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U S NAVY RESPONSE TO REGULATOR COMMENTS TO CORRECTIVE MEASURES  
STUDY REPORT AREA OF CONCERN 633 (AOC 633) ZONE G WITH TRANSMITTAL CNC  
CHARLESTON SC  
6/25/2004  
CH2M HILL

AOC 633 ~~2006~~  
RtC on CMS Report (RΦ)

# CH2MHILL TRANSMITTAL

**To:** David Scaturo  
South Carolina Department of Health  
and Environmental Control  
Bureau of Land and Waste  
Management  
8901 Farrow Road  
Columbia, SC 29203

**From:** Dean Williamson/CH2M-Jones

**Date:** June 25, 2004

**Re:** CH2M-Jones' Responses to Comments by SCDHEC regarding the *Corrective Measures Study Report, AOC 633, Zone G, Revision 0* – Originally Submitted on December 23, 2003

## We Are Sending You:

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2	CH2M-Jones' Responses to Comments by SCDHEC regarding the <i>Corrective Measures Study Report, AOC 633, Zone G, Revision 0</i> – Originally Submitted on December 23, 2003

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If material received is not as listed, please notify us at once.

Copy To:

Dann Spariosu/USEPA, w/att  
Rob Harrell/Navy, w/att  
Gary Foster/CH2M-Jones, w/att

## Engineering Comments Prepared by Jerry Stamps

### 1. General

Given that groundwater monitoring is proposed in this CMS, the Navy must incorporate AOC 633 into the basewide long-term monitoring report.

#### **CH2M-Jones Response:**

*Comment noted. The groundwater monitoring at this site will be incorporated into the basewide monitoring program.*

### 2. Figure 1-4

Monitoring well G633GW005 is absent from this figure. One must conclude that that water elevation from that well was not accounted for in the groundwater flow direction determination. The Navy must ensure that water elevations from all appropriate wells are accounted for in future groundwater flow determinations that are anticipated to be a part of the basewide groundwater monitoring program.

#### **CH2M-Jones Response:**

*The groundwater contours shown in Figure 1-4 were measured in October 2002. Monitoring well G633GW005 was not installed until October 2003, so it was not available for the October 2002 monitoring event. The groundwater contours measured in October 2002, as shown in Figure 1-4, were used for selecting the location of monitoring well G633GW005 as a downgradient monitoring point, in consultation with Ms. Jo Cherie Overcash.*

*In the future, groundwater elevations from the five site wells will be used to develop groundwater gradient figures.*

### 3. Sections 3.3 and 4.2

This section states that absorbent pads will be placed in G633GW001 to recover the LNAPL. The Navy should specify an anticipated frequency for which the absorbent pad will be inspected and replaced.

#### **CH2M-Jones Response:**

*After the LNAPL and soil excavation IM activities were implemented at this site in July 2002, the amount of NAPL in well G633MW001 was checked periodically through the end of 2002 and found to contain NAPL ranging in thickness from 0.17 to 0.42 ft, with measured thickness generally declining over time. NAPL was removed from the well via a bailer after it was measured after each event.*

*In February 2003, the use of absorbent pads in this well was initiated due to the observed declining NAPL levels. Over the past year, the amount of NAPL that is found to accumulate in the well and absorb to the pads has continued to decline. Currently, only a fraction of the pad exhibits evidence of absorbed product after a 3 to 4 week period in the well. It is expected that replacement of the pads every 1 to 2 months will be adequate and that, over time, the need for*

*pads will decrease and eventually no longer be required, as the amount of NAPL from the aquifer is reduced.*

4. Sections 4.1 and Section 4.2

The Department recommends sampling downgradient well G633GW005 for SVOC analysis, in addition to the currently proposed VOC analysis, on a periodic basis to ensure that SVOC contamination is not migrating.

**CH2M-Jones Response:**

*Comment noted. Periodic monitoring for SVOCs can be conducted. Since they are less mobile and less likely to migrate than VOCs, less frequent sampling for SVOCs would be warranted. If the monitoring indicates that SVOCs are migrating, more frequent monitoring may be appropriate.*

5. LUCs

The Navy should include a LUC discussion similar to that presented in Section 5.4.1 of the SWMU 9 CMS Report. The Navy should also present the exposure assumptions evaluated in the RFI and discuss how these LUCs will be protective with regards to the exposure assumptions. The Department anticipates this information to be included in subsequent CMS Report submittals as well.

**CH2M-Jones Response:**

*Comment noted. A discussion of LUCs as requested will be included in the revised report.*

## Hydrogeology Comments Prepared by Don Hargrove

1. Appendix A, Well Completion Diagram:

- a. There is a problem with the specifications for the concrete pad thickness, depth to top of the bentonite seal, and the grout thickness, as they relate to one another. Specifically, the pad is specified as extending 0.5 feet bgs, the top of the bentonite seal is also listed as 0.5 feet bgs. There is no room for the grout that is described as installed between these two components. Please verify the actual construction of this well, and revise the well completion diagram accordingly.
- b. This diagram specifies that bentonite chips were used for the seal. It should be noted that bentonite chips take longer to hydrate than pellets, and complete hydration is questionable. The hydration time that was used during construction of this well should be specified. This comment can be addressed informally, without a page revision. It is also recommended that bentonite pellets be used in the future.
- c. The well driller's name and certification number are not listed. Please revise to include this information.

**CH2M-Jones Response:**

*The requested information and revised well construction log will be provided in the revised report. Based on a conversation with the field team leader, Darryl Gates, bentonite pellets are our*

*standard product for this purpose and were actually used for this well; the well construction diagram will be corrected to indicate this.*

2. Neither the well development log, nor the purge log (prior to sampling) is included in this document. The following is quoted from Monitoring Well Approval #HW-03-042 for this well, dated 5 August 2003:

**"All monitoring wells must be properly developed until clear, sediment-free water samples are obtained. Specific Conductance, temperature, turbidity, and pH measurements should be taken during development. A log recording the values of these parameters should be maintained during development of the wells. This log should be submitted along with the "as-built" construction details required by R.61-71.H.d. and R.61-71.H.f."**

This information is necessary to determine if water samples taken from this well are representative of the aquifer being sampled. If this information has already been reported to the Department, please specify the document or correspondence that includes these logs. Otherwise, please revise this appendix to include these logs.

**CH2M-Jones Response:**

*The requested information will be provided in the revised report.*