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CERTIFIED MAIL RETURN RECEIPT REQUESTED

United States Environmental Protection Agency,
Region IV
Waste Management Division
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 Operable Unit #5
(Site 2)

Dear Ms. Glenn:

We have received your comments (letter dated and received
November 18, 1992) to the subject draft documents. The
Navy/Marine Corps responses to these comments are enclosed.

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

Sincerely,

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

Encl:

Navy and Marine Corps Response to EPA Region IV Comments on the
Draft RI/FS Project Plans for Operable Unit #5 at MCB Camp
Lejeune, received via letter dated November 18, 1992

Copy to:

NCDEHNR (Mr. Peter Burger)
MCB Camp Lejeune (Mr. George Radford)
Blind copy to:

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**Navy and Marine Corps Response to EPA Region IV Comments
on the Draft RI/FS Project Plans for Operable Unit No. 5
at MCB Camp Lejeune,
Received via Letter Dated November 18, 1992**

Responses to General Comments

1. Various changes to the scope of work have been included in the Draft Final RI/FS Work Plan. These changes were discussed to some extent at the TRC meeting of 12/9/92. These changes will allow the Navy/Marine Corps to meet the project objectives during a single field event to expedite the overall project schedule. These changes are summarized below.

Site 2 (Former Daycare Center)

- The area of concern around Building 712 has been expanded to include the entire lawn area as opposed to the area where pesticide handling was reported (i.e., the children's play area). In addition, subsurface soil samples will be collected at five-foot intervals to the top of the water table.
- Field screening for BTEX will be employed (soil gas survey) to determine both the location, and number, of monitoring wells for purposes of defining the horizontal extent of groundwater contamination previously detected in well 2GW3 at the former storage area.
- Additional deep monitoring wells (only one onsite deep well is proposed at present) will be installed offsite if onsite deep groundwater contamination is detected. Additionally, deep monitoring wells may be installed if offsite shallow groundwater contamination is detected via hydropunching. The location of the deep wells will be based on the field screening results (i.e., soil gas survey) so that deep wells will be placed in the most contaminated areas.
- Additional surface water/sediment samples will be collected along the drainage ditches and in Overs Creek to evaluate ecological impacts and to determine the extent of contamination in both of the ditches. The additional sampling points are between the site and Overs Creek.
- Additional soil borings between the mixing pads will be added to determine the extent of contamination since it is likely that pesticide handling activities occurred in this area of the site.
- Groundwater samples will be analyzed for full TCL organics and TAL inorganics from all five existing wells in addition to any newly-installed monitoring wells.

- A background well will be installed north of well 2GW1 to evaluate background groundwater quality. Two background soil samples will be collected from an area at Camp Lejeune similar to Site 2 (i.e., another office location).
- 2. Groundwater flow and depth are discussed in Section 2.2.4. In addition, existing groundwater information was considered in scoping the RI/FS (this information is presented in Section 2.2.5). Pesticide contamination in groundwater was detected at very low levels (less than 1 ppb) in only two wells. BTEX, however, has been consistently detected in well 2GW3. Lead and arsenic were detected in well 2GW2 (dissolved lead and arsenic were not detected). The revised scope of work should be adequate to verify the presence of these constituents and determine the extent of contamination in both shallow and deep portions of the aquifer.
- 3. See Response No. 1 above. In addition, the Work Plan discusses drainage patterns in more detail in Section 2.2.2.
- 4. This statement (and portion of Section 2.1.5, Regional Hydrogeology) was taken from the USGS report (Harned et al., 1989). We believe that the authors were referring to the area around the Hadnot Point Industrial Area, which is approximately 3 miles from the site, and/or the area near Site 6, which is approximately 1.5 to 2 miles from Sites 2 and 74. Groundwater contamination at the HPIA or Site 6 would not influence either shallow or deep groundwater at Sites 2 and 74 because both of these sites are located upgradient with respect to shallow and deep groundwater flow direction, which is generally toward creeks (shallow aquifer) or the New River (deep groundwater flow). For this reason, the proposed analytical programs for Sites 2 and 74 were not based on the areas identified by Harned et al. since they are not in close proximity to the sites.
- 5. Site 74 will be investigated at a later date since chemical surety compounds are suspected. Site 74 will be combined with Site 69 to form Operable Unit No. 4.

