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(804) 322-4793

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JUN 27 1994

CERTIFIED MAIL RETURN RECEIPT REQUESTED

United States Environmental Protection Agency,
Region IV
Attn: Ms. Gena Townsend
Waste Management Division
345 Courtland Street, N.E.
Atlanta, Georgia 30365

Re: Site Inspections at Sites 43, 44, 63, and 65;
MCB, Camp Lejeune, North Carolina

Dear Ms. Townsend:

Responses to comments submitted by USEPA Region IV and the NCDEHNR on the Draft Site Inspection Reports are enclosed. Appropriate comments have been incorporated into the final reports forwarded to you on January 31, 1994.

Any questions concerning these responses should be directed to Ms. Linda Berry who may be reached at (804) 322-4793.

Sincerely,

L. A. BOUCHER, P.E.
Head
Installation Restoration Section
(South)
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Enclosure

Copy to: (w/encl)
NC DEHNR (Mr. Patrick Watters)
MCB Camp Lejeune (Mr. Neal Paul)
Baker Environmental (Mr. Ray Wattras)

Blind copy to:
1823 (LGB) 2 copies w/encls)
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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
State of North Carolina
Department of Environment, Health and Natural Resources
on the Draft Site Inspection Report for
Site 65 Engineer Area Dump
MCB Camp Lejeune, North Carolina
Comment Letter Dated March 17, 1993

Response to General Comments

1. The additional sampling at the site that will be completed under the RI/FS will comply with the US EPA SOPQAM procedures.

2. The higher concentrations of certain contaminants within subsurface samples as compared to surface samples could possibly be attributable to the history of the site as a dump facility. If contaminants were placed upon the previously existing ground surface and subsequently covered with clean fill, the concentrations of contaminants would be greater in the subsurface samples than the surface samples. Furthermore, contaminated materials may have been deposited into excavated pits or trenches which were subsequently backfilled. Additional investigation and analysis will be completed under the RI/FS to further characterize the contaminants and locate possible sources thereof.

3. Additional environmental samples will be collected and analyzed under a RI/FS in order to further characterize the extent of contamination and to generate a statistically significant number of samples at the site. Samples of groundwater, surface water, sediment, and soil will be collected and analyzed. Background samples will be included.

4. A Baseline Risk Assessment, which will include dermal exposure as well as inhalation and ingestion, will be completed under the RI/FS.

5. A glossary of acronyms used in the Site Inspection Report has been included in the report behind the Table of Contents.

Response to Specific Comments

1. The EPA comments have been incorporated into the Site Inspection Report.

2. The decision to proceed with an RI/FS has been made. The Site Inspection Report has been revised accordingly.

3. Additional figures that include topographic contours and relevant surface features will be furnished with the RI/FS Report. The use of a 10-foot contour map would not be appropriate for the site, given the elevation of the site area.

4. Samples of soil cuttings generated from the advancement of test borings and installation of monitoring wells were ultimately analyzed and determined not to be contaminated or hazardous.

during decontamination and from monitoring well development and purging was also analyzed and determined not to be contaminated or hazardous. The containerized water was transported to a sewage treatment plant and deposited with other Investigation Derived Waste (IDW) liquids. Section 1.2.5 of the text has been revised to include the description of disposition of the Site Generated Wastes.

5. Courthouse Bay is classified as Tidal Salt Waters, Class SA. Section 2.2.2 has been revised to include this classification.

6. Buildings 201, 239 and 237 are situated approximately 1150, 950 and 1350 feet (respectively) southwest of the site, as referenced from Monitoring Well 65MW03. Section 2.2.5 has been revised to include these distances.

7. The ground surface does slope gently towards the south-southeast. The description of site topography in Section 2.2.1 has been corrected. Additional figures that include topographic contours will be furnished with the RI/FS Report. These figures will allow for more accurate description of site topography.

8. Iron (26,800-129,000 ug/l) has been added to the list (in Section 4.2) of metals for which elevated levels were detected in the groundwater samples collected from the monitoring wells.

9. The Baseline risk assessment to be completed under the RI/FS will include dermal exposure.

10. The current federal MCL for Beryllium is 0.004 mg/l. The previous level was 0.001 mg/l. Table 4-4 (Table 5-4 in the Draft Report) has been revised to include the correct value of 0.3 mg/l for the state MCL for iron.

11. Additional on-site and background data (soils and groundwater) will be collected, and a Baseline Risk Assessment will be completed under the RI/FS that is proposed for Site 65. The recommendations presented in the Site Inspection Report have revised to reflect that the site should undergo a RI/FS.

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 5/14/93

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 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
US Environmental Protection Agency, Region IV
on the Draft Site Inspection Report for
Site 65 Engineer Area Dump
MCB Camp Lejeune, North Carolina
Comment Letter Dated 11/30/92

Response to General Comments

1. Additional environmental samples will be collected and analyzed under a Remedial Investigation/Feasibility Study (RI/FS) in order to further characterize the extent of contamination and to generate a statistically significant number of samples at the site. Samples of groundwater, surface water, sediment, and soil (especially in the area near monitoring well borehole 65MW02 where relatively high concentrations of contaminants were detected during the site inspection) will be collected and analyzed.

