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DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
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CERTIFIED MAIL RETURN RECEIPT REQUESTED

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

Re: MCB Camp Lejeune; Responses to EPA Region IV Comments on the Draft RI/FS Project Plans for Sites 6, 48, and 69

Dear Ms. Glenn:

We have received the Environmental Protection Agency Region IV comments (letters dated February 6 and 7, 1992 received in our office February 11 and 10, 1992, respectively) to the subject draft documents. The Navy/Marine Corps responses to these comments are enclosed.

The most significant response is that we will use a "one field trip" approach to data collection, as suggested by EPA, for all areas included in the subject project plans with exception of Site 69 and the soils investigation for Lot 203. The philosophy of this approach is to obtain enough data during one trip at the site to fully characterize that site. However, as the "one field trip" approach is completely different from our standard method of performing these studies and we are not certain this will be monetarily or contractually efficient, we are using this method only on a trial basis for these sites at this time.

In addition to the revisions necessitated by your comments, other changes will be made to the subject documents. In light of recent discussions with EPA Region IV regarding Baseline Risk Assessments and Ecological Risk Assessments, Site 9 (the Fire Fighting Training Pit at Piney Green Road) will be added to the subject project plans due to its proximity to Site 6. As surface water (and possibly groundwater) at Sites 6 and 9 drain toward Bearhead Creek (which divides the sites), we consider the inclusion of Site 9 in this investigation to be necessary.

Re: MCB Camp Lejeune; Responses to EPA Region IV Comments on the Draft RI/FS Project Plans for Sites 6, 48, and 69

Additionally, we recently conducted a walkover of Sites 6 and 9 and found disturbed soil, buried and semi-buried shell casings, abandoned 55-gallon drums, and numerous other discarded debris beyond the previously proposed areas of investigation. These newly discovered areas are situated north of Lot 203, between Lots 203 and 201, and west of the Fire Fighting Training Ring near the railroad tracks. Accordingly, we are expanding the size of the investigation in the subject project plans to include these recently found areas.

The Draft Final RI/FS Project Plans for Sites 6, 9, 48, and 69 will be forwarded to your office no later than April 11, 1992.

Any questions concerning these responses should be directed to Mr. Byron Brant at (804)-445-2931.

Sincerely,

P. A. Rakowski

P. A. RAKOWSKI, P.E.
Head
Environmental Programs Branch
Environmental Quality Division
By direction of the Commander

Copy to:
NCDEHNR (Mr. Jack Butler)
MCB Camp Lejeune (Mr. George Radford)
Baker Environmental (Mr. Ray Wattras)

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ATTACHMENT A
RESPONSE TO COMMENTS TO THE DRAFT RI/FS WORK PLANS
FOR SITES 6, 48, AND 69, MCB, CAMP LEJEUNE
EPA REGION IV LETTER DATED FEBRUARY 6, 1992

Response to General Comments - RI/FS Work Plan

1. Section 2 has been expanded to include information on climate, site topography, area demographics, and site-specific geology/hydrogeology. Groundwater flow directions have been included with applicable work plan figures. Additionally, the location of Camp Lejeune in relation to the State of North Carolina has been included on Figure 1-1. A map showing the entire base also has been included.

2. Phasing will be eliminated at Site 6, Lot 201, Site 9, and at Site 48. However, due to the complexity of Site 6 (Lot 203), a phased RI approach will be necessary for the soil investigation. Groundwater investigations at Lot 203 will be performed in one phase.

Some drums are being removed from Lot 203 prior to the RI field activities.

3. CADD drawings of Site 6, 9, and 48 are now included in the report. No CADD drawings exist for Site 69. These drawings were not available when the Draft Work Plan was prepared. The Work Plan and Sampling and Analysis Plan have revised figures. Scales are provided along with the directional north arrow.

4. Seasonal water level measurements will be collected on all wells used in the upcoming RI/FS.

5. Well summary tables have been included in the Work Plan and SAP.

6. The terminology, "contaminants of concern", has been changed to "target compounds" so that it is not confused with risk assessment terminology.

