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U S NAVY RESPONSE TO SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL COMMENTS TO RCRA FACILITY INVESTIGATION WORKPLAN AREA OF CONCERN 722 (AOC 722) ZONE I WITH TRANSMITTAL CNC CHARLESTON SC
7/10/2003
CH2M HILL

AOC-722, Zone I
RTC RFI Workplan (RO)

CH2MHILL TRANSMITTAL

To: Jerry Stamps
South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
2600 Bull Street
Columbia, SC 29201

From: Bill Elliott/CH2M-Jones
(352) 335-5877 ext. 2477

Date: July 10, 2003

Re: CH2M-Jones' Responses to Comments by SCDHEC regarding the *RCRA Facility Assessment/RCRA Facility Investigation Work Plan, AOC 722, Zone I, Revision 0*

Quantity	Description
4	CH2M-Jones' Responses to Comments by SCDHEC regarding the *RCRA Facility Assessment/RCRA Facility Investigation Work Plan, AOC 722, Zone I, Revision 0* – Originally Submitted on May 9, 2003

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

Remarks:

Copy To:

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

Comments Prepared by Mansour Malik:

1. Figure 3.4
   EGIS shows the shallow and deep groundwater flow to the northeast. This figure shows the shallow flow mostly to the south and failed to incorporate information from most of the site monitoring wells. The determination of the groundwater flow direction is essential in deciding a proper location for the proposed monitoring wells. Please revise and include a proper groundwater potentiometric map.

   CH2M-Jones Response:
   The potentiometric contours in the EGIS are a regional groundwater flow interpretation from the basewide groundwater monitoring program, and are not intended to be highly accurate at the local site level. The shallow contours actually show both northern flow from south of AOC 722, and southern flow from north of the site, with low hydraulic gradients at AOC 722. The EGIS regional deep contours do show flow to the east toward Cooper River.

   The localized shallow groundwater potentiometric map presented as Figure 3-4 of the RFI Work Plan was developed based solely on water levels measured at the site, and represents the most detailed and site-specific information available at this point, and thus is considered proper for initiating the RFI at AOC 722. The proposed monitoring well locations shown on Figure 3-5 of the RFI Work Plan will satisfactorily address your concerns about differences in local and regional groundwater flow as follows.

   The first new well, located west of Building 1875, will serve as an upgradient well for regional eastward flow conditions across the AOC and will also detect any localized radial outflow from the unit; the second new well located east of Building 1875 will monitor groundwater in the regional downgradient direction (east) of the site; the third new well will monitor water quality in the local downgradient direction (south-southeast) of AOC 722.

2. Comment 2
   Figures 3.1 – 3.4 bear different scales. For review purposes it is more beneficial to incorporate information in identical scaled figures. This is crucial for verifying the proposed wells' locations within the whole picture of a detailed hydrogeological setting. Moreover, although Figure 3.3 and 3.4 both state 1 inch =75 feet, the figures do not conform to that scale. Please revise all figures.

   CH2M-Jones Response:
   The stated scale of one inch = 75 feet is correct for Figures 3-1, 3-4, and 3-5. This scale was chosen to show additional detail around Building 1795 while still showing adjacent features for reference. For Figures 3-2 and 3-3, the scale was increased to one inch = 100 feet to allow the figure to include DPT location IGDIGP002, east of Thompson Avenue, and to create additional space to post the analytical data results on Figure 3-3. We believe the figures and scales are adequate for the purposes of this RFI Work Plan. Updated figures as appropriate will be provided in the RFI report.

3. Comment 3
   It is noted that carbon disulfide was detected in the shallow well IGDGW011 at 66.60 :g/L on 02/22/2002 while detection in the deep groundwater well IGDGW011D on the

same date registered 24.7 :g/L. Because of the potential of downward vertical migration, it is justifiable to investigate further the deep portion of the aquifer at this site. The Navy must identify existing deep monitoring wells to be monitored or propose to install at appropriate locations.

CH2M-Jones Response:

Existing shallow and deep monitoring wells around AOC 722 will be sampled concurrently with the installation of the new wells. As stated in Section 3.3.2, lines 13 and 14, Page 5-6 of the RFI Work Plan, " the three new wells, the three existing shallow monitoring wells, and the two existing grid wells will be sampled..."

Carbon disulfide was previously detected in most monitoring wells at low concentrations with J qualifiers, and was the only organic constituent detected in the deep grid well GDIGW11D. It is a naturally occurring chemical and may be an analytical artifact. All RFI groundwater samples collected will be analyzed for carbon disulfide.

4. Comment 4

Grid Well GDIGW11D recorded a 51.4 :g/L (=) of Lead on 08/30/96. Also monitoring well IGDIGW011 showed a detection of Thallium at 4.1 :g/L (J) on 8/29/96 while IGDIGW011D recorded 5.7 ug/L on 8/30/96. Since the referenced wells will be investigated as monitoring wells within AOC 722, this issue of elevated concentrations of these parameters in the deep wells must be addressed within the subsequent report.

CH2M-Jones Response:

As indicated in response 3 above, the grid wells will be sampled as part of the RFI. The first round of groundwater sampling will include VOC and total (unfiltered) and dissolved (filtered) metals, to determine if metals are site-related COPCs in groundwater. Table 3-2 from the RFI Work Plan has been updated to reflect sampling of all wells for filtered and unfiltered metals in addition to VOCs, and is attached.

