Doc. No.: CLEJ-00326-3.01- Col Blahn
01/08/90

UNITED STATES MARINE CORPS
MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA 28542-5001

IN REPLY REFER TO

6286/3
BEMD
JAN 0 8 1990

From: Commanding General, Marine Corps Base, Camp Lejeune, North Carolina
To: Commander, Atlantic Division, Naval Facilities, Engineering Command, Norfolk, Virginia (Attn: Code 182)

Subj: REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) CONTRACT RESPONSE TO AGENCY COMMENTS ON HADNOT POINT RI/FS

Ref: (a) LANTNAVFACENGCOM, ltr 1822: SMA over 5090 of 16 Nov 89

(b) Phoncon LANTNAVFACENGCOM (S. Ashton)/MCB Camp Lejeune (S. Del Re') of 1 Jan 90

1. The Hunter Environmental Services, Inc. (Hunter ESE) response to the Technical Review Committee comments on Hadnot Point Focused Feasibility Study (FFS) forwarded under reference (a) has been reviewed and, as discussed during reference (b), the following comments are provided for appropriate action and the Administrative Record:

a. While the comments Hunter ESE prepared were sufficient and focused on a recovery system, MCB Camp Lejeune desires the revised FS evaluate other available technologies which provide permanent cleanup, e.g., bioremediation, should be investigated to the fullest in the revised FS. This evaluation will allow a greater range of alternatives consistent with SARA.

b. MCB, Camp Lejeune concurs with EPA's concern that a risk assessment be conducted on all sites as well as addressing all affected media in the revised FS for Hadnot Point. This concern was discussed with your command Remedial Project Manager 5 Dec 89 in Norfolk.

c. The Hunter ESE comments should be sent in response to EPA's concerns. Suggest a cover memo be prepared explaining the need to conduct a revised FS to properly respond to EPA's technical questions as well as provide a cleanup remedy for Hadnot Point.

2. Point of contact for this command is Ms. Stephany Del Re', IRP Manager, Environmental Management Department, AUTOVON 484-2471 or commercial (919) 451-2471.

J. I. Wooten

J. I. WOOTEN
By direction

Doc. No.: CLEJ-00326-3.01-01/06/90 Deputy AC/S, EM copy 1

DEPARTMENT OF THE NAVY

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA 23511-6287

TELEPHONE NO. (804) 445-1814
IN REPLY REFER TO: 5090
1822:SMA

16 NOV 1989

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Commanding General, Marine Corps Base, Camp Lejeune (Attn: Environmental Management Division)

Subj: REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) CONTRACT RESPONSE TO AGENCY COMMENTS ON HADNOT POINT RI/FS

Ref: (a) PHONCON MCB CAMP LEJEUNE (S. Del Re)/LANTNAVFACENGCOM (S. Ashton) of 3 Nov 89

Encl: (1) Hunter Environmental Services, Inc. Response to Technical Review Committee Comments on Hadnot Point Focused Feasibility Study

1. As discussed during reference (a), enclosure (1) is provided for your review and comment. Please provide your comments within 30 days.

2. Our point of contact is Ms. Sheila Ashton, P. E., Code 1822, who may be reached at AUTOVON 565-1814 or commerical (804) 445-1814 for further information.

P. A. RAKOWSKI, P. E.
Head, Environmental Program Branch
Environmental Engineering Division
By direction of the Commander

Doc. No.: CLEJ-00326-3.01-01/08/90

HUNTER/ESE
ENVIRONMENTAL SERVICES, INC.

5219 Militia Hill Road
Plymouth Meeting, Pennsylvania 19462
215-941-9700
800-248-6837

October 24, 1989

Commander
Atlantic Division
Naval Facilities Engineering Command
Norfolk, Virginia 23511-6287

Attn: Code 1822, Ms. Sheila Ashton

Re: A&E Contract No. N62470-83-C-6106, Remedial Investigation Feasibility Study (RI/FS) at Marine Corps Base, Camp Lejeune, North Carolina

Dear Ms. Ashton:

Transmitted with this letter are Hunter/ESE's responses to the comments received from the Technical Review Committee (TRC) on the Hadnot Point Industrial Area Focused FS. In order to facilitate the responses, we have numbered each comment made by each reviewing agency, as appropriate. A copy of the original comments with the numbering scheme is attached to our responses.

