with the recommendation for additional work. At the completion of the additional sampling the report should be resubmitted with a recommendation as to the final disposition of the site.

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

Sincerely,

NAVY CLEAN

*Michelle M. Glenn*

Michelle M. Glenn  
Senior Project Manager

Date Received: 12/15/92  
Project Manager: RPWattas  
CTC Number: 0003  
bcc: PRGM F (orig.); RPWattas/PF; LTSrinivasan(FYI)  
JLMarshall; MDBartman; CMCasadei  
Subfile No.: 08

Enclosure

cc: Peter Burger, NCDEHNR  
George Radford, MCB Camp Lejeune

Post-It™ brand fax transmittal memo 7671		# of pages ▶ 7	
To <u>Ray Wattas</u>	From <u>Byron Brant</u>	Co. <u>Baker Env.</u>	Co. <u>LANTDIV</u>
Dept. <u>CLEAN</u>	Phone # <u>804-445-2931</u>	Fax # <u>412-269-2002</u>	Fax # <u>" -6662</u>

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COMMENTS  
DRAFT SITE INSPECTION REPORT  
SITE 63 VERONA LOOP DUMP  
MARINE CORPS BASE CAMP LEJEUNE

GENERAL COMMENTS

1. As part of the SI, Baker conducted a preliminary risk assessment (PRA) which is included in the Draft SI Report. The PRA is considered incomplete due to the fact that the sampling analytical database used was too limited to derive any valid and substantiated conclusions, as acknowledged in the Draft SI Report. Furthermore, the sampling analytical database for the PRA was based upon the detected analytes in soil and groundwater samples that were collected around the perimeter of the landfill. The sample results may not be representative of the maximum concentrations of these contaminants. There may be contaminant sources (hot spots) in the landfill where wastes had been disposed that would contain higher concentrations of contaminants.
  
2. The PRA presented in the Draft SI Report compares the concentrations of detected contaminants to Federal and state standards, applicable or relevant and appropriate requirements (ARARs), to be considered (TBC) guidelines and advisories and risk-based preliminary remediation goals (PRGs). The PRA concludes that soil contamination poses no human health or environmental risk. However, the PRA was conducted based solely upon a current commercial/industrial land-use setting with only transient military personnel being considered as potential human receptors. Neither risks of the contaminants due to inhalation of volatile compounds from the soil nor risks due to inhalation of particulates from the soil were assessed, and a site-specific exposure duration value was assumed to be 2 years compared with a standard default value of 25 years for commercial/industrial land use. An assessment should be conducted of risks associated with all exposure pathways under a future land-use scenario which includes a more restrictive residential land use. This will have to be done as part of the Baseline Risk Assessment. It is important to remember that the risk-based PRGs are initial guidance; they do not establish that cleanup to meet these goals is warranted. The PRGs may be revised based on the consideration of appropriate factors including, but not limited to exposure factors, uncertainty factors and technical factors. Included under exposure factors are the cumulative effect of multiple contaminants, the potential for human exposure from other pathways at the site, population sensitivities, potential impacts on

-3-

- environmental receptors and cross-media impacts of alternatives. Factors related to uncertainty may include the reliability of alternatives, the weight of scientific evidence concerning exposures, individual and health effects and the reliability of exposure data. Technical factors may include detection/quantification limits for contaminants, technical limitations to remediation, the ability to monitor and control movement of contaminants and background levels of contaminants. The final selection of the appropriate risk level is made when the remedy is selected based on the balancing of criteria.
4. The Draft SI Report recommends that "the site should not undergo a remedial investigation/feasibility study (RI/FS) since hazardous wastes are not believed to have been disposed of at the site." This recommendation is premature since Site 63 has not been fully characterized. Volatile and semivolatile compounds, pesticides/ polychlorinated biphenyls (PCBs) and metals were detected in the soil and groundwater samples collected at Site 63. These detected contaminants may indicate that hazardous wastes were disposed in the landfill. Decisions regarding whether an RI/FS should be conducted at Site 63 should only be made after sufficient data regarding the extent of contamination at Site 63 has been collected.
  5. The Draft SI Report recommendations regarding further actions are deficient. The Draft SI Report recommends that background inorganic groundwater samples and additional groundwater samples from the three existing monitor wells should be collected as well as surface water/sediment samples upgradient and downgradient from Site 63. These actions are necessary for site characterization. However, further actions in addition to those the Draft SI Report recommends would be necessary to provide sufficient data to allow development of a defensible risk assessment. These actions should include an investigation to determine whether the landfill at Site 63 contains hot spots. The EPA guidance on landfills, Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites (EPA 1991), states that if hot spots are delineated, samples should be collected to determine the characteristics of the hot spot wastes. Therefore, data on the existence of hot spots must first be obtained. Examples of investigative methods applied to the delineation of hot spots include soil gas and geophysical surveys.

