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LETTER REGARDING SOUTH CAROLINA DEPARTMENT OF HEALTH AND  
ENVIRONMENTAL CONTROL APPROVAL OF ADDENDUM TO ZONE H FINAL RCRA  
FACILITY INVESTIGATION DATED 30 SEPTEMBER 1997 CNC CHARLESTON SC  
11/24/1997  
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL



2908-12241

2600 Bull Street  
Columbia, SC 29201-1708

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November 24, 1997

LCDR Paul Rose  
Southern Division, NAVFACENCOM  
Caretaker Site Office  
P.O. Box 190010  
North Charleston, SC 29419-9010

Re: Addendum to Final Zone H RCRA Facility Investigation  
(RFI) Report, Dated September 30, 1997  
Charleston Naval Base  
SC0 170 022 560

Dear LCDR Rose:

The South Carolina Department of Health and Environmental Control (Department) has reviewed the above referenced document according to applicable State and Federal Regulations, and the Charleston Naval Base Hazardous Waste Permit, effective June 5, 1990. The US EPA did not provide comments. Based on this review, the Department concurs with the Navy's recommendation on AOC 659 to be transferred to the UST program, and the No Further Action (NFA) recommendation on AOC 661, and AOC 665. The Department does not concur with the Charleston Naval Base NFA recommendation on AOC 667/SWMU 138. The RFI work at these sites is not complete and has not adequately defined the extent of contamination. Additional work under the RFI phase needs to be implemented at AOC 667/SWMU 138 according to the attached comments.

Upon receipt of this letter and within thirty (30) days, the Charleston Naval Base should propose additional work at AOC 667/SWMU 138 to complete the RCRA Facility Investigation (RFI) phase.

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

Attachments

cc: Paul Bergstrand, Hydrogeology  
Rick Richter, Trident EQC  
Tony Hunt, SOUTHNAVFACENCOM  
Paul Bristol, GW Assessment & Development  
Dan Spariosu, EPA Region IV



2600 Bull Street  
Columbia, 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

*PMB*

**DATE:** 18 November 1997

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

RCRA Facility Investigation (RFI) Addendum Report  
Zone H  
Dated 30 September 1997

**RECEIVED**  
NOV 20 1997  
S. C. DEPT. OF HEALTH &  
ENVIRONMENTAL CONTROL  
Bureau of Land & Hazardous  
Waste Management

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

Based on that review, comments are attached.

DD971090.PMB

## Zone H Comments

Paul Bergstrand, SCDHEC

18 November 1997

### General Comments

1. The Chain of Custody form for the direct push samples notes effervescence in all water samples from AOCs 659 and 667. CNAV must explain the cause of the effervescence and discuss any impact this may have on the analytical data.
2. The arrangement of the information in this RFI Addendum is good.

### SPECIFIC COMMENTS

#### AOC 659; 30,000 GALLON AST

3. Page A-1-3, Section 1.3, second paragraph presents a contradiction. The paragraph begins by stating "No other VOC, including Methylene Chloride, were detected in either sample." The very next sentence states that "Benzene was detected in sample 659-G-P001-15....." Please correct this paragraph.
4. Section 1.4 states "The presence of benzene suggests that a minor petroleum release from the AST or associated piping has occurred." It must be noted that the AST piping at this AOC has not been addressed or sampled during this investigation. Piping runs associated with this AST have not been indicated on maps or figures. Also note, 659-G-P001-15 is in the presumed downgradient location of the AST but not necessarily downgradient of the piping.
5. A review of the data tables in Appendix A indicates the non-detect level of vinyl chloride was above the MCL (5 ppb ND > 2 ppb MCL).
6. This site should be transferred to Mr. Paul Bristol of the SC DHEC UST Program.

#### AOC 661; EXPLOSIVES STORAGE SHED

7. No explosive compounds were detected at the location of the former explosives storage shed. This AOC should receive a NFA.

#### AOC 665; PYROTECHNICS STORAGE, BUILDING 159

8. The initial four soil sample locations for this AOC were collected around Building 1889, not from the location of Building 159. It should be noted the soil samples surrounding Building 1889 detected BEQs, TPH up to 200 ppm and DEHP up to 150 ppb. The source of these contaminants is unknown. If the asphalt surrounding Building 1889 is removed the soils at this site may need to be addressed.
9. It should be noted that Building 1889 is only 230 feet from SWMU 178 monitoring well #1 which reported DEHP in ground water at a maximum concentration of 530 ppb which is above the MCL of 6 ppb. The location of Building 159 is approximately 120 feet from SWMU 178 monitoring well #1. The five soil samples collected at the location of Building 159 were only analyzed for explosives.
10. No explosive compounds were detected at the location of Building 159. This AOC should receive a NFA.

#### AOC 667; VEHICLE MAINTENANCE AREA SWMU 138; SATELLITE ACCUMULATION AREA

11. A comprehensive review of this combined SWMU/AOC presents several problems which preclude a NFA. Primarily, all four rounds of groundwater data from monitoring wells 667-001 and 667-002 show breakdown products of TCA. The source of these contaminants has not been identified.
12. The eight shallow direct push wells confirm the absence of communication between the shallow contamination at Zone I Grid Well 11 and the contaminants present at AOC 667 - SWMU 138.
13. There are no deep monitoring wells at AOC 667 - SWMU 138.

14. The lithology below fifteen feet at AOC 667 - SWMU 138 is unknown and should be determined.
15. Section 4.2 states "Each (direct push) sample was collected from a depth of approximately 15 feet bgs which roughly corresponds to the top of a marsh clay which acts as a confining unit within the surficial aquifer." The Zone H RFI Report, however, describes the marsh clay as an aquitard having ".....varying amounts of shell fragments and thin layers of sand." The ability of the marsh clay at AOC 667 - SWMU 138 to act as a confining unit is unknown and should be determined.
16. There are no maps indicating the location of the OWS or the associated piping in regard to the location of soil and ground water samples. The age and history of the OWS is not known. It is not clear if the OWS discharges to the Sanitary Sewer or the Storm Sewer. While the OWS is the suspected source of the contaminants, undocumented prior disposal practices may also have contributed and should not be discounted.
17. The monitoring well request for the Zone L investigation (OWS and Septic Systems) did not include the OWS associated with this AOC.
18. Groundwater flow was indicated on the direct push monitoring well request as being to the east. The computer generated map of groundwater elevation for June 1996 indicate flow being to the north. Area groundwater flow maps based on data from quarterly sampling events should be included in the final report.
19. This RFI report must define the vertical and horizontal extent of contamination detected at AOC 667 - SWMU 138. The anticipated path forward might include:
  - ▶ A review of all available information which might include recent Zone L data, site plans, sewer line maps, area groundwater flow maps, and site visits.
  - ▶ The installation of two or three shallow monitoring wells and one deep monitoring well utilizing appropriate well drilling techniques and materials for sampling within the marsh clay. The techniques and materials might include overdrilling the boring, extending the sump, using a well screen with smaller slots and using a finer filter pack sand.
  - ▶ The resumption of quarterly sampling at AOC 667 - SWMU 138 which would include all natural attenuation parameters.