Following your review of these responses, we will be available to discuss them further with you. If you have any additional questions or comments regarding this submittal, please contact me at (215) 941-9700.

Sincerely,

Robert G. Gregory

Robert G. Gregory
Project Director

Enclosure

cc: M.E. Resch
L.J. Biello (w/o Enclosure)

Doc. No.: CLEJ-00326-301-01/08/90

P-MCBCLJ/HPIACMT.1
10/21/89

RESPONSE TO USEPA COMMENTS TO HPIA FS

Air Compliance Branch

1. It is agreed that air monitoring in and around the sewage treatment plant will be needed. This requirement will be included in the sewage treatment plant alternative.

2. The air stripping alternative presently includes a vapor recovery system (see paragraph 4.2.3.2, page 4-15).

RCRA Branch

1. RCRA regulations will be applicable to the HPIA site under two scenarios. The first case is if releases of hazardous wastes have occurred at HPIA after 1980. The second scenario is that the contaminated sites at HPIA might be regulated under RCRA Corrective Action as solid waste management units (SWMUs) associated with the processing of a RCRA Part B permit for Camp Lejeune. If RCRA Corrective Action is appropriate for Camp Lejeune, it is agreed that all SWMUs at Camp Lejeune must be identified and analyzed.

2. Soils with high organic carbon content will adsorb significant quantities of organic contaminants dissolved in the ground water. These contaminants will only slowly be desorbed during a pump-and-treat operation unless the pumping system is properly designed. The sand peat layer appears to be limited in horizontal and vertical extent (detected in only one monitor well), and one or more extraction wells can be installed directly through this lens with screening limited to the sand peat horizon. In this way, flushing of contaminants from the sand peat can be maximized.

3. Accurate target cleanup concentrations will be determined in the Risk Assessment for this site. Hazard Indices and background concentrations will be considered in that evaluation.

4. The focused FS currently under review was limited to evaluation of remediation efforts for the shallow aquifer. Remediation of unsaturated soils will be a key consideration when other contaminated media are evaluated.

5. System control parameters and microbial toxicity would be evaluated through completion of a treatability study. This study was discussed in the first full sentence of page 4-12 (paragraph 4.2.2.1). Testing of generated sludges to determine if they are hazardous has been assumed in all applicable alternatives. However, it is felt that removal efficiencies (biological degradation and stripping) in the biological

treatment alternatives will be such that the chances of the sludge being hazardous will be minimal.

6. Discharge of lead to surface waters must comply with applicable ambient water quality criteria. Lead concentrations in the ground water samples from the shallow aquifer at HPIA were quite variable from well to well. Prior to inflow to the selected remedial technology, all contaminated ground water will be collected utilizing an extraction well network. Ground water from all wells will be blended together and sampled prior to treatment for volatile organic contamination. If, after blending of the ground water, average lead concentrations in the influent indicate that pretreatment for lead is necessary, the required pretreatment unit would be appended to the treatment system. It is not the intention of any selected remedial technology at Camp Lejeune to allow the discharge of lead or any contaminant to the environment at levels greater than the applicable water quality standards and/or guidelines.

Facilities Performance Branch

I. Only treatment technologies which could theoretically treat the contaminants at the site were analyzed in detail. Determination of theoretical treatability of these contaminants included analysis of the four chemical characteristics listed in this comment. The Risk Assessment will use detailed theoretical and empirical equations which will also incorporate the four listed characteristics.

2. Biodegradation of the HPIA contaminants will admittedly not be a rapid process. However, trickling filters routinely involve recycling, effectively increasing detention time in this unit operation. Removal of these contaminants will also occur through volatilization from the wastewater surface. As was stated in the response to comment No. 1, air monitoring in and around the STP will be required to evaluate the impact of the volatilization.

3. Ground water samples collected to date were not analyzed for BOD. As was stated in paragraph 6.2.2 (page 6-8), analysis of this treatment method will require revision if results of a required pilot test invalidate biodegradability assumptions.

