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(804) 445-8637

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JUN 10 1993

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 Site 48 Draft Remedial Investigation (RI), Draft Ecological Risk Assessment (ERA), and Proposed Remedial Action Plan (PRAP) for Site 48

Dear Ms. Glenn:

We have received the EPA Region IV comments (letter dated April 14, 1993) to the subject draft final documents. The Navy/Marine Corps responses to these comments are enclosed.

Any questions concerning these responses should be directed to Ms. Linda Berry at (804) 445-8637.

Sincerely,

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

Encl:
Response to EPA Region IV Comments on Site 48 Draft Remedial Investigation (RI) report, the Draft Ecological Risk Assessment (ERA) report, and the Proposed Remedial Action Plan (PRAP) for letter dated 4/14/93

Copy to:
NC DEHNR (Mr. Peter Burger)
MCB Camp Lejeune (Mr. Neal Paul)
Blind copy to:
1823 (LGB)(2 copies w/encls), 18S, LGBDoc:Res48

Attachment A

Response to Comments Submitted by the
U.S. Environmental Protection Agency, Region IV
on the Draft RI Report for Site 48, MCB Camp Lejeune
Comment Letter Dated April 14, 1993

General Comments

1. Section 6.0 does meet the requirements of a baseline risk assessment. The NCP and the Risk Assessment Guidance For Superfund, Volume I, Human Health Evaluation Manual Part A (RAGS) do not define the requirements for a quantitative baseline risk assessment (BRA). Both the NCP and RAGS state that " As part of the remedial investigation the baseline risk assessment is initiated to determine whether contaminants of concern identified at the site pose a current or potential risk to human health and the environment in the absence of any remedial action. It provides a basis for determining whether remedial action is necessary and the justification for performing remedial actions. The Superfund baseline risk assessment process may be viewed as consisting of an exposure assessment component and a toxicity assessment component, the results of which are combined to develop an overall characterization of risk. As indicated above, these assessments are site-specific and therefore may vary in the extent to which qualitative and quantitative analyses are utilized, depending on the complexity and particular circumstances of the site, as well as the availability of pertinent ARARs and other criteria, advisories of guidance." No other more specific requirements are stated by either document. It is not inappropriate to title Section 6.0 as the Baseline Risk Assessment.

   Section 6.0 will, however, be revised to address USEPA's concerns about the toxicity assessment, risk characterization and future land usage. Quantitative analysis will also be included. Changes to Section 6.0 are discussed in response to USEPAs specific comments.

Specific Comments

1. The scope of work was modified after historical aerial photographs became available. Based on these photographs, the investigation strategy was modified to focus on potential disposal areas at Site 48. A modification to the scope of work was submitted to EPA on September 30, 1992.

2. The direction of the disposal area has been corrected to "southwest" of Building 804.

3. Section 2.6.2.1 has been revised. The reference to sample "stations" is incorrect. The numbers referenced in this section are representative of the number of "samples"

collected at Site 48, not the number of "stations" (more than one sediment sample was collected from each sample station). Table 2-6 has been revised.

With respect to the comment regarding the marsh area, the two sample stations that were selected to represent the marsh were chosen to assess sediment quality in the middle portion and upper reaches of the marsh. Sufficient sediment data have been collected near the mouth of the marsh. All sample locations were approved by EPA Region IV (see Final RI/FS Work Plan).

4. It is possible that the sampling equipment was not completely dry and may have been responsible for the presence of acetone. Acetone should not be included as a contaminant of concern since there is no reason that acetone would really be present at Site 48.

5. Base-specific background values represent an average of four samples collected offsite on the main side area of the base, several miles from Site 48. The samples were collected from an area that is not believed to have been impacted from previous waste disposal activities. The sentence referencing these samples has been revised to better define background soil quality.

6. QA/QC analyses (see Appendix L) indicate the presence of methylene chloride (5 ug/l maximum) in trip blanks and field blanks, and the presence of bis(2-ethylhexyl)phthalate (2 ug/l) in field blanks. These levels indicate that the presence of methylene chloride and bis(2-ethylhexyl)phthalate in groundwater samples are possibly due to laboratory contamination.

7. Manganese in groundwater is not believed to be a result of former disposal activities at Site 48 since manganese is naturally present in the environment, and there is no source at Site 48 associated with elevated manganese levels in groundwater. In addition to elevated manganese levels in potable supply wells, other studies conducted at MCB Camp Lejeune (RI/FS at Sites 6 and 9) also indicated elevated manganese levels (maximum level of 362 ug/l) in the shallow aquifer.