With respect to all samples being analyzed for full TCL organics and TAL inorganics, there is sufficient background information to focus on contaminants that are expected to be present at the site. Groundwater, surface water, and sediments are being analyzed for full TCL organics and TAL inorganics (Level IV, CLP protocols) since volatiles, semi-volatiles, pesticides, and inorganics were previously detected in one or more medium.

Soil samples collected at the Building 712 area (including the mixing pads) are primarily being analyzed for TCL pesticides since pesticide handling activities have been the only waste-related practices documented at this area. Therefore, only a

limited number of samples collected from the Building 712 area are being analyzed for full TCL organics and TAL inorganics. The soil sampling program at the former storage area is focusing on TPH and BTEX since groundwater is contaminated with BTEX. A limited number of samples will be analyzed for full TCL organics/TAL inorganics in order to fully characterize the area and assess human health and ecological risks.

6. Monitoring well logs have not been incorporated into the Work Plan because they are not available. Well construction specifications (i.e., depth of well, depth to groundwater, etc.) have been summarized in Section 2.2. Existing groundwater, soil, surface water, and sediment data have been summarized in Section 2.2.5. Actual Form I's (laboratory data sheets) are not available, with the exception of samples collected by our contractor in July 1992. In order to reduce the bulk of the Work Plan, laboratory sheets were not appended. This information is available upon request.
7. Chemical-specific cleanup goals for water will be determined based on risk-based calculations that set concentration limits using carcinogenic and/or noncarcinogenic toxicity values under specific exposure scenarios.

Calculating exposure levels and deriving cleanup goals requires information on many parameters. Various standard values, which are needed as input parameters, will be used. Acceptable intake levels, which are used to estimate permissible contaminant cleanup levels, will be derived from the exposure estimates. These levels will be based on 10^{-4} for carcinogenic contaminants or a Hazard Index (HI) of 1.0. The chronic daily intake (CDI) to these levels (i.e., 10^{-4} or 1.0), the cleanup goal will be obtained by back calculating the corresponding contaminant level in the environment.

The methods and sources used to determine cleanup goals with respect to groundwater includes:

- Environmental Protection Agency (EPA). 1991. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part B, Development of Risk Based Preliminary Remediation Goals). Office of Emergency and Remedial Response. Publication 9285.7-01B.
- Lyman, W.J., Reehl, W.F., and Rosenblat, D.H., 1982. Handbook of Chemical Property Estimation Methods. New York.

The second reference provides the calculation for the soil-water partition coefficient K_d , which is the equilibrium ratio between the concentration of a contaminant in soil and its corresponding concentration in water.

8. Samples will be collected from Overs Creek and the marsh area of the headwaters.
9. Very little information is available to comprehensively assess the shallow portion of the aquifer at Sites 2 and 74 since a limited amount of information is available (a few boring logs and one round of water level measurements). However, a significant amount of information is available on the deep portion of the aquifer (from the USGS report: Harned et al. 1989) since this report contains a summary of hydrogeologic information obtained during the construction of the many potable water supply wells at MCB Camp Lejeune. Section 2.1.5 has been expanded to include the information in Comment No. 9, when available.

With respect to the comment requesting the backup information to determine the gradient, this information was not presented in the report in which this value was obtained. Groundwater gradients will be calculated based on more than one round of static water level measurements obtained during the RI.