4. Consideration of these factors would be required prior to implementation of this alternative.

5. Under SARA, simple transfer of contaminants from one medium to another (ground water to air) without permanent treatment is not generally accepted. Although the authors did not specifically conduct research to determine if local or State ordinances limited discharge of specific air toxics, implementation of SARA suggested that use of a vapor recovery system would be prudent. Vapor-phase carbon adsorption is typically the

most cost effective method of vapor recovery given the range of VOC concentrations observed at HPIA.

6. The analysis of whether vapor recovery would be needed at the biological treatment systems would be included in the recommended pilot studies.

7. A summary of the design and operation of the Hadnot Point STP will be included in the description of any remedial alternative which includes use of the STP.

8. The assumptions and design criteria used in developing treatment costs will be provided upon request.

9. Discharge of contaminants to surface waters must comply with applicable ambient water quality criteria. It has been assumed in the FS that the discharge permits can be obtained. As was stated in Section 6 of the document, reevaluation of the alternatives would be necessary if discharge permits are denied. In addition, the Risk Assessment will specifically evaluate all applicable, or relevant and appropriate requirements (ARARs) with respect to post-remedial action discharges of treated environmental media to the environment.

Ground Water Protection Branch

1. The classification of ground water at HPIA, as well as the associated implications with respect to protection of water quality, are clearly understood. Any remedial technology or group of assembled remedial technologies will be implemented only if reasonable assurances have been provided to the applicable reviewing agencies that the water quality goals of the classification system will be met.

2. It is agreed that additional investigation of the deeper aquifer is necessary. The scope of work which resulted in the HPIA focused FS limited the effort to an evaluation of the shallow aquifer at HPIA.

3. It is agreed that expeditious removal of contaminants from the shallow aquifer is warranted.

4. See response to comment 2.

5. With the development of the current interagency agreement for Camp Lejeune, the schedule for conduct of the deep aquifer investigation at HPIA and all other required investigations within Camp Lejeune should be well documented.

6a. The specific geohydrologic data requested by this comment are not currently available at HPIA. This information will be generated by the next phase of field investigation. The conceptual design of the

extraction well network for the shallow aquifer was developed using well yield information observed during monitor well development and pre-sampling well purging activities. The final design of any extraction well network presented as part of an overall remedial design will be based on measured geohydrologic data.

6b. The final design of the extraction well network may include specific pretreatment of portions of the influent stream if additional ground water quality characterization indicates that areas within the contaminant plume contain unique contaminant loads non-amenable to the treatment technologies utilized in the preferred alternative.

7. It is agreed that evaluation of various combinations of these treatment technologies to investigate pretreatment and blending of different strength wastes will be beneficial. The statement of work which resulted in the focused FS document currently under review specifically requested evaluation of five short-term and five long-term remedial technologies. Assembly of applicable individual remedial technologies into remedial alternatives will be performed in future versions of the current FS document.

8. It is agreed that pretreatment will be beneficial. Evaluation of the results of a recommended treatability study should identify the cost/benefits of potential pretreatment schemes.

9. Revisions of the FS can include an analysis of lead removal based on the lower standard.

10. During preparation of the focused FS currently under review, it was apparent that insufficient geohydrologic data were available to determine the duration of the remediation of the shallow aquifer with any degree of accuracy. The time frames presented in the document were intended to be used as general cost guidelines; a pump-and-treat system of the design indicated, operated for a period of 5 years, would require financial resources approximately equal to the values presented in the document. Future versions of the FS will present more realistic estimates of the cost and time for remediation of the ground water.

11. The focused FS was limited to evaluation of remediation efforts for the shallow aquifer. Remediation of unsaturated soils, such as with soil venting or aeration, will be a key consideration when other contaminated media are evaluated.

Doc. No.: CLEJ-00326-3.01-01/08/9

P-MCBCLJ/HPIACMT.5
10/21/89

RESPONSE TO NC-DNRCD COMMENTS TO HPIA FS

1. Revised versions of the FS will consider all applicable state of North Carolina water quality standards and/or guidelines.

2. All review agencies will receive copies of draft work plans; suggestions for expanded target analyte lists will be solicited at that time.

3. Treatability studies will be conducted to determine the compatibility of the waste stream with the STP process.

4. As of the date of this response, an interagency agreement is in place to specify the timetable for the investigation at Camp Lejeune.

