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TRANSMITTAL FOR RESOURCE CONSERVATION AND RECOVERY ACT FACILITY  
INVESTIGATION ADDENDUM SAMPLING PLAN FOR PREVIOUSLY UNINVESTIGATED  
SITES ZONE E CNC CHARLESTON SC  
11/19/2001  
CH2MHILL



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November 19, 2001

Mr. David Scaturo  
Corrective Action Engineering Section  
Bureau of Land and Waste Management  
Department of Health and Environmental Control  
8901 Farrow Road  
Columbia, SC 29223

Re: RFI Addendum Sampling Plan for Previously Uninvestigated Sites – Zone E

Dear Mr. Scaturo:

Enclosed are four copies of CH2M-Jones' response to SCDHEC comments on the RFI Addendum Sampling Plan for Previously Uninvestigated Sites in Zone E (Revision 0) of the Charleston Naval Complex (CNC) which you transmitted to Amy Danielle at the CNC Caretaker Site Office on October 30, 2001. This sampling plan was prepared pursuant to agreements by the CNC BRAC Cleanup Team for completing the RCRA Corrective Action process, and will be implemented upon receiving your approval.

The principal author of this document is Kris Garcia. Please contact Ms. Garcia at 770/604-9182, extension 476, or me, at 352-335-5877, extension 2280, if you have any questions or comments.

Sincerely,

CH2M HILL

A handwritten signature in black ink, appearing to read "Dean Williams".

c: Rob Harrell/Navy, w/att  
Gary Foster/CH2M HILL, w/att  
Kris Garcia/CH2M HILL w/o att

**Responses to SCDHEC Comments on the  
RFI Addendum Sampling Plan, Revision 0,  
Previously Uninvestigated Sites, Zone E  
Dated September 2001**

**Jerry Stamps Comments (October 30, 2001)**

**Comment 1. AOC 702 and 703:** In a letter dated August 31, 2001 (Williamson to Scaturo), it was proposed that an addendum to the *Zone E RFI Report, Revision 0* (Ensafe, 1997) is not necessary to address either of these units. The Department concurs with this recommendation.

**CH2M-Jones Response:**

*CH2M-Jones acknowledges this decision regarding Areas of Concern (AOCs) 702 and 703.*

**Comment 2. General:** This work plan does not provide the justification for the location of the soil borings. One must assume that the sample locations will be biased toward paint stains, cracks in the asphalt or concrete, etc. as a means of representing the most likely areas of contamination. Please provide the justification for the sample location in the RFI addendum report. Additionally, please be advised that additional sampling may be necessary in the future should it be determined that the sample locations do not accurately reflect the most likely area of contamination, or if the data warrant additional delineation.

**CH2M-Jones Response:**

*The data selection points were determined on a quasi-random basis to provide spatial coverage of these units. Based on field inspections of these sites, there were no visibly obvious potential source materials at any of these sites. Additional review was conducted of historical maps in these areas and the 1996 aerial photograph base map. As a result, the sample locations were generally based on the footprint of the Solid Waste Management Unit (SWMU) or AOC, as defined in the RCRA Facility Assessment (RFA) (1995). As with any RFI, CH2M-Jones agrees that if a potential source is identified and the nature and extent of the potential source is not adequately characterized, then follow-on sampling and research may be required.*

**Comment 3. Section 2.5, Page 2-3:** This section states that IDW will be collected, segregated, and characterized. However, the Soil Investigation sections with respect to each of the individual SWMUs/AOCs indicates that boreholes will be backfilled with soil cuttings. The Department agrees with the methodology specified in Section 2.5. Consequently, all IDW must be containerized and characterized to determine the proper method of disposal. This issue was discussed with Dean Williamson (CH2M Hill) via telephone on October 26, 2001. If there are any questions regarding the management of the IDW, please see the EPA guidance entitled *Management of Remediation Waste under RCRA* dated October 1998 (EPA530-F-98-026).

