04.01-09/29/88-00419
115

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET
ATLANTA, GEORGIA 30365

SEP 29 1988

REF: 4WD-SISB/VW

Colonel T. J. Dalzell
U. S. Marine Corps
Assistant Chief of Staff
Marine Corps Base
Camp LeJuene, NC 28543-5001

Re: Characterization Step Report
Feasibility Study for Hadnot Point Industrial Area

Dear Colonel Dalzell:

The Environmental Protection Agency (EPA) appreciates the opportunity to comment on the above referenced Installation Restoration Program (IRP) documents developed for the Hadnot Point Industrial Area (HPIA) Site at Camp LeJuene, North Carolina. As you are aware, Camp LeJuene was proposed for the National Priorities List (NPL) on Update Number 7 in the Federal Register Volume 53, Number 122, June 24, 1988. EPA has received comments on the Camp LeJuene proposal. Due to these comments and the required response, EPA expects that Camp LeJuene will not be finalized for the NPL until June 1989. Despite this delay, EPA is encouraged by, and recognizes the Marine Corps' strong efforts to satisfy the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 requirements. A Community Relations Plan has been developed, a Technical Review Committee (TRC) has been formed, and current IRP studies parallel Remedial Investigation/Feasibility Study (RI/FS) policy and guidance.

Due to the nature of the proposed remedial action alternatives for the shallow aquifer at HPIA Camp LeJuene, the following comments addressing EPA requirements have been developed by EPA Region IV, Air Compliance Branch, RCRA Branch, Facilities Performance Branch, and Groundwater Protection Branch programs:

Air Compliance Branch

The two recommended alternatives for remediation are treating the contaminated groundwater at the onsite sewage treatment plant, and air stripping. Our comments on both alternatives are as follows:

Sewage Treatment Plant (STP) - The remedial process involves primary settlement basins plus a secondary treatment which consists of a trickling filter biological treatment and clarification. We recommend air monitoring inside and outside of the sewage treatment plant so that any toxic air emissions are detected.

Air Stripping - This is a proven technology capable of producing a high removal efficiency with volatile organic compounds. The air stripper will be equipped with a vapor recovery system consisting of activated carbon, thus insuring acceptable air emissions.

RCRA Branch

The interim determination of the extent, concentration, rate, and direction of migration of contamination will need to be expanded to include all 40 CFR Section 261, Appendix VIII, constituents in the soils, groundwater, subsurface gases, surface water, and air before a full RCRA characterization of the site will be complete. All solid waste management units will need to be investigated and a determination made whether each has or has not released a hazardous waste or hazardous waste constituent to the environment.

The sand peat in borehole HPGW24 may not be effectively decontaminated by pump and treat techniques. The cleanup of this material should be specifically addressed.

Target concentrations for cleanup should consider the Hazard Index for systemic toxicants and background concentrations for contaminants without existing health based criteria.

Interim and final cleanup should consider soil contamination particularly as it applies in this report to contaminant source reduction.

Paragraph 4.2.2.1 - The trickling filter alternative should consider effects on system control parameters and toxicity as well as hydraulic loading. Sludge generated in this alternative and other alternatives must be tested to determine if they are hazardous. If hazardous, the sludges will require proper disposal in accordance with RCRA.

Alternative consideration fails to address removal of lead from contaminated groundwater. Discharge to receiving streams may not be acceptable without lead removal.

Facilities Performance Branch

In order to evaluate the treatment alternatives, the following information should be provided for each concerned constituent found in the groundwater and soil.

a. Henry's law constant
b. Octanol/water partition coefficient
c. Solubility in water
d. Biodegradability

Page 4-9: It was stated that biological treatment effectively removes benzene, methylene chloride, toluene, and TCE. According to an EPA publication: "Treatment Technologies for Solvent Containing Waste," some of these organics are biodegraded at extremely slow rates. Is there any data indicating trickling filters, which have low hydraulic detention time, can effectively biodegrade these organics?

In order to evaluate biological treatment using a packed tower, the range of BOD concentrations from the contaminated groundwater should be provided.

Page 4-10: The discharge of contaminated groundwater to the Hadnot Point STP will be evaluated to determine what the effect will be on the sludge produced and the present sludge disposal method as well as possible changes to the NPDES permit for the Hadnot Point STP.