8. Section 6.4.2 compares media-specific contaminant values with ARARs.

9. Section 6.4.2 compares sediment values against EPA Region IV's sediment screening values.

10. Quantification of risk is not a requirement of a baseline risk assessment. The National Contingency Plan of 1990 and the Risk Assessment Guidance for Superfund: Human Health Evaluation Manual, Part A (RAGS) state that "these (baseline risk) assessments are site specific and therefore, may vary in the extent to which QUALITATIVE and quantitative analyses are utilized , depending on the complexity and particular circumstances of the site as well as the availability of pertinent ARARs and other criteria, advisories or guidance." (40 CFR Part 300,

Section 300.430(d)),(RAGS p.1-6). Section 6.0 will therefore, continue to be referred to as the Baseline Risk Assessment.

11. The last sentence in the third paragraph on page 6-1 is not incorrect. The procedures used in the Baseline Risk Assessment were taken from the RAGS document. Alternate land uses were considered in the Baseline Risk Assessment. Land uses are discussed in Section 6.3 (Exposure Assessment) of the report; however, a site conceptual model of potential current and future human exposure was not presented. A site conceptual model of potential exposure will be included in the revised RI to better define future alternate land use. The distinction between current and future land use will also be clarified throughout the revised Section 6.0.

However, quantitation of risk is not a requirement of the current guidance. Quantitative and qualitative analyses of potential risks can be used depending on the complexity of the site. Quantitative risk estimates will be included in the revised RI report to support the site conceptual model of potential exposure and distinguish between current and future potential human health effects.

12. MCL values have been developed for the prevention of human health effects associated with lifetime exposure (70 year lifetime) for an average adult (70 Kg) consuming 2 liters of water per day using available toxicological indices. MCLs also consider the technical feasibility of removing the contaminant from a water supply. AWQC consider acute and chronic effects to both freshwater and salt water organisms. AWQC values protective of potential human health risks associated with the ingestion of water (2 Liters/day) and the ingestion of aquatic organisms (6.5 grams/day) or for the ingestion of water alone are also available. AWQC values for the protection of human health from carcinogenic contaminants are based on the incremental cancer risk range of 10-7 to 10-5.

RAGS does not specifically mention MCLs and AWQC in the Toxicity Assessment section. These values and criteria are developed using toxicological information which are discussed in the RAGS Toxicity Assessment chapter. These toxicological information include chronic daily intakes, chronic reference doses, carcinogenic slope factors, No Observed Adverse Effect Levels (NOAELs), Lowest Observed Adverse Effect Levels (LOAELs), No Observed Effect Levels (NOELs), Lowest Observed Effect Levels (LOELs), Reference Doses (RfDs) and Carcinogenic Slope Factors (CSFs). Although RAGS provides no guidance that prohibits the presentation of MCL values and AWQC in the toxicity assessment, MCLs and AWQC will be presented in the selection of Chemicals of Concern in the revised RI. Page 6-2 will be modified to reflect this format change.

Text on page 6-2 concerning the Risk Characterization will also be modified and a Risk Characterization section will be added to Section 6.0 of the revised RI.

13. Text will be expanded to incorporate the additional items presented in RAGS. Furthermore, text will be modified (top of page 6-3) to say "Retaining contaminant

of concern....". Contaminants which cannot be eliminated using the criteria presented in RAGS will be retained for further evaluation.

14. Text will be modified to clarify the rationale behind eliminating or retaining the DDT series pesticides.

15. Four samples were collected from two locations. Table 2-1 has been corrected. Table 2-1 only indicated the number of sampling stations and not the total number of samples collected. More than one sediment sample was collected from each station.

16. The scope of work was modified after historical aerial photographs became available. Based on these photographs, the investigation strategy was modified to focus on three potential areas of concern near Building 804. One disposal area was identified adjacent to the building and the second disposal area was identified between the building and the New River. A third area was identified across Longstaff Road west of the site. All three of the locations were located in the field using a surveyor. Soil borings were drilled through the center of each area of concern. A modification to the scope of work describing this change in investigation strategy was submitted to EPA on September 30, 1992.

17. The rationale for retaining or not retaining receptors will be better defined by the use of a site conceptual model of potential exposure, which considers future and current land use scenarios.

18. The future potential use of ground water at Site 48 will be evaluated in the revised RI report.

19. Surface water and sediments will be retained as complete pathways for quantitative evaluation in subsequent versions of the RI report.