7. The scope of work has been revised to include the collection of Level II data for screening purposes, along with Level IV data for characterization/risk assessment/feasibility study purposes. Between 10 to 100 percent of the samples will be analyzed for TCL organics and TAL inorganics, depending on the site and media-specific investigation conducted.

8. Data Quality Objectives (DQOs) were discussed in the Quality Assurance Project Plan (QAPP). However, the discussion of DQOs has been expanded and has been included in the SAP and Work Plan.

9. Subsurface investigations at Lot 201, Site 9, and Site 48 will be performed in one phase. Design data will be included (e.g. grain size analysis, TOC, alkalinity, pH, BTU content, etc.). Subsurface investigations at Lot 203 will be conducted in two investigations due to the complexity and size of the study area (over 50 acres of diverse usage including a ravine area, wooded areas, former storage areas, and reported disposal areas).

10. With respect to soil contamination, until the source areas can be located, the collection of samples for treatability studies will not be planned. More information about the site and sources is necessary in order to determine whether treatment would be the plausible alternative selected for the site (e.g., if soil contamination at Lot 201 exhibits only trace levels of contamination, a capping alternative may be more feasible than a treatment alternative. Therefore, treatability studies would not prove cost effective since a non-treatment alternative would be selected).

Once source areas can be better defined and characterized, treatability studies will be planned if it is likely that soil treatment would be required for a particular source area. Treatability study specifications will be prepared and subcontractors procured.

Treatability studies for groundwater may be initiated when additional information is collected with respect to fully characterizing the groundwater quality problem. At present, little information is available to do this. Treatability studies would be conducted as soon as possible following receipt of RI field data.

11. See Responses No. 10 and 11.

12. Applicable tables in the work plan have been revised to include both State and Federal water quality criteria.

13. The threat to the environment has now been included. RI Objectives and field investigation activities have been added specifically for assessing impacts to the environment.

14. PVC wells are proposed because there is no reason to believe that PVC-related constituents (vinyl chloride or pthalates) are being detected in the existing wells at Camp Lejeune. All existing wells are constructed with PVC casing and screen. Justification for using PVC is given in the RI/FS Work Plan.

15. This has been clarified.

16. This has been corrected. This appeared to be a document-specific error since other copies of the report contain the full listing of acronyms.

Response to Specific Comments to the RI/FS Work Plan

1. See Response to No. 3 above.

2. This section has been revised to clarify the groundwater scheme at the various sites.

3. Groundwater flows in different directions at Lots 201 (southerly) and 203 (northerly). This has been clarified in the work plan.

4. This has been clarified in the report. Both State and Federal water quality standards have been included.

5. This presence of this ditch may not have been known. It was only recently discovered during the contractor's September 1991 site visit. It has been included in the upcoming RI field program.

6. We are not sure. It could be due to past mosquito control practices. Upstream samples (at the headwaters) and samples along the length of the stream will be collected to determined the area where pesticides are first encountered.

7. See Response No. 3. In addition, hydropunching will be performed to help assess groundwater conditions for final placement of permanent monitoring wells.

8. This has been included.

9. At the time available information did not lead the Navy/Marine Corps to analyzing for other constituents. However, full TCL organics and TAL inorganics will be analyzed for at Site 6 (Lot 203) in the upcoming RI field investigation.

10. Future sampling activities will employ EPA protocols for field sample collection, handling, and decontamination activities (use of EPA Region IV guidelines), along with laboratory sample handling and analysis procedures (EPA/CLP methods, when applicable). Field and laboratory QA/QC samples also will be used to assess false positives or negatives.

11. We are not sure. Tidal influence is one possible explanation. The field note books and data sheets are not available to determine whether human error (e.g., mislabeling of sample jars) was a factor. This area is being included in the surface water/sediment investigation.

12. At least 3 permanent wells will be constructed at Site 48 to assess groundwater flow direction and quality.

13. None to date. However, silver will be included in the analysis of soil samples.

14. A downgradient monitoring well will be constructed if the groundwater is found to be contaminated. Hydropunching will be conducted to help assess onsite groundwater quality and to determine the locations of permanent monitoring wells (including downgradient wells).

