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UNITED STATES MARINE CORPS

MARINE CORPS BASE
PSC BOX 20004
CAMP LEJEUNE, NORTH CAROLINA 28542-0004

IN REPLY REFER TO:
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BEMD
7 JUL 1997

Ms. Carole D. Hossom
Environmental Health Scientist
Federal Facilities Assessment Branch
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry
1600 Clifton Road (E-56)
Atlanta, Georgia 30333

Dear Ms. Hossom:

The enclosure is our comments on the Agency for Toxic Substances and Disease Registry's Public Health Assessment of Marine Corps Base, Camp Lejeune.

If you have any questions, please contact Mr. Rick Raines, Installation Restoration Division, Environmental Management Department, at telephone (910)-451-5068.

Sincerely,

N. NEAL PAUL
Acting Deputy Assistant Chief of Staff
Environmental Management
By direction of
the Commanding General

Enclosure: 1. Comments on ATSDR'S Public Health Assessment of MCB Camp Lejeune

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Comments on ATSDR's Public Health Assessment of Marine Corp Base, Camp Lejeune

General Comments

~~1. Use abbreviations where applicable, such as Current Public Health Hazard Section, page 1, paragraph 4 and US EPA, page 9, paragraph 2. The format of this document does not flow. Many sections are repetitive and have summaries similar to that of the following text. There should only be one summary at the beginning of the document and take the form of a scientific journal's abstract, not 5 pages of outlined material.~~

2. Summary, page 1, paragraph 2 This paragraph is misleading as to the total number of sites. There were a total of 94 sites that have been identified since 1983, but only 42 went on to an investigative phase. Of those 42 sites, 13 were forwarded to NFA, 7 have either LTM or an RA, and the remaining sites are still under investigation. Twenty-two sites are mentioned in the report as "prioritized"; please explain. Also, the last sentence in the second paragraph reads "A total of 94 sites have been identified and grouped into 18 Operable Units due to proximity." This should read "A total of 42 sites have been identified and grouped into 18 Operable Units due to proximity or similarities of contaminant or contamination."

3. Current Public Health Hazard, page 1, paragraph 4 The word "Health" is left out of the NCDEHNR title. Although some fish samples have shown Hg contamination, it should be noted that there is a diminished threat due to the fact that Brinson Creek is not heavily fished or crabbed. Also, it is still undetermined as to whether or not Site 35 and 36 are contributing to the fish problems; there are many potential sources upstream and off Camp Lejeune property.

4. Potential Public Health Hazards, page 3, paragraph 3 This section recommends that all groundwater information be compiled and assimilated in order to predict the likelihood of which wells are being threatened by contamination and the estimated time of when contamination could reach the wells. We currently have two projects under way which will accomplish this. IR has just completed a project which takes all well information, including site location, depth of well, depth to water table, flow rate, presence and concentration of contaminants, and presence of free product, and compiles it in a database each time the well is sampled. With this information we will be able to query any of the data items and be able to plot contaminant concentration isopleths. We are also in the final stages of a project titled "Basewide Remediation Assessment of Groundwater Study" which primary function is to develop a groundwater flow model which can be used to evaluate the effects of various remediation projects. We will be able to model the groundwater flow and subsequent contaminant migration within the water table around Camp Lejeune. This will allow us to more efficiently design and operate our remediation efforts as well as monitor and protect drinking water supply wells.

5. Background, page 9, paragraph 2 Sites and OUs are labeled numerically more so for the date they were identified and not priority.

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6. Current Public Health Hazards- Current Exposure Situation, page 11, paragraph 1 The last sentence states that the ATSDR is taking action to stop or reduce exposure by educating the affected people of the hazards of eating contaminated fish. Is there an education drive in effect or is it still in the planning stage?

~~7. I.A. Brinson Creek Background, page 13, paragraph 1 Brinson Creek forms the eastern boundary of Sites 35 and 36 and the dividing line between Camp Geiger and Jacksonville, N C~~

~~8. Camp Geiger Area Fuel Farm, Site 35, page 14, paragraph 1 This paragraph states that the "fuel farm is to be demolished, which may remove this contaminant source." The ASTs at Site 35 have been removed.~~

9. Planned Action for Site 35 and 36, page 17, paragraph 2 The planned action for educating the local community about the health hazards associated with eating contaminated fish will consist of distributing literature to women's clinics and fishing stores. Is the target area local or coastal wide? Due to the migratory habits of fish, we do not know if the contaminated fish are originally from this area or migrated here. If the target area is local, it would be more efficient to post signs in and around Brinson Creek.

