Doc. No.: CLEJ-00427-4.01-10/21/89

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

1. 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-00427-4.01-10/12/89

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-00427-4.01-10/12/89

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.: CLEJ-00427-4.01-10/12/89

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

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

No response required.