Response to Specific Comments

1. The references to groundwater flow direction, depth to groundwater, etc. is from the Site Summary Report (ESE, 1990). Boring logs, along with water level measurements were only described in the report and were not available for the contractor's evaluation. However, a geologic cross section from the USGS report has been added to the Work Plan. Groundwater contour maps were not include since only one round of water level measurements were obtained, and the elevations of the wells are not available to accurately ensure that flow directions are correctly reported (in previous reports). Groundwater contour maps will be generated in the RI report.
2. Summary tables of all known analytical data have been provided in Section 2 of the Work Plan. Laboratory data sheets (Form I sheets) from previous investigations are not available. For purposes of scoping this RI/FS, the summary tables provide the necessary information.
3. We agree; however, the background document (i.e., Site Summary Report) does not provide the results of the potable water supply wells. Therefore, we can not evaluate or present the results. The locations of the potable water supply wells have been included on a new figure in the Work Plan.
4. This correction has been made for lead.
5. It is not unusual for some dissolved metals analyses to be higher than total metals analyses (e.g., salts such as sodium or calcium that readily dissolve in water). Of the 48 pairs of total/dissolved data, only 7 dissolved analyses exceed the total metals. The 7 instances involve mainly salts. In

addition, the dissolved values only exceed the total values by about 10 percent (its possible that the constituents are in a dissolved state). We feel that the data are useful to scope the RI/FS.

With respect to unusually high levels of total sodium (25,300 ug/l), we reviewed analytical data from other sites at MCB Camp Lejeune (the HPIA) and found that total sodium values often exceeded 25,000 ug/l. It is possible that sodium in groundwater at MCB Camp Lejeune is elevated.

The MCLs for arsenic and lead have been changed in accordance with the comment.

6. The MCLs for methylene chloride and barium have been revised.
7. The NCWQS for iron has been revised.
8. The MCLs on the table have been revised.
9. The sentence referring to the shallow aquifer has been deleted. A section has been added (Section 2.1.10) to discuss the supply wells and source of potable water.
- 10 This pathway has been added.
11. Background information, including the usage of the site and contaminants detected in wells near Building 712, do not indicate that other contaminants such as PCBs, semi-volatiles, or volatile organics would be present in this area. To analyze all samples for full analysis would be costly and technically unnecessary. Only ten percent of samples collected around Building 712 will be analyzed for full TCL organics/TAL inorganics. If contaminants other than pesticides are detected in these samples, then full TCL organics and TAL inorganics may be required via additional soil investigations. Based on existing information, pesticides are the only contaminants expected to be present at the site.
12. All groundwater samples will be analyzed for full TCL organics and TAL inorganics.
13. An additional surface water/sediment sample west of Holcomb Blvd. has been added. However, the drainage ditch on the western side of Holcomb Blvd. receives runoff from the roadway and other offsite sources.

Groundwater flow is believed to be southeast, based on limited information. The exact location of wells to assess the extent of BTEX contamination, will be based on field screening (soil gas survey). With the exception of one background well, located north of Building 712 and well 2GW2, no new wells will be required to assess the extent of arsenic in shallow

groundwater (the configuration of the existing wells should be adequate to determine the extent of arsenic and lead detected in well 2GW2).

14. Two soil, sediment, and surface water samples will be collected to represent background conditions. One background well will be installed. All background samples will be analyzed for full TCL organics and TAL inorganics.
15. The status of the RI/FS for Site 74 is on hold. This site will be investigated along with Site 69 since both sites potentially contain chemical agents. With respect to the comment, it is likely that all samples will be analyzed for full TCL organics and TAL inorganics.
16. More than one background sample is required. The proposed location was chosen near the roadway to determine if pesticides are present as a result of historical pesticide spraying practices. The location will be further away from the pest control area than shown on the figure (at least one-half mile from the site).
17. All wells will be analyzed for full TCL organics and TAL inorganics during the first round.
18. Recently acquired historical photographs will most likely change the proposed configuration of monitoring wells shown on Figure 5-5. Other areas of concern have been identified. These photographs are being evaluated at present.
19. The methods for purgeable organic compounds (EPA 624), base/neutral and acid extractables (EPA 625), and pesticides/PCBs (EPA 608) are cited from the USEPA Contract Laboratory Program Statement of Work for Organic Analysis. The appropriate methods of extraction for water and soil matrices are described in these methodologies. However, the methods of extraction are based upon SW-846 Methods 8240 (for volatile organics) and 3510/3550 (water/soil semivolatile organics, pesticides, and PCBs). Extraction procedures for herbicides and BTEX compounds are provided in SW-846 methods 8150 and 8020, respectively. The metals arsenic, selenium, thallium and lead will be extracted according to SW-846 method 3020. All other metals will be extracted according to SW-846 method 3010.