-3-

6. Additional monitor wells should be installed to characterize the lateral and vertical extent of contamination in the shallow aquifer. The three wells that were installed around the perimeter of the landfill detected volatile and semivolatile compounds and metals in the groundwater. However, an insufficient number of wells were installed to provide data to determine extent of contamination.
7. All additional surface soil, subsurface soil, groundwater and surface water/sediment samples that may be collected in further sampling efforts should be analyzed for the full Target Compound List/Target Analyte List (TCL/TAL). The wastes that were disposed in the landfill have not been characterized and the extent of contamination resulting from the waste disposal activities at the landfill is still relatively unknown.

#### SPECIFIC COMMENTS

1. Page ES-1, 2nd paragraph - If the answer to item number one is "yes", then the answer to number three is "yes".
2. Page ES-2, 5th bullet - Indicate what "NEESA" represents. The QA/QC sample collection methods used should be no less stringent than the criteria set forth in the ECB SOPQAM.
3. Page ES-2, 1st paragraph - Regional background concentrations are not suitable for determining acceptable background concentrations. Background concentrations should be collected in an area that is close to Site 63 but unaffected by contaminants from either Site 63 or any other potentially contaminated sites near Site 63.
4. Page ES-2, 1st paragraph - An effort should be made to determine whether the shallow aquifer is hydraulically interconnected with the underlying Castle Hayne drinking water aquifer at Site 63. The commercial/industrial land-use scenario used in the PRA would be invalid if the drinking water aquifer has been impacted from migration of contaminants from the shallow aquifer.
5. Page ES-2, 2nd paragraph - The Draft SI Report states that "barium, chromium and lead were detected in groundwater above the State groundwater standards and/or Federal primary drinking water standards (i.e. MCLs)." Aluminum, arsenic, iron, manganese and nickel were also detected in

-4-

elevated levels in the groundwater at Site 63. These metals were detected in the monitor wells at concentrations that exceed the Federal Ambient Water Quality Criteria (AWQC) Human Health standards. The Federal AWQC Human Health standards for aluminum, arsenic, iron, manganese and nickel are 146 micrograms/liter (ug/l), 0.0022 ug/l, 300 ug/l, 50 ug/l and 13.4 ug/l, respectively.

6. Page ES-2, 4th paragraph - The Draft SI Report states that "surface water does not appear to be significantly impacted via groundwater discharge or surface water runoff from the site." However, aluminum and iron were detected in the surface water samples 63SW/SD01 and 63SW/SD02 at levels above the Federal AWQC Human Health standards. What is meant by "significantly"?
7. Pages ES-2, ES-3 - The comments in the Draft SI Report regarding the extent of contamination in the surface water and sediments in the intermittent stream at Site 63 are contradictory. On page ES-2, the Draft SI Report states that "surface water does not appear to be significantly impacted via groundwater discharge or surface runoff from the site." On page ES-3, however, the Draft SI Report states that "the contaminants indicate that adverse effects associated with aquatic organisms may occur." This contradiction requires clarification.
8. Page ES-3, top of page - What is a "potential remediation goal"? Where is it defined in the CERCLA guidance?
9. Page ES-3, 6th paragraph - The Draft SI Report states that "hazardous wastes are not believed to be present at Site 63." However, the sampling results contradict this statement. Volatile and semivolatile compounds, pesticides/PCBs and metals were detected in the soil and groundwater samples collected during the SI. The detected contaminants may indicate that hazardous materials were disposed in the landfill.
10. Page ES-3, last paragraph - The classification of the aquifer is of more significance than the current use.
11. Page ES-4, "Recommendations" - The decision on whether or not an RI/FS will be required may be deferred until additional information has been collected. It is apparent, though, that some kind of source is present as concentrations in the wells appear to vary by orders of magnitude over very short distances.