2. The RI/FS will include sampling of groundwater from the Castle Hayne aquifer.

   The Castle Hayne aquifer is a semi-confined aquifer that consists of a series of sediments and discontinuous clay lenses. The surficial aquifer also consists of a series of sediments (primarily sand) and clay. The layer that separates the surficial and Castle Hayne aquifers is confining in some areas and semi-confining (leaking) in other areas of MCB Camp Lejeune. Therefore, the aquifer as a whole should be considered to be semi-confined. Descriptions of the Castle Hayne aquifer as "confined" have been removed from the text. The shallow aquifer beneath the site will be assessed for justifiable potential future uses under the RI/FS.

3. The Preliminary Risk Assessment has been removed from the text. Analysis completed under the RI/FS will provide additional data pertaining to concentrations of contaminants. Furthermore, a Baseline Risk Assessment will be completed to further identify the potential risks posed by the site under the RI/FS.

4. Preliminary remediation goals (PRGs) have been removed from the SI Report. The RI/FS Work Plan will identify PRGs for those reasons stated in the comment.

5. The additional sampling at the site that will be completed under the RI/FS will comply with the ECB SOPQAM procedures.

6. The footnote on the tables has been corrected.

7. A glossary of acronyms used in the Site Inspection Report has been added to the report following the Table of Contents.

Response to Specific Comments

1. The Site Inspection Report has been revised. It has been concluded that a release of hazardous substances may have occurred and further actions (completion of an RI/FS) are required.

2. The specific NUS report containing information regarding the waste disposal history at the site

has been referenced.

The Water and Air Research report (i.e., Initial Assessment Study) has been added to the reference listing.

3. The acronym "NEESA" indicates Naval Energy and Environmental Support Activity. 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. As mentioned previously, QA/QC sample collection and analysis will follow EPA Region IV guidelines.

4. The concentration of Aroclor 1254 (230 ug/kg), detected in one subsurface soil sample, was slightly above the CRQL (190 ug/kg) adjusted for a dry weight basis. The surface soil sample and other subsurface soils collected from this site did not exhibit any PCB contamination. Sampling locations proposed under the RI/FS will be selected in order to obtain site-specific background data and to verify the presence and concentrations of contaminants detected under the Site Inspection.

5. The Preliminary Risk Assessment has been removed from the Site Inspection Report. A quantitative Baseline Risk Assessment (based upon additional data) rather than a Preliminary Risk Assessment (which is qualitative) will be completed as part of the RI/FS.

6. 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 is classified as GA. This classification of groundwater is for existing or potential sources of drinking water supplies for humans 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.

7. The fact that high concentrations of metals may be associated with battery disposal has been noted in the Conclusion of the Executive Summary of the Site Inspection Report.

8. NUS did not conduct any previous investigations at the site. NUS prepared the SI Project Plans.

9. The recommendations presented in the Executive Summary have been revised to state that a RI/FS should be conducted at the site. The use of geophysical techniques to locate buried drums will be considered.

10. Background soil samples will be collected and analyzed under the RI/FS. The source of the disposal area will be further investigated in the RI. The IAS Report (Water and Air Research, 1983) describes in little detail previous disposal activities.

11. Sampling proposed under the RI/FS will follow ECB SOPQAM protocol.

12. Please refer to the response to Specific Comment 11.

13. Sampling activities under the RI/FS will utilize deionized and organic-free water for the decontamination of sampling equipment.

14. The text of the Site Inspection Report has been changed to reflect that wetlands have not been delineated at the site.

15. Please refer to the response to General Comment 2. The description of the aquifer has been revised in the Site Inspection Report.

16. The statement that indicates doubt with respect to the necessity of completing additional work at the site has been removed from the text.

17. Sampling locations were based on available information, which is limited.

18. The term "instrument detection limit" (IDL) was used because there are positive values that may be below the CRQL but have been identified and quantified. These values may not be statistically reproducible from instrument to instrument and consequently values below the CRQL but above the IDL are considered estimated and are "flagged" with a "J" qualifier by the lab and validator. Inorganic and organic data with a "J" qualifier indicate an uncertainty in the reported concentration, but not in the assigned identity. Therefore, these data can be used just as positive results with no data qualifiers. The text is revised to state that only fractions with at least one positive result are presented.

19. The correct monitoring well borehole number has been inserted in the text.

20. "Significant levels of inorganic contaminants" implies a concentration that is greater than twice the average site-specific background level. Background samples will be collected and analyzed under the RI/FS to determine background levels. The sentence has been removed from the text.

21. The higher concentrations of certain contaminants within subsurface samples as compared to surface samples could possibly be attributable to the history of the site as a dump facility. If contaminants were placed upon the previously existing ground surface and subsequently covered with clean fill, the concentrations of contaminants would be greater in the subsurface samples than the surface samples. Furthermore, contaminated materials may have been deposited into excavated pits or trenches which were subsequently backfilled. Additional investigation and analysis will be completed under the RI/FS to further characterize the contaminants and locate the sources thereof.

