SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
COMMENTS ON CORRECTIVE MEASURES STUDY WORK PAN DATED 13 APRIL 1998
CNC CHARLESTON SC
5/19/1998
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

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2600 Bull Street
Columbia, SC 29201-1708

CERTIFIED MAIL

May 19, 1998

Mr. Henry Shepard II, P.E.
Caretaker Site Office
Naval Facilities Engineering Command, Southern Division
1690 Turnbull Ave., Building NH-51
Charleston Naval Base
Charleston, SC 29405

Re: Zone H Corrective Measures Study (CMS)
Work Plan, dated April 13, 1998
Charleston Naval Base
SC0 170 022 560

Dear Mr. Shepard:

The South Carolina Department of Health and Environmental Control (Department) has reviewed the above referenced Zone H Corrective Measures Study (CMS) Work Plan, which has been submitted previously on August 22, 1997 and November 26, 1997. Comments to the latter were submitted by the Department informally. The April 13, 1998 version of this Work Plan has been revised to address previous comments from the Department, however there are still some issues that need to be addressed. This latest submittal also included a proposed risk reduction approach in order to setup cleanup levels. Although the Department has reviewed this risk reduction methodology, is still uncertain about the results of using such approach. Moreover, during the review process it was found that some additional discussion and further refinements are needed before using this methodology.

Because of the need to compare the results of this new method with traditional approaches and guidance and the uncertainty associated with its use, the Navy is required to in addition use the traditional approach to setup cleanup goals in order to evaluate remedial alternative. By comparing the results of both methodologies the Department would be able to evaluate the proposed risk reduction approach during the preparation of the Zone H CMS report. The Navy must be reminded that despite of the methodology used to setup cleanup levels and select remedial alternatives, adequate risk reduction should be achieved and should ensure that residual risk (contaminant concentrations remaining in place) are protective of human health and the environment.

According to the traditional approach, the CMS preliminary cleanup goals for the evaluation of remedial alternatives should be the following:

- 10^{-6}, 10^{-5}, and 10^{-4} cancer risk for both, residential and industrial scenarios;
- 0.1, 1.0, and 3.0 Hazard Index for both, residential and industrial scenarios.

In addition to these changes the Department has generated additional comments that should be addressed in a revised Zone H CMS work plan. Additional comments are attached.

A ditch that runs from AOC 670/AOC 684 and ends behind SWMU 138/AOC 667 should be investigated as part of the CMS effort. Contaminated sediments were identified during the RFI phase, which are suspected of being transported from the SWMU 14, AOC 670/AOC 684 area during rainy periods.

The Department believes that the Zone H CMS Work Plan can be conditionally approved, provided that the concerns expressed in the Department's comments are addressed during the CMS work and reported in the Zone H CMS Report. This conditional approval does not preclude the Department from taking action if the above mentioned conditions are not met.

Based on the above and by virtue of this letter the Department hereby conditionally approves the Zone H Corrective Measures Study (CMS) Work Plan.

Should you have any questions regarding this issue, please contact Johnny Tapia at (803) 896-4179 or Paul Bergstrand at (803) 896-4016.

Sincerely,

Joan Hartley

Joan Hartley, Manager
Corrective Action Engineering Section
Bureau of Land & Waste Management

attachments

cc: Paul Bergstrand, Hydrogeology
Rick Richter, Trident EQC
Tony Hunt, SOUTHNAVFACENGNCOM
Dann Spariosu, EPA Region IV

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Street
SC 29201-1708

MEMORANDUM

TO: Johnny Tapia, Environmental Engineer Associate
Hazardous Waste Permitting Section
Hazardous and Infectious Waste Management
Bureau of Land and Waste Management

FROM: Paul M. Bergstrand, Hydrogeologist
Hazardous Waste Section
Division of Hydrogeology
Bureau of Land and Waste Management

DATE: 8 May 1998

RE: Charleston Naval Base (CNAV)
Charleston, South Carolina
SC0 170 022 560

RCRA Corrective Measures Study (CMS) Work Plan
Zone H
Dated April 13, 1998, Revision 3

materials referenced above has been reviewed with respect to the requirements of R.61-79
e South Carolina Hazardous Waste Management Regulations, The Environmental
:tion Agencies (EPA) RCRA Facility Investigation Guidance Document dated May 1989,
ised EPA Region IV Environmental Compliance Branch Standard Operating Procedures
ality Assurance Manual (SOP/QAM) dated May 1996 and the Final Comprehensive
; and Analysis Plan dated 30 August 1994.

hat review, comments are attached.