Doc. No.: CLEJ-00326-3.01-01/08/9

P-MCBCLJ/HPIACMT.6
10/21/89

RESPONSE TO NC DIVISION OF HEALTH SERVICES COMMENTS TO HPIA FS

1. The final choice of materials for well casings and screens will be determined during review of draft work plans by all appropriate reviewing agencies.

2. All vertical measurements will be made with an accuracy of 0.01 feet.

3. Locations of proposed monitoring wells will be finalized following the review by and consent of all appropriate reviewing agencies.

4. All pumps and hoses will either be dedicated to one well or will be thoroughly decontaminated utilizing procedures approved by all reviewing agencies.

5. Sampling will take place after 3 to 5 well volumes have been purged, assuming that well yields will allow the purging to be completed within a reasonable amount of time.

6. All pumped water will be containerized, chemically characterized, and disposed of according to all applicable regulations/protocols.

7. All well screens will be placed to ensure that cross connection of separate aquifer zones does not occur.

Doc. No.: C4EJ-00326-3.01-01/08/90

P-MCBCLJ/HPIACMT.7
10/21/89

RESPONSE TO NAVAL HOSPITAL, MCB CAMP LEJEUNE COMMENTS TO HPIA FS

No response required.

Doc. No.: CLEJ-00326-3.01-01/08/90

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:

1. 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.

2. 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

1. 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.

2. 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.

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

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

5. 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.

6. 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

1. 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

2. 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?

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

4. 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.

5. 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?

6. 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.

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

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

9. 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

1. 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

2. 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.

3. 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

4. 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.

5. 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.

6a. 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.

6b. 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

7. 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.

8. 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.

9. 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.

10. 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

11. 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

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

Enclosure

Doc. No.: CLEJ-00326-3.01-01/08/90

State of North Carolina
Department of Natural Resources and Community Development
Wilmington Regional Office

James G. Martin, Governor
S. Thomas Rhodes, Secretary

Bob Jamieson

September 22, 1988

Colonel T. J. Dalzell
Assistant Chief of Staff, Facilities
Marine Corps Base
Building 1
Camp Lejeune, North Carolina 28542-5001

Re: Review and Comment
Characterization, Confirmation and Feasibility Reports
Hadnot Point Industrial Area
Camp Lejeune, North Carolina
Onslow County

Dear Colonel Dalzell:

This letter is intended to provide you with our comments on the subject reports.

1. The principal comment involves the target concentrations that your consultant, ESE, has proposed for the remediation of the contaminant plumes. As you may know, the North Carolina Groundwater Classifications and Standards (15 NCAC 2L) is now being revised. Major revisions include the establishment, for the first time, of numerical standards for the following constituents encountered in Class GA groundwater:

Constituent	Proposed Standard (ppm)
benzene	0.00070
chloroform	0.00019
trans-1, 2-dichloroethene	0.07000
ethylbenzene	0.02900
methylene chloride	0.00500
methyl ethyl ketone	0.17000
tetrachloroethene	0.00070

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ENCL (2)

Doc. No.: CLEJ-0032C-301-01/08/91

(Continued)

Constituent	Proposed Standard (ppm)
toluene	1.00000
1,1,1-trichloroethane	0.20000
trichloroethene	0.00280
vinyl chloride	0.000015
xylene	0.40000

Since the source(s) in this instance are unpermitted, these standards will apply to Class GA groundwater directly underneath the source(s). By definition, there is no compliance boundary for unpermitted sources. Also, you should note that in the proposed revisions to 2L that the GB class has been eliminated.

Also, where no numerical standard exists for a constituent, descriptive standards then apply. Here, the standards revolve around the "suitability of the water for drinking," which means that if ingested into the human body, this quality of water will not cause death, disease, behavior abnormalities, congenital defects, genetic mutations, or result in an incremental lifetime cancer risk in excess of one in one million, or render the water unacceptable due to aesthetic qualities (taste, odor, and appearance).

However, if it is not possible for the responsible party to restore to the standards, then the responsible party may submit to the Division for consideration a request for variances to the standards or a proposal for alternate contamination concentrations.

A copy of the new and proposed 2L is enclosed for your reference. It is believed that revised 2L will be effective by the time you begin remediation of the problem sites.