15. Yes, as far as we can determine based on the scope of work outlined in the RI/FS work plan.

16. The collection of shellfish and fish samples will most likely be conducted in the Summer of 1992.

17. This has been included.

18. Samples may not have been collected due to the potential presence of chemical agents. However, the reason why soil samples were not collected is not totally clear. No soil samples are being collected in the upcoming RI due to the potential presence of chemical agents.

19. These samples were collected in January in order to meet compliance deadlines.

20. This discussion has been modified to reflect the comment.

21. Correct. The previous risk assessment, although it was performed for Site 6 as a whole (i.e., including both Lots 201 and 203), better represents the risks at Lot 203. This has been clarified in the report.

22. Federal water quality criteria have been included in this discussion.

23. The groundwater under the Lot 201 study area will be investigated thoroughly in order to assess elevated "upgradient" metals concentration. The wooded areas to the east and across Bear Head Creek will be included in the RI/FS due to the presence of empty drums and other miscellaneous debris.

24. These technologies have been included.

25. This information has been included.

26. This information has been included.

27. Well construction details have been included.

28. The upcoming RI surface water/sediment investigations will provide a better assessment of Bear Head Creek and Wallace Creek. We agree that more data is needed.

29. Environmental impacts will be assessed in addition to human health.

30. These piles will not be able to be removed prior to the field investigation. They will most likely be disposed of prior to remediation of the site.

31. This section has been revised.

32. Federal standards have been included.

33. This has been deleted. However, direct treatment of surface water in a stream is unlikely.

34. The quality of existing data has been taken into account.

35. No groundwater sampling will be performed within the boundary of the former disposal area.

36. This discussion has been revised to reflect the comment.

37. This has been deleted.

38. Samples will be collected for full TCL/TAL analysis. Phasing will only be conducted at the Lot 203 study area.

39. Following the characterization of these drums during the RI field investigations, an interim action ROD to remediate all onsite drums could be implemented.

40. See Response No. 2 under "Responses to General Comments".

41. This comment has been reflected in the work plan.

42. Ecological impacts will be evaluated. Field investigations have focused on the collection of data to assess ecological impacts.

43. A portion of the samples will be analyzed for full TCL/TAL.

44. The scope of this investigation has been modified to include an initial sampling round to help identify both source areas and areas that are suspected to be "clean". Subsequent sampling and analysis will focus on the source areas using Level IV data quality and full TCL/TAL on a portion of the samples. Limited "confirmatory sampling" using Level IV data quality will be performed on those areas suspected to be free of contamination.

45. The work plan has been revised to include a limited number of deep monitoring wells in the study area.

46. Two rounds of samples will be collected. The field investigations at the sites will most likely occur this summer (July or August). This would represent the wet season. Another round of samples will be collected in the dry season (January). Water level measurements will be collected quarterly for one year.

Surface water samples will be collected at each sediment sampling location along Bear Head Creek and Wallace Creek.

47. The analytical requirements have been modified to reflect the comment.

48. The limitations of using field data have been included in this discussion.

49. An index has been provided.

50. The surface soil sample from this area will be analyzed for full TCL/TAL.

51. A full TCL/TAL scan will be analyzed for in one surface and one subsurface soil sample.

52. The list of analytical parameters has been expanded at all sites.

53. Justification for using PVC has been provided in the work plan. A ten-foot screen was proposed since this interval was selected during previous investigations. This interval appears adequate since both floating and sinking constituents may be found at the sites.

Soil samples will be collected from all monitoring well boreholes.

The discussion pertaining to the geology of the site has been expanded. However, this discussion is presented in Section 2.0.

54. At least two rounds of groundwater samples will be analyzed for. Water level measurements will be collected quarterly for one year.

55. Environmental impacts will be assessed via the aquatic survey in Wallace Creek.

56. Whole fish and fillets will be sampled for full TCL organics and TAL inorganics. Both bottom feeders (suckers) and recreational fish (bass or panfish) will be collected for analysis.