Page 5-3: What is the basis for the assumption that vapor recovery will be needed for air stripping? What kind of recovery system was evaluated?

If vapor recovery is needed for air stripping, it would appear that biological system would need vapor recovery since some VOCs could be released to the air during operation.

What type of trickling filters are used at the Hadnot Point STP? Do they have forced ventilation to strip VOCs from the wastewater?

Page 6-6: The assumptions and design criteria used in developing the O&M and capital costs should be addressed in the study.

The water quality standards should be identified and criteria for discharge (no discharge of toxics in toxic amounts) to the affected reach of the New River should be calculated to ensure that such a discharge is feasible and can receive a permit.

Groundwater Protection Branch

Groundwater Classification

Both the shallow, surficial aquifer and the deeper, semiconfined aquifer are Class II groundwaters based on the revised draft Guidelines for Ground-Water Classification under the EPA Ground-Water Protection Strategy, dated December 1986. Class II ground waters are current or potential sources of drinking water subject to full protection under the laws administered by EPA. The deeper aquifer is Class IIA because it is curently the source of drinking water for Camp LeJuene, and the surficial aquifer is Class IIB because it is a potential source of drinking water.

Adequacy of the RI/FS

The RI adequately characterizes the nature and extent of contamination in the surficial aquifer at the HPIA Site, but it contains virtually no characterization of the extent of contamination in the deeper, semiconfined aquifer. The FS, consequently, addresses only the remediation of the surficial aquifer. The RI, therefore, does not fulfill the CERCLA objective of establishing the nature and extent of contamination within the groundwater system. Another phase of RI activity will be necessary to characterize the deeper aquifer.

Even in the absence of an adequate RI/FS for the deeper aquifer, recovery of contaminants from the surficial aquifer should proceed expeditiously in order to:

1. Prevent further migration of contaminants within the surficial aquifer, and to

2. Prevent or reduce the further contamination of the deeper aquifer, which is the source of drinking water for Camp LeJuene.

Groundwater Review Comments

The RI presents extensive and excellent detail on the results of the deep (semiconfined) aquifer pumping test (RI, pages 4-23 to 4-55), but the information is limited in the development of a remediation plan. The limited number of monitoring wells drilled during the RI into the deep aquifer is not adequate. The FS may need to develop remediation alternatives for the deep aquifer if contaminant plumes are defined.

The statement is made on Page 2-8 of the FS that "remediation alternatives for cleanup of the contaminated groundwater in the deep aquifer will be developed separately after collecting additional data to verify the extent of contaminated plume area," but no plan for collecting the additional data is presented. If there is such a plan, it should be presented for evaluation. If there is not such a plan, the criteria and time frame for developing it should be presented.

Neither the RI nor the FS presents information about the hydraulic properties of the shallow, surficial aquifer; yet the FS presents a network of thirty-two recovery wells to be placed in the shallow aquifer (FS, Figure 5-1). None of the analysis for designing this recovery network is presented, yet the statement is made (FS, page 5-1), that "all alternatives include the installation of thirty-two 4-inch recovery wells that will pump at a rate of 2 gpm." The design rationale for this network should be presented including a justification for both well placement and the selected pumping rate at each well. The hydraulic conductivity values and storage coefficients should also be given for the various components of the surficial aquifer shown in the cross sections presented on RI Figures 4-8 through 4-9. These datum are needed to allow EPA to check the adequacy of the recovery network with computer models available in the Groundwater Technology Unit.

As noted below, well placement and pumping rates should be designed to deliver concentrated streams of particular contaminants to pretreatment units that are uniquely effective for removing those contaminants, particularly those that will interfere with or not be treated in the biological treatment plant selected as the preferred alternatives for final treatment.

Treatment Technologies

On FS pages 4-9 to 4-16: Various treatment technologies are discussed, but these technologies are presented as mutually exclusive options rather than as unit processes to be combined into the most efficient and effective, overall treatment. These technologies should be combined with segregated piping of the more highly contaminated groundwater to select processes for both pretreatment and final treatment that will yield the most economical and reliable total treatment of the contaminants present. For instance, the isopleth map of total volatile organic compounds (FS, Figure 2-3) shows two nodes in the northeastern plume of 10,000 ppb and a rapid decrease to 3 ppb within about 1,000 feet or less to the edge of the plume. Subject, of course, to an engineering evaluation, water extracted from the more concentrated parts of the plume could be piped to an air stripping unit; then combined with the less concentrated, recovered groundwater and piped to the Hadnot Point STP.