20. The discussion of certain ARARs in the toxicity section is appropriate, when pertinent toxicological information is used in the development of the ARAR (see comment response number 12). ARARs will not be presented in the toxicity assessment section of the revised RI report. They will be presented in the Selection of Chemicals of Concern section. The toxicity assessment section of the revised RI will present Reference Doses (RfDs), Carcinogenic Slope Factors (CPFs) and the supporting toxicological information from which these toxicological indices were developed.

21. The discrepancy in table 6-1 will be corrected to reflect the results presented in table 4-8.

22. A quantitative risk assessment will be performed in subsequent versions of the RI report to address USEPAs concerns regarding future land uses at the site and the detections of trace levels of DDT series pesticides and manganese. It is highly

unlikely that manganese is present in environmental media at site 48 as a result of past disposal practices. Manganese is an abundant element and constitutes about 0.1% of the earths crust. Pyrolusite, is one of the more common mineral forms of manganese dioxide. Rhodochrosite is the principal manganese carbonate mineral. Manganese mineral deposits occur on all world land areas, on the floors of the deep oceans, and in other marine locations. It is possible that the presence of manganese at site 48 is due to the natural occurrence of manganese mineral deposits (Mineral Facts and Problems, US Department of the Interior, 1985).

If manganese is retained as a Chemical of Concern in the revised RI report, the most current RfD will be used to evaluate the potential human health effects associated with manganese exposure.

Attachment B

Response to Comments Submitted by the U.S. Environmental Protection Agency, Region IV on the Draft Ecological Risk Assessment Report for Site 48, MCB Camp Lejeune Comment Letter Dated April 14, 1993

General Comments:

1. The incorrect references to previous sections for supplementary data or information will be corrected. All references will be provided in the reference section. Additional references will be added to support the technical information presented.

Specific Comments:

1. Appendix A - National Wetland Inventory Map includes wetland designations and topographic features within a half-mile radius of the site. The map will be modified to include a half-mile radius designation from the site boundary.

   The Scope of Work (SOW) did not include mapping of stressed vegetation, wetlands, and critical habitats. The on-site locating of wetlands and critical habitats would require a wetland delineation and critical habitat survey that was not included as part of the SOW. This scope of work (RI/FS Work Plan) has been approved by EPA.

2. The on-site locating of critical habitats, which would include a critical habitat survey, was not included as part of the SOW. The presence of critical habitats on-site was evaluated based on conversations with staff from the Fish and Wildlife Division of the Environmental Management Department at Camp Lejeune. They reported that there was no critical habitat located at Site 48. This observation was a result of studying aerial photography, terrestrial vegetation, and limited ground surveys.

3. The reference to human beneficial use will be deleted.

4. The reference to sport aspect and commercial importance will be deleted.

5. The reference to sediment criteria will be changed to screening value.

6. A literature review was conducted to determine the fish species that may potentially be exposured to contaminants in the surface water/sediment exposure pathway. This review included compiling information from State and Federal natural resources agencies. In addition, Baker's experience in sampling similar areas formed a basis for a database of expected species for the New River area.

Originally, three species of fish were to be sampled, with each species being a representative of one of three trophic (feeding) groups, which included a first order predator, a second order predator, and a third order predator. In addition, a minimum of ten individuals per specie, if available, of adult fish of preferably uniform size were to be composited and analyzed for whole body burden and fillet burden of chemicals, with the same species of fish being sampled from each station. A fish species was successfully collected if the above requirements were satisfied. These requirements were identified to Baker by the U.S. Fish and Wildlife as part of the Work Plan review.

Sampling variability can prevent the same species of fish from being sampled at each station because either the preferred species was not captured, or adequate numbers of uniform-size individuals were not captured. Therefore, if the preferred species was not successfully collected to satisfy the above requirements, a substitute species was collected that, if possible, exhibited a similar trophic position in the estuarine ecosystem.

The collection of fish for tissue analysis coincided with the collection of fish for population statistics. In this way, a large representative sample of fish species could be evaluated for selection of fish for tissue analysis. During the earlier sampling efforts, many more fish samples were retained for potential tissue analysis than were ultimately sent off for the analysis. This exercised enabled the sampling crew to compare potential fish samples for tissue analysis in the latter sampling efforts with the success of collecting similar species in the earlier sampling effort and then choose, as best as possible, those fish species meeting the requirements for successful collection outlined previously.

In the estuarine system sampled, where salinity ranged from zero to 17 parts per thousand, the dominant fish species are those that spawn on the coastal shelf and their larvae are flushed into the bays and estuaries of the North Carolina coast line. These dominant fish species significantly outnumber, and represent a greater biomass than, the resident species.