57. A limited number of soil and groundwater samples will be analyzed for full TCL/TAL to provide a better characterization of soil and groundwater quality. The history of this site indicates that only mercury was disposed behind the photo lab. A full scan of some samples will verify whether this is the case. If other contaminants not suspected to be present are detected, more samples will be collected for full TCL/TAL analysis.

58. At least three monitoring wells will be installed. Groundwater flow direction should be determined by a "triangular" configuration.

59. The scope of this investigation has been revised. Composite sampling is not proposed.

60. A five-foot screen will be used at this site.

61. At least three wells will be installed. More than three is possible if groundwater contamination is widespread. Hydropunching will be performed to help determine the location and number of monitoring wells.

62. Only one phase is anticipated. The scope has since been revised to reflect EPA comments.

63. Phases I and II have been combined.

64. Due to the number of sediment samples near the site, surface water samples do not have to be collected at each sediment station to adequately assess surface water quality. There are nine sediment stations along the shore within a stretch of approximately 450 feet (every 50 feet). Technically sufficient and representative information can be obtained from collecting from 3 surface water samples over a stretch of 450 feet.

65. This has been revised to clarify the role and position of the U.S. Army's TEU.

66. The QAPP provides more information regarding CSM analysis.

Additional monitoring wells will be installed at Site 69 to assess vertical and horizontal groundwater quality since offsite groundwater contamination (VOC and some metals) is present.

67. Environmental threats will be taken into account in the proposed sampling scheme.

68. Yes. This has been included in the Work Plan. Surface water samples also will be collected for CSM products.

69. See Response No. 67 and changes to the Work Plan.

70. Both human health and ecological impacts will be assessed in the risk assessment. The text has been modified to reflect this.

71. The data collected will not be catalogued in accordance with the data locational policy provided by EPA at this time.

72. This section has been revised to reflect the comment.

73. See Response No. 10 under "General Comments".

74. Lot 201 and 203 are very different from one another. Two reports will avoid confusion and reduce the volume from a standpoint of presenting and evaluating the data. Lot 201 is believed to be fairly straightforward (i.e., potential pesticide contamination in soil) whereas Lot 203 is extremely complex. Due to the complexity of Lot 203, it may be better to identify several operable units for purposes of the FS and the ROD. At this time, we believe that it would be better to present the information in two RI and FS reports. However, we would like to discuss this further.

75. This has been changed to State and EPA Acceptance.

76. See Response No. 74.

77. The contractor is used to prepare the baseline draft of the document and to incorporate subsequent revisions or changes deemed necessary by the Navy/Marine Corps. The Navy/Marine Corps is the final author of these documents.

78. This schedule will be provided.

ATTACHMENT B
RESPONSE TO COMMENTS TO THE DRAFT RI/FS PROJECT PLANS FOR SITES 6, 48, AND 69, MCB, CAMP LEJEUNE EPA REGION IV LETTER DATED FEBRUARY 6, 1992

Response to General Comments - Field Sampling and Analysis Plan

1. Specific procedures have been incorporated into the FSAP. The SOPs have been removed.

2. This section has been revised.

Response to Specific Comments

1. This change has been made.

2. Region IV protocols will be used during the field sampling programs.

3. This section has been expanded.

4. All applicable figures now include the direction of groundwater flow.

5. This section has been expanded.

6. No new information is available. The drums will be removed before the field investigation begins.

7. See Response No. 4.

8. This section has been expanded.

9. See Response No. 4.

10. See Response No. 4.

11. Surface and subsurface soil samples will be collected in order to define the extent of contamination. The RI field investigation is planned for only one phase at Lot 201.

12. SOPs have been removed from the report. EPA Region IV sampling collection protocols will be used.

13. Enough equipment (i.e., spoons) will be made available so that samples can be collected without delays relating to decontamination. The sampling equipment (once used) will be decontaminated between sampling points.

14. EPA Region IV decontamination procedures will be used.

15. The SAP tables and text will be cross-checked against the Work Plan and QAPP. Samples will be preserved in accordance with EPA Region IV guidelines.