Zone H Comments

Paul Bergstrand, SCDHEC

8 May 1998

General Comments

1. This CMS work plan has taken the approach that "remedial goals for Zone H groundwater will be based on the premise that groundwater is a non-potable, saline aquifer." This decision appears to be based upon analytical data of total dissolved solids (TDS) levels in SOME Zone H monitoring wells which are above the SCDHEC class GB groundwater standards and the opinion that "there is very little incentive to develop base-wide groundwater in the shallow aquifer from ambient conditions to a level where it could meet state or federal drinking water standards. In addition the cost and technical infeasibility of developing base groundwater as a potable water resource would most likely run counter to good engineering judgement and cost/benefit considerations."

   This approach to remedial objectives or standards has not been agreed to by the Project Team.

   While the South Carolina Water Classifications and Standards (Regulation 61-68) allow for the groundwater reclassification, it must be justified and go through a lengthy process. The justification must be provided by the party requesting the reclassification. To date, groundwaters of the state and this Zone in particular have not been reclassified. The reclassification process would take at the least one year since it is a change in regulation. A change in regulation would involve public participation, approval from the DHEC Board, and Legislative approval.

   It is apparent by the approach taken in this document that the Navy is not intending to conduct any active groundwater remediation in Zone H. Since there has been no formal submittal for groundwater standards reclassification this approach is not acceptable and must be revised to reflect MCL standards. Until such time as the groundwater standards are revised, the Navy must proceed with groundwater remedial objectives and actions based upon MCL standards.

2. Technical Impracticability (or Infeasibility) is invoked as a reason to preclude for groundwater remediation for at least two SWMUS in this document, however there has been no case made or presented to the Project Team which would justify its use. Determining Technical Impracticability for groundwater remediation is a clearly defined process and that process must be followed, the results evaluated and agreed to before it can be applied to any site at CNAV. Please review the EPA Directive 9234.2-25 dated September 1993 "Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration". Until such time as Technical Impracticability is determined, the Navy must proceed with groundwater remedial objectives and actions based upon MCL standards.

3. The Potential Remedial Alternatives Sections regarding groundwater in this document do not address Remediation Methods (i.e., technologies) and additional data required to evaluate those methods. This is persistent throughout the document. In particular, groundwater pump and treat, vapor extraction, Multi Phase Extraction, monitored natural attenuation, etc., was not addressed at sites with clearly identified groundwater contamination. These are technically viable remedial alternatives and must be included in the CMS evaluation.

   An alternative remedial method, such as pump and treat, should be readily available should the selected remedy, such as monitored natural attenuation fail.

4.. Ground water flow maps based on the quarterly sampling events should be included in the work plan.

5. Please include the Bureau Assessment and Remediation Criteria as one of the reference documents.

6. This CMS work plan must result in the complete definition of the vertical and horizontal extent of contamination detected at each SWMU and AOC.

7. The soil sampling and monitoring well installation recommendations in this document are as agreed to during several previous Project Team meetings and should proceed.

Specific Comments

8) Page 4.2

Please modify the table "Sites designated for NFA" ;

A) OIA G07 and G38 (AOC 709) is planned to undergo an interim measure and will be evaluated in a CMS after confirmation samples are analyzed and a report is finalized.

B) SWMU 178 and AOC 663 will resample wells 178001 and 663002 for VOCs and SVOCs. The results will be compiled and a recommendation will be included in the report.

9. Page 5.2 Ambient Water Quality

The last sentence of the first paragraph states "The survey identified no drinking water wells screened in the shallow aquifer within a four-mile radius of the base". Please note that this was a 1985 survey and the title of the report does not indicate how groundwater users were surveyed. (The report, for example, may have been based on official well installation reports submitted to the Department.) This report does not guarantee that there are not private wells within a four-mile radius of the base as the private well discovered during the SWMU 39 investigation proves. This section should be clarified.