The table has been revised to indicate the extraction procedure when appropriate.

20. The references have been updated per the comment.

**Responses to the Draft Sampling and Analysis Plan for
Sites 2 and 74**

1. This comment was addressed previously. Please see response No. 11 (under Work Plan).
2. This comment was addressed previously. Please see response No. 19 (under Work Plan).
3. The soil sampling program has been expanded to cover the area surrounding Building 712.
4. A change was made in the investigative approach. Soil samples will be collected at five-foot intervals to the top of the water table. For borings converted into monitoring wells, one soil sample will be collected just below the water table.
5. Groundwater samples will be analyzed for full TCL organics and TAL inorganics. Not all soil, sediment, or surface water samples will be analyzed for full TCL organics/TAL inorganics since the background information as well as what has been detected during previous investigations focuses the investigations on pesticides (Building 712 area) and BTEX (storage area). At least 10 percent of soil, sediment, and surface water samples collected will be analyzed for full TCL organics and TAL inorganics.
6. The text has been revised to match the figure.
7. This comment has been addressed previously. See response No. 12 under Work Plan comments/responses.
8. All existing wells will be sampled.
9. Downgradient well locations will be determined following field screening (soil gas survey).
10. This comment has been addressed. See response No. 15 and 18 under Work Plan comments/responses.
11. Additional surface water/sediment sampling locations have been added between the site and Overs Creek, and near the mixing pad area.
12. Additional surface water/sediment sampling locations have been added between the site and Overs Creek.
13. Additional geophysical investigations may be necessary based on recently acquired historical photographs showing other land disturbances. The investigation at Site 74 is on hold; it will be re-scoped along with Site 69.
14. Please refer to response No. 18 under Work Plan comments/responses. The comment will be taken into

consideration when the groundwater investigation is re-scoped and new information (i.e., aerial photographs) are evaluated.

15. This comment has been addressed. Please refer to response No. 15 under Work Plan comments/responses.
16. This comment has been addressed. Please refer to comment No. 18 under Work Plan comments/responses.
17. The references to the various areas of concern will be changed to avoid confusion. However, after reviewing the EPIC photographs, it is difficult to determine which disposal area may have been associated with the grease disposal (the photos indicate several other areas of concern). It is possible that no reference to a particular area will be identified as "grease disposal area" when the new Project Plans for this site are developed.
18. Organic-free deionized water will be used for decontamination.
19. The soil will be stockpiled and dealt with when the site is remediated if the soil results indicate that the soil is hazardous, or contains CSM agents. This is consistent with EPA guidance for the handling of IDW. If the soil is not hazardous and not contaminated above land-disposal levels, the soil will be placed back onsite or within a landfill.
20. Wells at Site 74 have been sampled on more than one occasion; little to no contamination has been detected in these wells (the contractor recently sampled these wells in July 1992; the samples were analyzed for full TCL organics/TAL inorganics via CLP protocols, Level IV). The use of PVC is justifiable as noted in the SAP, Attachment A of Section 5.
21. A ten-foot screen will be constructed in each well.
22. The well construction procedure has been revised to reflect EPA Region IV guidance.
23. The well construction procedure has been revised to reflect EPA Region IV guidance.
24. All existing wells will also be surveyed.
25. The handling of IDW has been revised. Soil will be stockpiled onsite, sampled and analyzed for full TCLP and RCRA hazardous waste characteristics, and properly handled following receipt of the analysis (see Section 5.10.3).
26. All groundwater will be containerized pending analytical results.
27. The procedure has been revised to reflect EPA Region IV protocol.

28. Wells will be developed until the pH, specific conductivity, and temperature has stabilized (three consecutive readings that are within 10 percent of each other), and the water is free of sediment. This has been clarified in the SAP.
29. The figure has been replaced to show a Chain-of-custody that the contractor has been using at other investigations at MCB Camp Lejeune.
30. This comment has been addressed. Please refer to response No. 19 under Work Plan responses/comments.