16. Field blank samples will be prepared with organic free water.

17. Sampling methods have been provided in the text rather than the appendices (via SOPs). The sampling procedures are specific to the stream being sampled.

18. Surface water and sediments will be analyzed for full TCL and TAL constituents.

19. The use of PVC has been justified in the Work Plan. Ten-foot screen sections are standard lengths used by drillers. All existing wells are constructed using 10-foot screens. The possibility of diluting the sample using a 10-foot screen versus a 5-foot screen is arguable. A 10-foot screen will allow you to monitor for floating constituents if the screen is positioned slightly above the water table. Because the monitoring zone is approximately 20 feet, a 10-foot screen would also allow you to monitoring the bottom portion of the zone. In summary, 10-foot screens will be used.

20. Specific procedures have been included. Soil samples will be collected at all monitoring well locations.

21. Specific procedures have been included.

22. Groundwater samples will be analyzed for full TCL and TAL.

23. These Phases will be combined at Lot 201.

24. Geophysical investigative methods and field procedures have been added to the text. The results of the geophysical investigations will be reviewed at the time of the investigation in order to determine where the soil and groundwater investigations should be focused. A report will not be available prior to making "field" decisions. The results and interpretation of the data will be documented in the RI Report.

25. The results of the soil gas survey will be evaluated in conjunction with the geophysical data to help identify subsurface anomalies such as buried drums or gross quantities of contaminated soil. Based on the relatively low levels of contaminants detected in offsite monitoring wells, it may not be that effective in tracing a groundwater plume of contamination.

26. Test pitting procedures, including health and safety, have been expanded in this section. The anticipated number of test pits is extremely difficult to estimate given that no aerial photographs are available or background information with respect to the type and

location of disposal activities. However, the Work Plan and SAP have been revised to excavate 10 test pits, located in areas where borrow material was allegedly excavated and backfilled. This is believed to be in the middle portion of Lot 203 within the confines of the fence.

27. Sampling procedures have been included.

28. "Waste" samples will not be preserved. All samples will comply with DOT shipping requirements. Shipping instructions have been included in the SAP.

29. "Localized" borings are proposed at specific areas within Lot 203 due to previous activities that could potentially result in contaminated soil and groundwater (e.g., drum storage areas, metal solvent area, "corrosive" drum area, etc.). The remaining portions of Lot 203 will be investigated via geophysical methods/hydropunching followed by soil sampling. In summary, soil within the entire Lot 203 and surrounding wooded areas will be investigated.

30. Specific sampling procedures have been included.

31. See Response No. 19.

32. Subsurface samples of the strata will be collected during the installation of intermediate depth monitoring wells (one from each well) for chemical analysis and physical analysis (grain size analysis).

33. Specific sampling procedures have been included.

34. Preservation blanks have been added to the investigation.

35. Specific sampling procedures have been included.

36. No phasing is planned at Site 48, based on a revised field investigation program.

37. At least 10 percent of the samples will be analyzed for full TCL and TAL, including one background sample.

38. Specific sampling procedures have been included.

39. See Response No. 37.

40. See Response No. 36.

41. The comment is not clear. Are you suggesting that the screen is too large or too short? There is no site-specific geologic information. The only geologic information

available is for an UST site located about one-half mile from Site 48. Boring logs at this site indicate that the first confining layer is approximately 25 feet below ground surface. Therefore, the monitoring zone at Site 48 could be approximately 20 feet assuming that the water table is 5 feet below ground surface. As discussed earlier (see Response No. 19), the length of the screen is arguable given the small monitoring zone. The placement of the screen is more relavant than the length of the screen in this situation. The screen will be place to monitor the bottom portion of the shallow aquifer.

42. Soil samples will be collected for chemical analysis during monitoring well installation.

43. At least 10 percent of the samples will be collected for full TCL and TAL. Filtered samples will be collected in addition to unfiltered samples in order to assess "dissolved" metals for purposes of evaluating technologies and as a comparison with filtered samples. Human health and environmental risks will be based on unfiltered samples.

44. This sentence has been clarified. Basically, the benthic macroinvertebrate study will assess ecological risks.

45. Sampling stations will be located upgradient from the site (in the estuary), at the site, and downstream from the site.