**CH2M-Jones Response:**

*Backfilling is typically used in circumstances where the contaminant conditions can be expected not to pose any significant environmental or health risk. However, the units addressed under this Sampling Plan have not been investigated and there are no existing data. For this reason, CH2M-Jones concurs with this request and agrees to containerize and analyze waste streams generated from environmental media at these previously uninvestigated units.*

**Comment 4. Section 3.4.1, Page 3-2:** This section states that coring will be conducted through concrete that may be up to several feet thick to collect soil samples. If the staining is minimal and intermittent, and there is no reason to believe that penetration through the concrete has occurred, then coring thorough such a thick slab of concrete may be unnecessary. The Department will not require this sampling; therefore, it is up to CH2M-Jones's discretion whether or not to collect these soil samples.

**CH2M-Jones Response:**

*CH2M-Jones has elected to conduct a preliminary investigation at SWMU 188. This scope will include using a concrete saw and cutting the concrete to a maximum depth of 18 inches at the two sample locations designated in the Sampling Plan. If the thickness of the concrete exceeds 18 inches, no further investigation will be conducted.*

*In addition, the area will be visually inspected for significant cracks in the concrete. If such cracks are observed, a concrete saw will be used and the concrete will be cut to 18 inches. If there is no visible sign of impact at 18 inches, no further investigation will be conducted. Should an impact be observed, CH2M-Jones will determine the best approach to investigate the occurrence. This will be based on a field decision made by the Field Team Leader, in consultation with the project manager and CH2M-Jones CNC Program Management team.*

**Comment 5. Section 7.5.1, Page 7-2:** Soil borings E701SB005 and E701SB006 are proposed to be collected at the northeastern and southwestern corners of Building 1141 to provide overall coverage of AOC 701. The Department recommends collecting these samples at areas that are potential sources of contamination. In particular, these samples could be collected along the transfer line from the storage tank to the fuel dispenser.

**CH2M-Jones Response:**

*CH2M-Jones concurs that the transfer lines could present potential historical point of release. However, based on additional research conducted on the operational history at AOC 701, as requested by Jo Cherie Overcash, it appears that the actual locations of the tanks and dispenser island are different from those shown in the RFA. Based on construction drawings from September 1941, the sampling locations proposed for AOC 701 have been modified. These modifications are presented in Attachment A to this response to comments.*

## **Jo Cherie Overcash Comments (October 30, 2001)**

As requested, the document referenced above (*RFI Addendum Sampling Plan, Uninvestigated Sites, Zone E* [CH2M Jones, September 2001]) has been reviewed with respect to the requirements of R.61-79.264 Subpart F of the South Carolina Hazardous Waste Management Regulations (SCHWMRs), the Environmental Protection Agency's (EPA) RCRA Facility Assessment guidance document dated October 1988, and the revised EPA Region IV Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual (SOP/QAM) dated May 1996, the CNAV Final Comprehensive Sampling and Analysis Plan dated 30 August 1994, and CERCLA 120(h) as amended.

This document outlines the Navy's proposed investigation for surface and subsurface soils at the following two solid waste management units (SWMU) and three areas of concern (AOC). The Division of Hydrogeology concurs with the proposed investigations at these units:

- SWMU 181 Satellite Accumulation Area Adjacent to Pier C
- SWMU 188 SAA South Side of Dry Dock 5
- AOC 537 Electrical Substation at Building 342
- AOC 575 Electrical Substation at Building 454
- AOC 704 Paint Accumulation Area Building 301B

In the referenced Sampling Plan, the Navy has proposed to investigate groundwater conditions at AOC 701 Former McMillian Avenue Gas Station Building 1141. The gas station was built in 1941 and was used as such until 1979. Through conversation with Kris Garcia of CH2M-Hill, the author (J. Overcash) learned that the tank closure report referenced in Section 7.3 of the Sampling Plan is unavailable for review. Therefore, due to the lack of soil and/or groundwater data in this area of the site, the Navy has proposed extensive soil and groundwater sampling. The Sampling Plan proposed the installation of six temporary monitoring wells to be installed within the six soil borings. The following changes to Section 7 of the Sampling Plan were discussed (Overcash to Garcia, 10/24 and 10/29/01) and are hereby incorporated as conditions of this approval:

**Condition 1:** The Navy will field verify the location of the two closed USTs as the GIS data base depicts the tanks adjacent to the north side of Building 1141, which is different from the location depicted on Figure 7-2 of the Sampling Plan.