22. Please refer to the response to Specific Comment 18.

23. The State Freshwater Quality Standards for contaminants detected in surface water samples are presented in Table 4-6.

24. The range of concentrations could be due to earth moving activities during dumping, fill materials used, or specific wastes being deposited in particular areas of the dump. The additional data acquired during the RI/FS should provide greater insight into the variation of metal concentrations at the site. Based on numerous investigations conducted at over eight sites throughout the base, the occurrence of "wide range of metals concentration" is common, contrary to the comment.

25. One duplicate sample was collected for every 20 samples of media collected. The investigation at Site 65 was conducted concurrent with investigations at three other sites (Sites 43, 44, and 63). Therefore, a duplicate sample may not be available for every site in every media.

26. Data acquired during the RI/FS will better define maximum contaminant levels at the site. The Preliminary Risk Assessment has been removed from the report. A Baseline Risk Assessment, in accordance with current EPA risk assessment guidance, will be completed under the RI/FS.

27. The specific discussion of contaminant migration pathways was included in the Preliminary Risk Assessment section, which has been removed from the text.

28. The specific reference to future potential land use was included in the Preliminary Risk Assessment section which has been removed from the text. A Baseline Risk Assessment evaluating current and potential future receptors will be completed under the RI/FS.

29. The Baseline Risk Assessment to be completed under the RI/FS will include assessment of 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 Baseline Risk Assessment completed under the RI/FS will be based upon current aquifer classifications rather than current aquifer use.

30. The specific reference to remedial action was included in the Preliminary Risk Assessment section, which has been removed from the text.

31. The specific reference to wetlands was included in the Preliminary Risk Assessment section, which has been removed from the text.

32. According to the 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. Nevertheless, site-specific and base-specific soil background concentrations will be used for comparison under the RI/FS.

33. Please see the response to Specific Comment 32. In addition, classification of soils was completed during the advancement of soil borings. Open literature TOC values were obtained based upon the soil classifications and utilized for the Site Investigation. The need for TOC analysis will be considered for soil samples collected under the RI/FS.

34. Please refer to the response to Specific Comment 28.

35. The specific sentence was included in the Preliminary Risk Assessment section which has been removed from the text. However, using the terms threat and risk is indeed redundant.

The summary in which the presence of PCBs in the soil was not mentioned was included in the Preliminary Risk Assessment section, which has been removed from the text.

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).

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 (µg/L), concentrations detected in the surface water (1040 µg/L, 1110 µg/L, and 1090 µg/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)

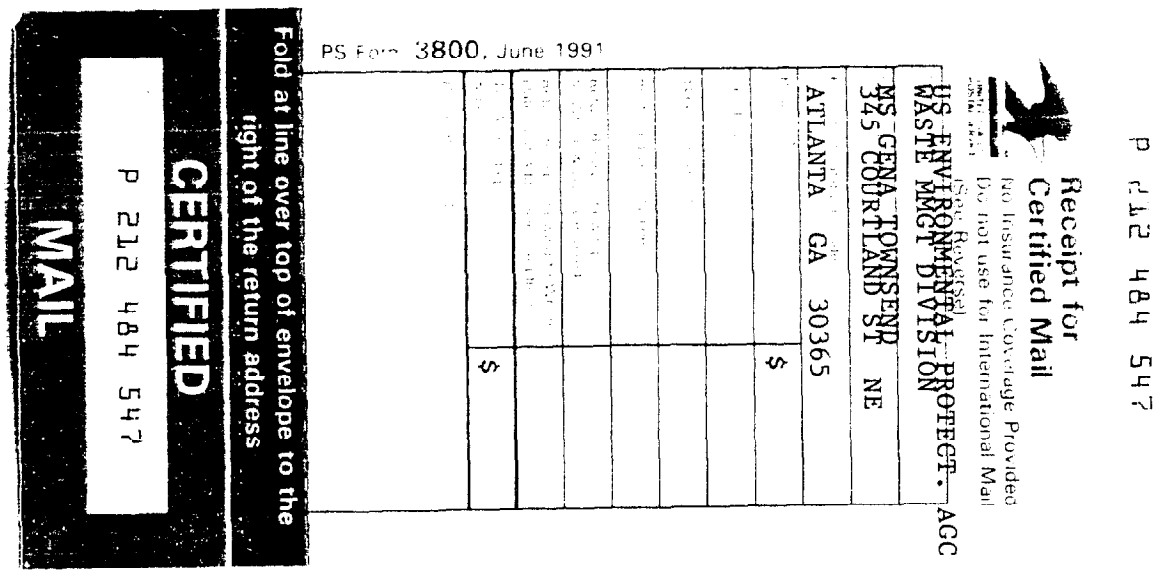
22. This section has been deleted from the SI report since a quantitative risk assessment will be conducted as part of the RI.
The aquifer classification has been added to Section 2 of the Site Inspection Report. The surficial aquifer is classified GC and the Castle Hayne Aquifer is classified as GA.

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 mat 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.



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