The larval fish spend approximately two months floating from their offshore start to their estuarine rearing and nursery grounds. In general, the larval fish (10 - 20 millimeters) that reach the estuary will reside in the same creek or inlet system during their juvenile growth period. This phenomenon has been observed in mark and recapture investigations (personal communication, Bob Siegfried - Baker Environmental, Inc.). In the fall, the adults migrate out of the estuary and offshore to overwinter. In summer, the adults return and typically are found in the deeper parts of the estuary.

The juvenile fish population sampled for tissue analysis in September were collected prior to their fall migration and probably resided within the influence of Site 48 during their entire stay within the New River estuary. Therefore, these fish would be most suitable for evaluating the potential for bioaccumulation of site related

contaminants. Conversely, adult species that reside in the New River estuary likely have inhabited many areas both within the estuary as well as in the offshore environment. Although a preferred list of fish species for tissue analysis would include resident fish as well as the seasonal fish, the successful collection of only the latter precluded the former from being selected in the study.

7. The SOW limited the sampling references sites to two stations in the White Oak River Basin. The reference stations were selected to be as ecologically similar to the sampling stations for Site 48 and Sites 6, 9, and 69. This reference station was recommended to Baker by the DEHNR. However, because of the wide range of environmental conditions found at Sites 48, 6, 9, and 69, some of the physical and chemical parameters at the reference stations were not the same. The benthic macroinvertebrate were sampled using the same grab sampler. The fish samples collected in the White Oak River Basin only used the haul seine because of site limitations for using the gill nets off base property.

8. The table will be revised.

9. The reference to a low risk will be modified to read that there is a potential for aquatic life to be adversely affected.

10. The fish species collected were typically juveniles (see response No. 6 above). These fish would have significant potential contact with the sediments, either by direct or indirect contact. The low levels of contaminants in the fish tissue would indicate that the exposure of these fishes to the sediments is not resulting in a significant bioaccumulation of the contaminants in the tissue. The effects of benthic populations from exposure to the sediments was addressed in Section 7.4.

11. The last paragraph in section 8.2 will be written as stated in the comments.

12. Although the tissue analysis of species representative of resident populations would provide additional data to support the lack of site-related biotic contamination, these species were not included in the tissue analysis study because of the lack of success in collecting these species.

13. The comparison of the species diversity of the reference station to the Site 48 stations was conducted on a station by station basis in Section 4.5.2.2 and on Table 4-14. Control stations were not included in the SOW.

Attachment C

Response to Comments Submitted by the
U.S. Environmental Protection Agency, Region IV
on the Draft Proposed Remedial Action Plan
for Site 48, MCB Camp Lejeune
Comment Letter Dated April 13, 1993

Specific Comments:

1. The last sentence on page 1, third paragraph will be rewritten for clarity since there will not be another PRAP for Site 48.

2. "FFA" will be spelled out on page 5, second paragraph.

3. The sentence on page 5, fifth paragraph will be rewritten for clarity.

4. "Compounds" will be inserted after the word "organic" in the last paragraph on page 5.

5. Table 1 will be revised to only show concentrations detected above the required detection limits. This revision will simplify the report for the average reader. Note that this revision will also change portions of the text in the PRAP.

6. The first paragraph on page 11 will be revised (see response #5 above). No mention of any concentrations below "Contract Required Detection Limits" will be included.

7. The Scope and Role of Action section on page 11 will be revised per the comment. The PRAP will now indicate that "this operable unit encompasses all of the media at Site 48 and that no other sites have been impacted."

8. On page 12, first paragraph, "RA" will be spelled out. The last sentence in this paragraph will also be corrected.

9. The Human Health Risk Assessment discussion will be revised per the comment. The focus of this section will be to establish that the operable unit is "protective of human health and the environment."

10. The second paragraph on page 13 will be moved under the Ecological Risk Assessment discussion.

11. The Ecological Risk Assessment discussion on page 13 will be revised to include a statement in the second paragraph that current conditions are protective of human health and the environment.

12. The Description of the "No Action" Preferred Alternative discussion on page 13 will be revised per the comment. The last sentence will be rewritten to read, "No additional sampling or monitoring will be necessary since conditions at the site are protective of human health and the environment."

13. The first paragraph on page 14 will be revised per the comment. The last sentence will now read," The following information is provided to solicit the community input into the selection of the remedy for Site 48."

    The paragraph announcing the public meeting will mention the proposed plan not the proposed ROD.

14. Page 16 has been revised. Mr. Byron Brant's address is correct, although he is not the "commanding officer." The format of the address listings have been changed to eliminate confusion. Note that Mr. Byron Brant has been replaced by Ms. Linda Berry.