### **CH2M-Jones Resolution:**

*The locations of the two USTs, as represented in the Sampling Plan, were based on information obtained from the RFA and the sampling activities conducted in 1997. However, further research into old construction drawings show that the tanks were actually located closer to the point represented in the GIS database, although that point is also not correct. A revised version of Figure 7-3 (formerly Figure 7-2) and a new Figure 7-2 showing the historical placement of the tanks and dispenser island have been prepared*

*for inclusion in the Sampling Plan. Copies of the revised figures are attached as Attachment A to this response to comments.*

**Condition 2:** Due to the lack of groundwater elevation and quality data in this area of the site, the Navy will install permanent, flush mount wells to allow for the collection of additional groundwater elevation data and for continued monitoring, if necessary.

**CH2M-Jones Resolution:**

*CH2M-Jones concurs that the wells installed will be permanent wells constructed with flush mounts.*

**Condition 3:** The standard protocol for determining the number of tank closure samples is 'the number of tanks plus one'. Since there are two underground storage tanks (USTs) closed in place, the Navy has also agreed to add a third soil and groundwater sampling location east of the USTs.

**CH2M-Jones Resolution:**

*CH2M-Jones concurs that a third downgradient soil boring/monitoring well will be added. Figure 7-3 has been amended to show this additional sampling location.*

**Condition 4:** The standard protocol for tank closure is to collect soil samples approximately two feet below the base of the USTs and two feet below the product pipeline and below the dispenser pipe connections. The Navy has agreed to collect soil samples at these depths even though the soil samples may be collected below the water table.

**CH2M-Jones Resolution:**

*CH2M-Jones did not propose deep soil samples around the USTs at AOC 701 because the site-specific conditions are not suitable for sample collection. The site sits on top of man-made land that is composed of typically silty, uncompacted dredge materials. It is very difficult to maintain an open hole beneath the water table and sloughing within the borehole commonly occurs. As a result, it is not possible to ensure that the interval being sampled is actually generating an undisturbed sample. Because of this impracticality, CH2M-Jones agreed to install an additional monitoring well upgradient from the USTs in lieu of collecting deep soil samples beneath the water table.*

**Condition 5:** In order to determine groundwater quality upgradient of AOC 701 and to differentiate a release to soil from groundwater, the Navy has agreed to install one upgradient well.

**CH2M-Jones Resolution:**

*CH2M-Jones concurs that an additional soil boring/monitoring well will be added upgradient from the USTs. Figure 7-3 has been amended to show this additional sampling location.*

**Condition 6:** Grid well EGDEGW029 will also be monitored for free product using an oil/water interface probe.

**CH2M-Jones Resolution:**

*CH2M-Jones concurs that monitoring well EDGEGW029 and all site-related monitoring wells will be checked for free product prior to purging and sampling.*

**Condition 7:** Also, note that the Navy must include the results of the groundwater investigation along with the soil and subsurface soil data (see Section 9.0 Sampling Plan).

**CH2M-Jones Resolution:**

*CH2M-Jones concurs. The resulting information from all media, as applicable, will be included in the RFI Addendum Reports for each of the uninvestigated units.*

**Attachment A**

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- Pipes
- Storage Tanks
- Historical Cafeteria / Gas Station
- Fence
- Railroads
- Roads