10. Lawn-Care Worker- Past Exposure, page 40, paragraph 1 This states that the lawn care workers were exposed to pesticides one day per week for four months of the year. This seems excessive. Based on the frequency of how often the grass is cut at our office it would be more representative to say they were exposed once every two to two and a half weeks for four months of the year.

11. Conclusion and Public Health Action Plan for Pesticide Exposure, page 46, paragraph 3 The recommended action section states that education should be provided to previous lawn care and office workers on their exposure to DDT, DDD, DDE and chlordane. What form should this education take?

12. Groundwater Contamination Base wide, page 47, paragraph 2 This section states that ATSDR made recommendation to initiate semi-annual sampling at or near contaminated sites. This was initiated as of June 1997 (17 wells). The 6 wells that have been closed are HP-603, -601, -602, -608, -630, and -634.

13. Conclusions and Public Health Action Plan for Groundwater Contamination, page 51, section 2 The Recommended Action section states that the base compile and assimilate all groundwater data. See line item 3 for comments.

14. Potential Sources, page 52, paragraph 2 This section states that "Camp Johnson is a restricted training area within MCB, Camp Lejeune; there are no residential areas at this location." This is incorrect. There are marine barracks on Camp Johnson. Paragraph 3, states that "Commercial and recreational fishing is known to occur throughout the year near Montford Point." Please confirm this.

General Comments

1. Updated Records - ATSDR has asked for updated records for particular sites where ATSDR did not have a complete set of documents from the Administrative Record. In an attempt to prevent this type of problem, ATSDR is now provided with a courtesy copy of all Final documents prepared under the MCB Camp Lejeune CERCLA program as they are issued. Specific requests for information included items documented in these reports, although ATSDR should already have this information. In addition, there are several instances where incorrect or incomplete information has been reported, presumably because the information was drawn from old reports such as Draft versions which have since been superseded by Final versions or Site Inspection reports or for which full Remedial Investigations have since been conducted. These instances may include data which has to date only been reported in Draft reports, so ATSDR may not have a copy of this information yet. These instances are also noted in the Specific Comments section, with references.

For information purposes, and to ensure that references used cite the most up-to-date document, a list of the latest documents pertaining to the MCB Camp Lejeune IR program which appear to be of interest to ATSDR is included as Attachment 1. This list is not an all-inclusive list of all documents in the Administrative Record; however, the documents listed appear to be the key documents needed in support of this report. ATSDR can examine these documents at the Onslow County Information Repository, MCB Camp Lejeune EMD or LANTDIV offices, or additional copies can be requested from LANTDIV. It is suggested that ATSDR use this list to review the current list of references presented in the document to determine if up-to-date versions should be referenced instead. It is also suggested that ATSDR update the list of references in the report to identify what version a referenced document was (i.e. Draft or Final).

2. Current list of RODs - LANTDIV is concerned that ATSDR may not have up-to-date information concerning sites for which Records of Decisions have been prepared and signed. For your reference, Attachment 2 presents a list of all Interim and Final RODs for MCB Camp Lejeune.
3. Groundwater Contamination - LANTDIV is concerned that ATSDR may not be aware of the extensive efforts that MCB Camp Lejeune is taking to ensure that contamination does not reach potable supply wells. A variety of mechanisms support this effort. They include the Long-Term Monitoring (LTM) program, implementation of institutional controls via the base Master Plan, the base potable supply well monitoring program, the Basewide Remediation Assessment Groundwater Study

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(BRAGS), and the Environmental GIS system. Each of these is discussed briefly below:

- a) *Long-Term Monitoring (LTM) Program* - For all sites for which investigations have been completed (i.e. Final ROD signed) with groundwater contamination remaining on site, a long-term groundwater monitoring program has been established. These programs involve quarterly or semi-annual sampling of sites for contaminants to track the plume movement and to identify natural attenuation (through a variety of mechanisms, including biodegradation, dispersion, and dilution) of contaminants. Results from these programs provide early warning of a potential threat to a receptor (such as a potable supply well or surface water body) so that additional measures may be taken (these may include any number of measures such as implementation of active remediation, closure of a potable supply well, or addition of monitoring points). LTM is also implemented as part of active remediation systems. LTM at active remediation sites serves two purposes: (1) to monitor site conditions similar to LTM at sites without active remediation systems, and (2) to assess effectiveness of the active remediation system and provide data to implement system enhancements. Results from LTM are provided to the EPA and State of North Carolina after each sampling round, including a detailed evaluation of site conditions and recommendations for improvement at least annually, and are further evaluated every 5 years as part of the CERCLA-mandated 5-year review process.
- b) *Institutional Controls* - At sites where contaminants are left on site, either because the remediation effort will require a long period of operation & maintenance (O&M) to treat the entire problem (such as with a groundwater pump and treat system), ongoing LTM (see above), or because removal of site contaminants is infeasible or impractical from an engineering standpoint (such as Site 41, where chemical agents may have been buried), the Final ROD may specify institutional controls. These controls are implemented via inclusion in the base Master Plan. They may include restrictions against future construction at the site and/or future use of groundwater. These restrictions will remain in effect permanently, or until such time as it is documented that site contaminants have reached a level low enough so that they are no longer a concern to human health or the environment. Should the property ever be transferred out of Federal ownership, deed restrictions would be implemented to meet the same requirements. We are still working out details of implementing such deed restrictions with the State of North Carolina due to specific restrictions in North Carolina law. However, this issue is not of immediate concern because MCB Camp Lejeune is not a BRAC base, and it is highly unlikely that any such property transfer would occur within the foreseeable future.
- c) *Base Potable Supply Well Monitoring Program* - The base has initiated an annual monitoring program of all active supply wells. The purpose is to detect any contaminants that may be found in potable supply wells to prevent accidental exposure. Reports are submitted to NCDEHNR for review. Details of this program may be obtained directly from the activity EMD office.

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- d) *Basewide Remediation Assessment Groundwater Study (BRAGS)* - this is a three-dimensional basewide regional groundwater model that has been developed using extensive data collected in the IR and UST programs at Camp Lejeune, in conjunction with regional data compiled by the USGS. It is currently in Draft Final form, with the Final due out in fall of 1997. The primary purpose of developing the model was to determine if active or planned groundwater withdrawal from IR and UST groundwater treatment systems along with potable supply wells at Camp Lejeune would have any significant impact on the regional aquifer. In addition, the model has been used as the basis for site-specific modeling projects that have been used to model contaminant fate and transport, project future plume movement, and place extraction wells for treatment systems. The site-specific modeling has already been used for sites 73 and 82. Both the basewide model and the site-specific models were constructed using MODFLOW (a finite-difference numerical flow model).
- e) *Environmental GIS System* - The base has initiated the development of an environmental Geographic Information System (GIS) to be incorporated into the overall GIS system for the base. This basewide GIS has been developed in ArcView and is a major source of information for land use planning and facilities maintenance (buildings, roads, utilities, construction projects, etc.). Portions of the Environmental GIS already exist, showing such areas as critical wildlife habitats, forestry classifications, wetland areas, and IR sites. To augment this, the base has compiled historical data from all IR and UST investigation monitoring wells, as well as base potable supply wells. This information not only includes well location, but current well status (e.g. active or abandoned), sampling history and boring log data. The GIS format facilitates easy ad-hoc queries of the database to answer questions from regulators and base personnel and to assist in overall management of the environmental program, as well as prepare site-specific summaries for reporting purposes. These enhancements to the environmental GIS use an EDMS database as an extension of the ArcView format and are currently in the final stages of development. Installation of the primary electronic deliverable is currently scheduled for 14 July 1997. Provisions have been included for continued update of the database as contractors and base personnel perform actions that impact the data (installation of new wells, well abandonment, future sampling). Future plans include development of an easy-to-use transportable package using ArcView that can be distributed to interested parties, including remediation contractors and regulators.
4. Suspected Fish and Shellfish Contamination in Northeast Creek and New River - LANTDIV is concerned that the ATSDR evaluation conclusion that fish and shellfish in Northeast Creek and the New River present a potential public health hazard due to contamination from IR sites adjacent to the water bodies may not be based on current data. The assessment by ATSDR appears to be based on preliminary data concerning Sites 7, 16, and 80 along Northeast Creek. The primary justification appears to be based on the fact that fish and shellfish sampling from Northeast Creek was not performed at any of these sites. Remedial investigations are now complete at all three