2. A second comment concerns the definition of the extent of the groundwater quality violations established by ESE. As the analytical work to date has been of limited scope, we suggest that you select the well(s) that have been most impacted by the source(s) and perform complete analyses, to include:

National Interim Primary Drinking Water Regulations
National Secondary Drinking Water Regulations
volatile organic analyses
extractable organic analysis

Doc No.: CLEJ-00326-301-01/08/9

3. Thirdly, we suggest that you evaluate the impact that the contaminated groundwater will have on operation of the sewage treatment plants if the Division agrees to its disposal in this way. Performance of bioassay analyses may be useful in evaluating the potential impact.

4. Finally, we feel that it is now appropriate to begin discussions on a Special Order by Consent (SOC) between the Marine Corps and the Environmental Management Commission. This SOC will authorize a mutually acceptable action plan with a timetable that will allow the responsible party to take the actions necessary to come into compliance with 2L. Once the final review is finished on the subject reports, we would like to meet with you and/or your consultants to begin negotiation of the SOC terms.

If you have questions, please do not hesitate to call Rick Shiver or me at (919) 256-4161.

Sincerely,

RICK SHIVER

FOR A. Preston Howard, Jr., P.E.
Regional Supervisor

APH/RSS/dhz

Enclosure

cc: Paul Wilms
Perry Nelson
GWS - WiRO
CF

Doc. No.: CLEJ-0032-301-01/08/90

North Carolina Department of Human Resources
Division of Health Services
P.O. Box 2091 • Raleigh, North Carolina 27602-2091

James G. Martin, Governor
David T. Flaherty, Secretary

Ronald H. Levine, M.D., M.P.H.
State Health Director

16 September 1988

T. J. Dalzell, Colonel
Assistant Chief of Staff, Facilities
Marine Corps Base
Camp Lejeune, NC 28542

Dear Colonel:

Enclosed are comments from the North Carolina Division of Health Services, Solid Waste Management Section, regarding the proposed remedial action at the Hadnot Point Industrial Area. The comments express general concerns from a RCRA perspective. The Superfund Branch is satisfied with the work to date and submits no comments at this time. We look forward to continue working with you on this matter.

Sincerely,

Stan Atwood

Stan Atwood, Toxicologist
Superfund Branch

SA/acr/marine.res

ENCL (3)

Doc No.: CLEJ-0036-3.01-01/08/90

September 16, 1988

MEMORANDUM

TO: Stan Atwood
CERCLA Program
Solid Waste Management Section
Division of Health Services

RE: Review of Hadnot Point Industrial Area Feasibility Study to Characterize any RCRA Regulatory Concerns

As requested by you we are submitting a set of concerns generated by our review of the feasibility study. These concerns are based on RCRA standards and may not totally apply to this particular situation, but they may serve as a future guidance for developing the remedial action solutions without coming in conflict with other environmental programs.

A list of concerns follows:

1) The construction of the casing string should be either stainless steel or Teflon covered for the groundwater monitoring wells to meet RCRA standards.

2) RCRA standards require that casing elevations and water levels be measured to the nearest .01 feet.

3) The monitoring well nests should not be placed farther than 50 feet downgradient from the source or boundary of the unit's emanation point. To initially assess the extent of contamination, the delineation of the plume

effort will allow for both modeling and confirmatory perimeter wells to be drilled at a greater distance from the source. Most times the confirmatory well will be utilized as a future extraction or progress monitoring well.

4) The pumps and hoses should be cleaned with phosphate-free soap and thoroughly rinsed with clean tap water between sampling events.

5) From 3 to 5 volumes of water must be purged from all monitoring wells prior to a sampling event to ensure that the samples are representative of the formation water.

6) The pumped water should be properly collected, containerized, labeled and disposed of as a hazardous waste if tests show levels of contaminants above the allowables.

7) Care should be taken to screen the wells discreetly where more than one (1) aquifer exists with confining strata between them. Cross migration of contaminants should be avoided as much as possible.

If there are any additional questions, please feel free to contact us.

Sincerely,

George Garcia
Environmental Engineer

Paul Laymon
Hydrogeologist

cc: Bill Meyer
Jerry Rhodes
Lee Crosby
Bill Hamner
Jimmy Carter
File

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