-5-

12. Page 1-7, Figure 1-3 - It appears that no upgradient or background sample was collected from the intermittent stream. This will be necessary in light of the elevated concentrations of inorganic compounds detected in the sediment sample collected adjacent to the disposal area.
13. Page 1-10, 2nd paragraph - The use of only steam cleaning for downhole and sampling equipment decontamination between each drilling event is inadequate. For appropriate decontamination procedures, refer to Appendix E.9 of the ECB SOPQAM for details. Furthermore, the ECB SOPQAM requires that the steam cleaner and/or high-pressure hot water washer shall be capable of generating a pressure of at least 2500 pound per square inch (PSI) and producing hot water and/or steam (200 F plus).
14. Page 1-10, 3rd paragraph - Deionized water and organic-free water should be used instead of distilled water for the decontamination of sampling equipment.
15. Page 2-8, Section 2.2.4 - The information provided here is confusing when compared with the groundwater elevations provided on Figure 1-3 and the topography discussion in Section 2.2.1 (page 2-7). Please clarify.
16. Page 3-1, paragraphs 4 and 5 - The Draft SI Report should provide specific details regarding the composition of the bivouac waste and the volume of the waste that was reportedly disposed in the landfill. The Draft SI Report states that the bivouac waste was disposed in the landfill, but does not provide a description of the composition of that waste, the volume of the waste disposed or the years of disposal operations at the landfill.
17. Page 4-2, Table 4-1 - Why are the detection limits so high for the semi-volatile compounds? At these levels, you might not detect contaminants present above MCLs.
18. Page 4-8, Figure 4-2 - There appears to be a significant disparity in the concentrations of contaminants found over a fairly small area. Does the author have a hypothesis as to the reason for the wide variation? Other than a potential contaminant source?
19. Page 5-1, Section 5.0 - This section should be heavily caveated in that the source of the various compounds detected is virtually unknown. It is very likely that elsewhere at this site, higher concentrations of the contaminants found exist.

-6-

In addition, this section has not been reviewed by the EPA Office of Health Assessment. Due to the current workload, only Baseline Risk Assessments (BRA) and BRA segments of work plans are under review.

20. Page 5-1, 2nd paragraph - More specific terms such as "groundwater pathway" and "surface water pathway" should be referred to in the discussion of contaminant migration pathways rather than the term "water pathway."
21. Page 5-4, 4th paragraph - Rationale should be presented to justify the statement that "future residential use has not been considered due to the fact that there is no future residential use planned for the area at Site 63." EPA Region IV requires that a risk assessment be conducted under a future residential land-use scenario as a conservative approach. This is not a justification for the arbitrary land use scenario adopted by the author. In a situation where a potential "no action" scenario is under consideration, all assumptions made must be of the utmost conservative nature in order to ensure that the "no action" determination is protective.
22. Page 5-5, 2nd paragraph - The discussion on exposure pathways at Site 63 is insufficient and should include assessment of the following elements that constitute each pathway: source and mechanism of chemical release, retention or transport medium, exposure point of potential human contact with the contaminated medium and exposure route at the exposure point.  
  
The classification of the aquifer must be considered.
23. Page 5-7, paragraphs 1 and 2 - The concentrations of inorganic contaminants detected in the soil samples should only be compared to the site-specific concentrations of background soil samples collected at the same sampling intervals, not the concentrations in the soils of the eastern United States. Site-specific background soil samples should also be collected and analyzed for organic parameters.
24. Page 5-11, 2nd paragraph - Detailed rationale should be provided to justify the statement that "inhalation of volatile contaminants detected in the soils is not considered to be a factor."
25. Page 6-1, 2nd paragraph - If the inorganic contamination in groundwater is not related to disposal at the site, what is the source of the contaminants?