46. See Response No. 24.

47. Detailed procedures have been added to the SAP.

48. Additional offsite monitoring wells will be constructed. Hydropunching will be performed to help in the placement of permanent offsite monitoring wells.

49. Flow directions have been added.

50. See Response No. 43.

51. Region IV protocols will be used for sample handling and preservation.

52. The laboratory will provide the preservatives to the contractor. The sample label will indicate the preservative.

53. Vermiculite will be used as packing unless it can not be obtained.

54. Region IV protocols will be used to decontaminat equipment.

55. This section has been revised to include all parties.

56. The bucket of the backhoe will be decontaminated with a steam jenny. Samples will be collected from the soil that is not in contact with the bucket (i.e., from the surface towards the middle of the bucket).

57. Sieve analysis will not be performed for this purpose. Existing information on subsurface soils at each site (or near each site in the case of Site 48) is available to assess the well construction specifications. The seal will be allowed to hydrate at least 8 hours or the manufacturer's recommended hydration time (this is in accordance with EPA Region IV E.3.4 procedures).

58. Samples will be filtered, but these analyses will not be used in the risk assessment or to characterize the extent of contamination.

59. The decontamination procedure has been modified.

60. See Response No. 24.

ATTACHMENT C

RESPONSE TO COMMENTS
SUBMITTED BY EPA REGION IV ECOLOGICAL RISK ASSESSMENT GROUP
EPA REGION IV LETTER DATED FEBRUARY 7, 1992

Response to Comments - Draft RI/FS Work Plan

1. There is no known information regarding upstream pesticide contaminant sources. Samples will be taken from the headwaters of Bear Head Creek and at periodic stations along the creek to assess potential pesticide source areas.

2. These pathways were identified in a previous study by ES&E. This section has since been revised to include ecological exposure pathways.

3. See Response No. 2.

4. Section 3.1.3 has been revised to include environmental (plant and animal) receptors.

5. The EPA Region IV "Water Quality and Sediment Screening Values" have been included in these sections as "to be considered" ARARs.

6. The ecological impacts from Site 6, Lot 203 are being considered. Aquatic studies will be performed on Wallace Creek and potential exposure to wildlife via direct contact with onsite soils will be considered.

7. The discussions pertaining to exposure pathways have been revised to include ecological impacts.

8. See Response No. 7.

9. Aquatic studies will be performed along that portion of the New River upgradient, adjacent to, and downgradient of the site. The studies will include benthic macroinvertebrate population studies and shellfish sampling/analysis.

10. RI objectives have been added to address ecological risks from the sites.

11. An objective has been added dealing with ecological exposure to surface water.

12. Ecological risks associated with surface soils will be addressed.

13. Background samples will be collected from an area similar to the site but located in an area thought to be free of contamination. The data from these samples will be evaluated to assess constituent levels that may be normally found in and around the area of the site (e.g., inorganics and PAHs).

14. Ecological risks associated with sediments will be evaluated and included as an objective for this site.

15. Target fish (including bottom feeders) have been identified in conjunction with Camp Lejeune ecological personnel. Whole body parts will be analyzed per your recommendation. Background samples will be collected from a station upgradient from all known sites that could influence contamination in the stream.

16. Samples collected between the battery pool and Wallace Creek will be collected in areas where sediments could collect (i.e., sediment deposition areas).

17. Ecological impacts associated with contaminated surface water also will be assessed.

18. All sediment samples will be analyzed for TOC.

19. When possible, ecological impacts from sites situated in the vicinity of one another or affecting a common waterway will be assessed from a cumulative standpoint. The Draft Final Work Plan and Sampling and Analysis Plan for Sites 6, 9, 48, and 69 include the objectives of the environmental assessments and the scope of work (i.e., field studies) required to collect data to meet the objectives.

Draft Sampling and Analysis Plan for Sites 6, 48, and 69

1. Both whole body parts and fillets will be prepared for subsequent laboratory analysis. The whole body parts will provide data for ecological impacts whereas the fillets will provide data for impacts via human consumption.