10. Figures 5B, 5C, 5E and 5F

These figures present a computer generated groundwater piezometric surface from two consecutive days, January 20, 1998 and January 21, 1998. What is the intended benefit of this data? Please see comment four.

11. Page 5.14 Sulfates

Please explain the information regarding wastewater sludge treatability.

12. Figure 5V

The Navy should not rely only on the computer to generate contamination iso-contours.. For example, the chlorobenzene iso-contour at SWMU 17 has not been shown to extend beyond Bainbridge Avenue yet this figure would indicate that it does. This should be addressed in all future reports and work plans.

13. Figures 5W and 5X

These figures give the impression that the full extent of contamination has been defined. In fact the assessment of the vertical and horizontal extent of contamination is ongoing. This should be addressed in all future reports and work plans.

14. Page 5.1.22 Remedial Objectives

The Navy is proposing to use the landfill presumptive remedy approach for SWMU 9. This section of the workplan states "the presumptive remedy should avoid:

* Remediation of groundwater
* Remediation of contaminated surface water and sediments
* Remediation of contaminated wetlands areas.

A brief review of four EPA Guidance Documents listed below make it clear that treatment of contaminated groundwater is not to be excluded from the landfill presumptive remedy.

- "Landfill Presumptive Remedy Saves Time and Cost", January 1997
- "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills (Interim Guidance)", April 1996
- "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills", June 1995
- "Presumptive Remedy for CERCLA Municipal Landfill Sites", June 1993

15. Page 5.2.3 Section 5.2.4 Fate and Transport

The second paragraph addressed lead in groundwater. Recommendations were made

during previous project team discussions to relate and document high groundwater turbidity to high metals reports such as lead. This approach has not been taken in this workplan. This approach should be considered in all future reports and work plans.

16.. Page 5,3,2

Please review comment #2 regarding Technical Impracticability. It is in the Navy's best interest to remove as much free product from the site as soon as possible. This MAY reduce the long term liability for the site.

17.. Figure 5.3.2

This figure states "Marsh Clay is Basal Confining Unit for the Surfical Sand". Previous documents, such as the Zone H RFI Report, define the marsh clay as an AQUITARD not a confining unit. This was specifically pointed out in comments dated 18 November 1997. This must be corrected in all future documents.

18. Page 5,3,2 Section 5.3.4

This section of the workplan does not include a figure showing the full extent of NAPL contamination.

19. Page 5,3,2 Fate and Transport

This section discussed NAPL and how it is technically infeasible to remove the DNAPL. This approach appears to contradict the definition of Technically Impracticable if the "Marsh Clay is the basal confining unit for the surfical sand. Free product removal must be considered as a potential groundwater remedial component.

20. Page 5.4.5 and 5.4.6

Both pages reference benzene groundwater contamination at greater that MCL values in monitoring well NBCH663001. The RFI report data indicate the same groundwater contaminants in monitoring well NBCH663002. Please verify which well has reported benzene above the MCL.

21. Page 5.4.6

The Remedial Objectives for groundwater contamination appear to be contradicted in Section 5.4.9: CMS Data Needs. Please proceed with the CMS Data Needs and modify the Remedial Objectives as needed.

22. Page 5.5.3 Section 5.5.8

The proposed list of Potential Remedial Alternatives is premature and incomplete since the proposed monitoring wells haven't even been installed yet. Proceed with the CMS Data needs.

23. Page 5.6.2 Section 5.6.7

The reason behind the hazard discourse in the Remedial Objectives Section is not clear. In fact it appears to be stated twice. Proceed with the CMS Data needs.

24. Page 5.10.1 AOC 666

This section stressed virgin petroleum product possibly related to a fuel oil tank (UST NS-45) but totally ignored the contamination from a waste oil UST (NS-44A) linked to the oil/water separator. The UST closure report indicates the piping connecting the oil water separator to the UST leaked. This section does not address the vinyl chloride detected above the MCL in the first round of groundwater samples. The groundwater contamination is potentially a result of a waste storage process. This section should be corrected in all future reports and workplans.

UST removal reports were recently presented to the project team. This new information must be reviewed with respect to the AOC. Proceed with CMS data needs.

25. Grid well 4 deep had reported benzene above the MCL and trichloroethene however the contaminants appear to have been overlooked. How to address this contamination should be discussed at the May project team meeting.