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of these sites. While it is true that fish and samples from Northeast Creek were not collected in any of these investigations, they were deemed unnecessary due to lack of any significant contamination in any other site media. The final ROD has been signed for Site 16 and prepared for Sites 7 & 80 (currently in the signature process - ~~signature anticipated in July~~). ~~The RODs for all 3 sites conclude that current site conditions are protective of human health and the environment and specified no further action required.~~ The following summary provides additional site-specific information:

- a) *Site 7* - Surface water, sediment, and benthic macroinvertebrate sampling was performed in both on-site tributaries to Northeast Creek and in Northeast Creek itself as part of a detailed ecological investigation. Fish sampling from the tributaries was attempted, but sample collection efforts failed to produce any fish for analysis. Results of the ecological study indicated that one potentially site-related contaminant (lead) did slightly exceed surface water and sediment screening values. However, the species density and diversity study for the benthic macroinvertebrates showed results comparable to off-site reference stations, such that impact on the benthic community appears negligible. Due to the lack of significant contamination in any media, the Final ROD (awaiting signature) concludes that current site conditions are protective of human health and the environment and specifies that no further action at this site is warranted.
- b) *Site 16* - This site is about 4 acres in size, with the study area located about 400 ft northwest of Northeast Creek. The site slopes slightly towards the creek, with a small break in the trees at corner of the study area leading directly to the water. Surface water and sediment samples were taken from Northeast Creek as part of the Remedial Investigation. Very low levels of volatiles were detected in one surface water sample, significantly downstream of the site, but in no other sample. Sediment sampling showed no significant detections of any contaminant except for one sample which exhibited levels of silver slightly above the NOAA ER,M (Effects Range, Low) screening criteria, but well below the ER,M (Effects Range - Median). Due to the lack of significant contamination in any media, the Final ROD (signed in 1996) concluded that current site conditions are protective of human health and the environment and specified that no further action at this site is warranted.
- c) *Site 80* - This is a relatively small (under 1 acre), essentially flat site and is not immediately proximate to Northeast Creek. Wooded areas and a portion of a golf course separate the site from the nearest bank of Northeast Creek, about ¼ mile to the north. A time-critical removal action (TCRA) to remove pesticide contaminated soil was completed in 1996. Surface water and sediment sampling was performed at Site 80 in an on-site drainage ditch during the 1991 Site Inspection. Although low levels of some petroleum-type volatiles were found in the surface water, they were probably directly related to recent use of the washpad, and no contaminants were detected in the sediment. No surface water or sediment samples were taken during the 1994 Remedial Investigation since the ditch was dry and the previous investigation had not indicated a sediment problem. The

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Final ROD (awaiting signature) was prepared following completion of the TCRA. Due to the lack of any significant contamination remaining on site following the TCRA, the final ROD concludes that current site conditions are protective of human health and the environment and specifies that no further action is warranted at this site.

5. Physical Hazards at Site 43 - LANTDIV is concerned that ATSDR may have used incorrect information in the evaluation of potential public health hazards at Site 43. The report indicates that no public health hazard exists at Site 43 because a fence was installed in 1995 which prohibits access to the site. This is incorrect. There is no fence at Site 43. In 1995, a Time-Critical Removal Action (TCRA) was performed at Site 43 to remove all surficial metallic debris. This included a variety of items found at the site, including empty paint cans and metal drums, a tracked vehicle (tank) carcass, and large broken chunks of steel-reinforced concrete. The Remedial Investigation has now been completed at this site. No significant contamination was found in any site media, and the site is proposed for no further action. A Final ROD has not been prepared for this site yet, because other sites in the operable unit (OU6) required further investigation. Since no further action is necessary, it was determined to be most efficient to wait for all sites in the OU to be ready for ROD rather than go through the time and expense to have a separate ROD prepared and signed. A Final ROD for OU6 is expected in Fall 1997.

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