State of North Carolina  
Department of Environment, Health, and Natural Resources  
512 North Salisbury Street • Raleigh, North Carolina 27604

James B. Hunt, Jr., Governor

Division of Solid Waste Management  
Telephone (919) 733-4996

Jonathan B. Howes, Secretary

March 15, 1993

Commander, Atlantic Division  
Naval Facilities Engineering Command  
Code 1822  
Attention: MCB Camp Lejeune, RPM  
Mr. Byron Brant, P.E.  
Norfolk, Virginia 23511-6287

Commanding General  
Attention: AC/S, Environmental Management  
Building 1, Marine Corps Base  
Camp Lejeune, North Carolina 28542-5001

RE: Draft Site Investigation, Site 63 - Verona Loop Dump  
Jacksonville, Onslow County, North Carolina

Dear Mr. Brant:

The State of North Carolina has reviewed the referenced document along with comments prepared by the US EPA Region 4. The state has also enclosed our comments to the draft document.

The state concurs with the recommendation that additional work be conducted at the site. We look forward to the inclusion of our comments along with EPA's comments in planning the work. At the completion of the additional work, the document should be resubmitted with final recommendations for the disposition of the site. If you have any questions please contact me at (919) 733-2801.

Sincerely,

E. Peter Burger, P.E.  
Environmental Engineer  
NC Superfund Section

Enclosure

cc: Michelle Glenn, US EPA  
Neil Paul, MCB Camp Lejeune

P.O. Box 27687, Raleigh, North Carolina 27

An Equal Opportun

Post-It™ brand fax transmittal memo 7671		# of pages > 3
To Ray Wattas	From Byron Brant	
Co. Baker Env.	Co. LANTDIV	
Dept. CLEAN	Phone # 804-445-2931	
Fax # 412-269-2002	Fax # 10 11-6662	

FINALLY!

Site 63  
Verona Loop Dump  
MCB Camp Lejeune, Jacksonville, Onslow County, NC  
March 11, 1993

### GENERAL COMMENTS

1. Inorganic compounds are present in soils, sediments, surface water and groundwater. Lead is higher than what would be expected from the corresponding lead levels in the soil. Beryllium and low levels of organics are found in the groundwater and not in the soils. This may indicate migration of contaminants from off site.

It is recommended that additional site investigation be performed to further characterize the site and determine if any sources or hot spots are present. Additional background data on groundwater and soils would also be helpful to identify any contaminants migrating from off site, and verify background levels.

Other contaminants at the site, such as pesticides and one hit of PCB, appear to be limited to the surficial soils of the site. Any additional sampling should continue to analyze for these contaminants.

2. Please note that semi volatiles have been found in soils only in borings developed into monitoring wells. This is also true of soil borings/monitoring wells constructed at Site 43. The monitoring wells at both sites were installed during the same event, August 8 and 9, 1991. This coincidence should be evaluated to determine if there were any inadequacies in field techniques, or QA/QC procedures that may have resulted in the introduction of contaminants.
3. The State concurs with remarks made by the EPA concerning the Preliminary Risk Assessment.

### SPECIFIC COMMENTS

Page ES-3, 2nd paragraph. Add NC Groundwater Standards to Federal Drinking Water Standards.

Page ES-3, Conclusions/Recommendations. No conclusions can be drawn until additional site characterization data and site specific background data can be collected and analyzed.

Page 1-7, Figure 1-3. If possible, please provide some contours on site maps to give the reader a better sense of general topography.

Page 1-9, 3rd paragraph. It is noted that groundwater samples were not filtered. What is the EPA's present position on filtering groundwater samples? Are samples filtered before analysis? If metals or other contaminants have sorbed to fines, will this result in an inaccurate characterization of the groundwater?

Page 3-1, Section 3.2. The types of wastes at this site are not known. To state that the wastes "only consist of bivalent wastes" implies, without proper justification, a great deal of certainty about the past activities at this site.

Table 5-4. Correct NC Groundwater Standard from Iron to 0.3 mg/l.