- AOC Boundary
- SWMU Boundary
- Buildings
- Zone Boundary



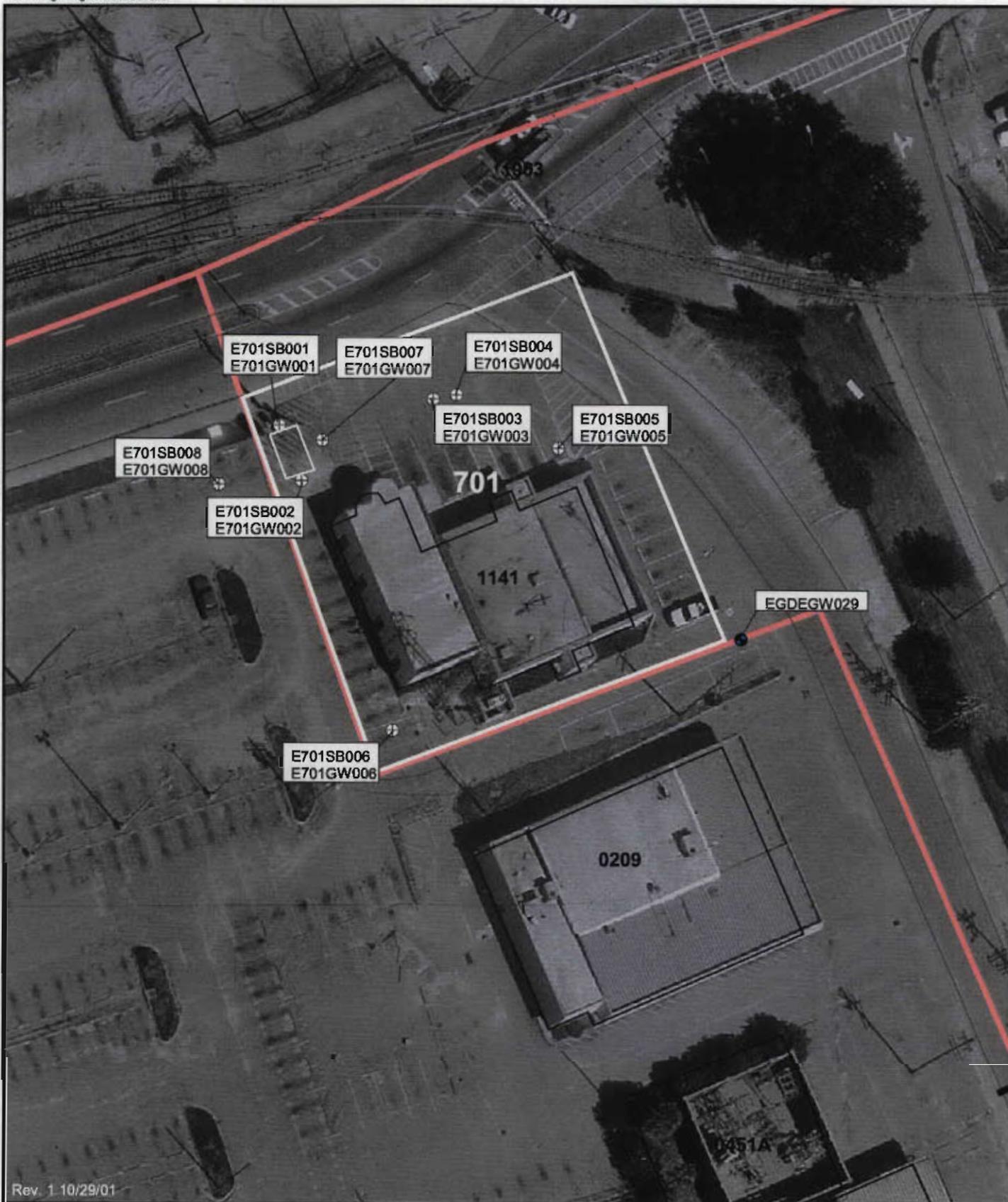
0 40 80 Feet

1 inch = 50 feet

**Figure 7-2**  
 Historical Gas Station / Cafeteria Building Location  
 AOC 701, Zone E  
 Charleston Naval Complex

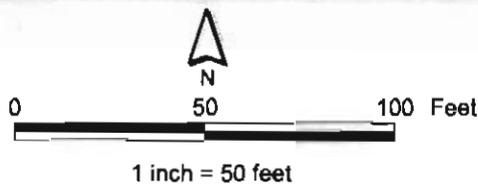
**CH2MHILL**

NOTE: Original figure created in color



Rev. 1.10/29/01

- ⊕ Proposed Soil Borings/Permanent Well
- ▤ Fence
- ▤ Railroads
- ▤ Roads
- ▭ AOC Boundary
- ▭ SWMU Boundary
- Existing Well
- ▭ Buildings
- ▭ Zone Boundary



**Figure 7-3**  
Proposed Soil and Groundwater  
Sampling Location Map  
AOC 701  
Charleston Naval Complex  
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