The authors acknowledge several reservations that must be satisfied before adding contaminated groundwater to the Hadnot Point STP. Most of these concerns could be easily addressed with appropriate pretreatment such as that presented above. Moreover, pretreatment would overcome the environmental objection that simply adding contaminated groundwater to the Hadnot Point STP would be dilution (with minimal reduction of the load of contaminants to the environment) rather than treatment for several of the contaminants.

Note that EPA has proposed (Federal Register, Volume 53, Number 160, August 18, 1988) that the MCL for lead should be lowered from 50 to 5 ug/l, with an MCLG of 0 ug/l. Until this proposed change is adopted, 50 ug/l lead is the appropriate standard, as specified in the RI/FS, but preparation should be made to treat to the lower concentrations when the change becomes effective. As a suggestion only, in order to stimulate thinking about lead in the recovered groundwater, an article, "Lead Othophosphates IV, Formation and Stability in the Environment" by Jerome O. Nriagu, is enclosed. In addition, to a detailed discussion of the basic environmental chemistry of lead, this article presents a unique and ingenious treatment schematic for lead in wastewater.

Five years (FS, page 6-3) is an unreasonably short time to expect a cleanup of this groundwater system. Experience with pump-and-treat systems to date has shown that, within the groundwater plume, a considerable quantity of contaminants is almost always adsorbed onto the aquifer matrix, and this adsorbed fraction is not measured in standard groundwater analyses. As pumping proceeds, these contaminants desorb and act as a continuing source of apparently new contamination to the groundwater. A more reasonable period, such as 30 years should be used in the cost analysis. The O&M costs for the entire 30 year period should be calculated, reduced to their present worth equivalent, and combined with

capital costs for a more reasonable cost comparison. Using O&M costs for only the first year (FS, page 7-1 and 7-2) biases the comparisons unreasonably toward low capital costs and high operational costs.

Solvents in Soils

Some type of soil venting or aerating should be evaluated for use where concentrations in the soil gases are high enough to present a potential threat to groundwater.

EPA requests your written response to each of the above comments before the next TRC meeting preliminarily scheduled for the January/February, 1989, time frame. Also, the Marine Corps is required to submit a formal TRC charter before the next meeting. This document should be modeled after the Milan Army Ammunition Plant, Tennessee TRC Charter hand delivered by EPA at the August 9, 1988, TRC meeting, but include Camp LeJuene's site specific considerations.

EPA is willing to enter into early negotiations with the Marine Corps to develop an Interagency Agreement (IAG) to facilitate the cleanup of Camp LeJuene. EPA anticipates that the IAG for Camp LeJuene will address Site 21 (proposed NPL site), all other IRP sites (including the HPIA Site), and select RCRA units, allowing the Marine Corps to meet all statutory/regulatory requirements and maximize their cleanup effort. Record of Decision (ROD) discussions for the shallow aquifer contamination at the HPIA Site, recognized as an operable unit, should follow Camp LeJuene IAG negotiations.

In order to satisfy CERCLA/SARA requirements the Marine Corps must develop a Risk Assessment for Camp LeJuene and submit it to EPA for review. The Risk Assessment should address Site 21, the HPIA Site, and all IRP sites which pose a potential threat to public health or the environment. Additionally, the Marine Corps is required to submit a RI/FS Work Plan with a detailed schedule addressing Site 21 remediation. Also, any treatability bench or pilot study plans developed for the HPIA Site need EPA approval. Finally, future RI work plans developed for the deep aquifer, and Remedial Design and Remedial Action plans for the shallow aquifer at the HPIA Site should be submitted to EPA for review and comment. If you have any questions concerning the above, please contact Victor Weeks, Remedial Project Manager, at (404) 347-5059.

Sincerely yours,

H. Kirk Lucius, Chief
Site Investigation and Support Branch
Waste Management Division

Enclosure