Conclusion: Approval of this Work Plan is contingent upon receipt of a monitoring well request and the potentiometric map that addresses these concerns.

CH2M-Jones Response:

The monitoring well installation request is being submitted separately; an updated version of the potentiometric surface map from Figure 3-4 is attached, showing the locations of the three new monitoring wells in yellow, along with existing well locations and local groundwater flow contours from March 2002.

TABLE 3-2
Sampling and Analytical Parameters
RFA/RFI Work Plan, AOC 722, Zone I, Charleston Naval Complex

Station ID	Survey Coordinates		Analytes	Analytical Methods
Soil	**Easting**	**Northing**		
I722SB001	2,326,662	369,852	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB002	2,326,656	369,806	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB003	2,326,654	369,763	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB004	2,326,621	369,858	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB005	2,326,615	369,813	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB006	2,326,607	369,769	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB007	2,326,615	369,629	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB008	2,326,693	369,624	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB009	2,326,622	369,706	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
I722SB010	2,326,651	369,704	VOC, SVOC, PCB, RCRA metals, pesticides	SW 846 - 8260B, 8270C, 8082, 6010A/ 7471A, 8081A
Groundwater				
I722GW001	2,326,805	369,769	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
I722GW002	2,326,529	369,827	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
I722GW003	2,326,778	369,441	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
IG11GW001	2,326,590	369,269	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
IG11GW002	2,326,636	369,549	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
IG11GW003	2,326,726	369,607	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
IG11GW004	2,326,631	369,713	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
IG11GW005	2,326,663	369,821	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A

TABLE 3-2
Sampling and Analytical Parameters
RFA/RFI Work Plan, AOC 722, Zone I, Charleston Naval Complex

Station ID	Survey Coordinates		Analytes	Analytical Methods
IGDIGW011	2,326,638	369,618	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A
IGDIGW11D	2,326,647	369,617	VOC, total and dissolved RCRA metals	SW 846 - 8260B, 6010A/ 7471A

PCB polychlorinated biphenyl
SVOC semivolatile organic compound
VOC volatile organic compound

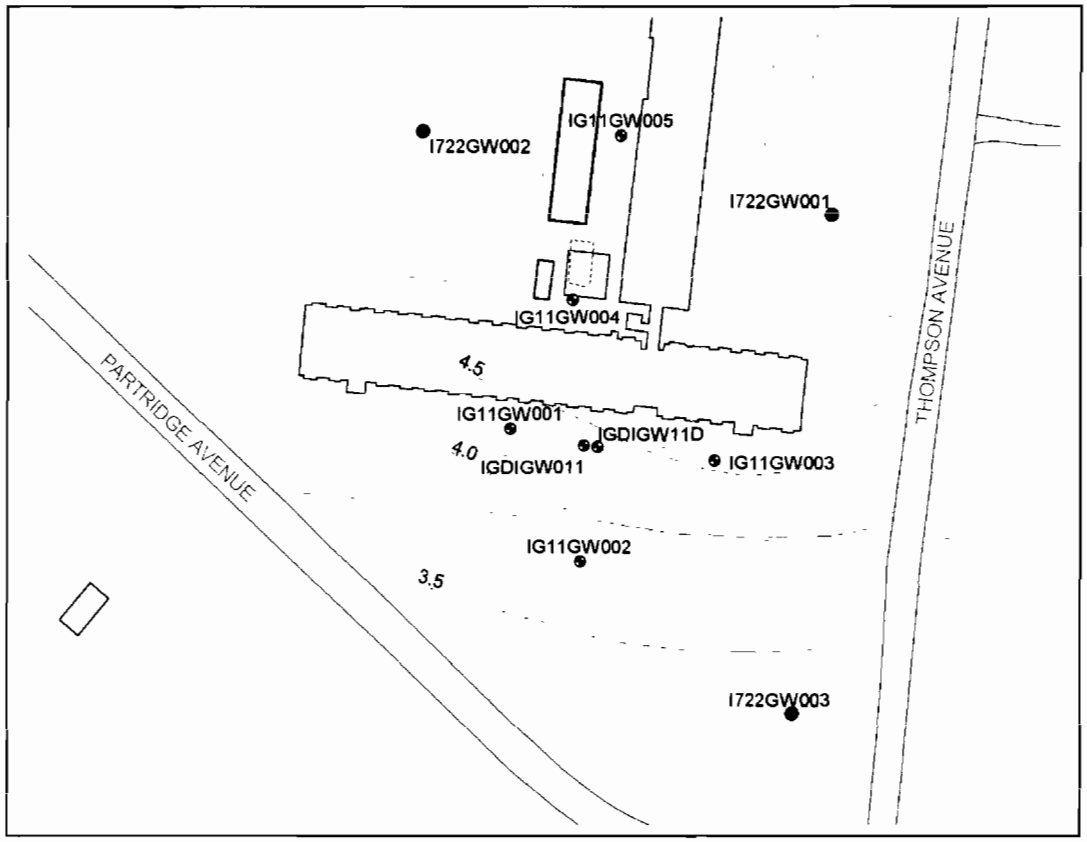

FIGURE 1
Locations of Proposed Wells I722GW001, I722GW002, and I722GW003
AOC 722, Zone I