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TRANSMITTAL AND RESPONSE TO COMMENTS FOR RCRA FACILITY INVESTIGATION
REPORT ADDENDUM AREA OF CONCERN 525 (AOC 525) ZONE E CNC CHARLESTON SC
7/23/2003
CH2M HILL

AOC 525 Zone E

Response to Comments RFI Report Addendum (R6)

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: Dean Williamson/CH2M-Jones

Date: November 1, 2002

Re: CH2M-Jones' Responses to Comments by SCDHEC regarding the *RFI Report Addendum, Area of Concern 525, Zone E, Charleston Naval Complex* (Revision 0)

Quantity	Description
4	CH2M-Jones' Responses to Comments by SCDHEC regarding the <i>RFI Report Addendum, Area of Concern 525, Zone E, Charleston Naval Complex</i> (Revision 0) – Originally Submitted on July 23, 2002

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

Remarks:

Copy To:

Paul Bergstrand/SCDHEC, w/att
Rob Harrell/Navy, w/att
Gary Foster/CH2M-Jones, w/att

Engineering Comments Prepared by Jerry Stamps

1. Sections 1.1 and 6.4

Section 1.1 states that water used to capture paint dust was discharged into the stormwater sewer system prior to the installation of the sanitary sewer system. Section 6.4, however, states that there is no data to suggest a link between AOC 525 and AOC 699 (Storm Sewer System). Given the history of the site, it appears as though a link does exist between the two sites. Consequently, the Navy must investigate AOC 699 in relation to AOC 525.

CH2M-Jones Response:

The statement provided in Section 1.1 of the RFIRA about the paint booth discharging to the storm sewer prior to 1972 was paraphrased based on information provided in the RFA report. After reviewing the RFA and information about the time at which Building 223 was constructed, it appears that it is impossible for any paint booths at AOC 525 to have discharged to the storm sewer prior to 1972. The reason for this is that Building 223 was not constructed until 1973. Therefore, there were no discharges from this building prior to 1973 since it did not yet exist and no discharges to the storm sewer could have occurred. The text in the RFIRA will be revised to reflect this corrected information. Based on this information, no investigation of AOC 699 relative to AOC 525 is warranted.

It should also be noted that the RFA describes AOC 525 as "five dry filter-type paint booths" at Building 223. There is not data or information presented in the RFA or RFI reports that any water using operations occurred in these paint booths, only speculation in the RFA that one of the booths at AOC 525 might have been in operation prior to 1972 and could have used water. Please see CH2M-Jones' response to the comments on the AOC 525 RFIRA from Paul Bergstrand for a more complete discussion of this issue.

2. Section 2.1.1, Cyanide

This section should state that the cyanide detection in sample 525SB00201 is below the EPA Region III Residential RBC rather than solely the Industrial RBC.

CH2M-Jones Response:

The suggested revision will be made.

3. Section 5.1, VOCs in Soil

The EPA identifies the VOCs detected in the soil as common laboratory contaminants. The Navy should evaluate and provide the data validation summary to determine if these contaminants are site related or are laboratory artifacts.

Please note that the Department has not accepted the Ensafe memorandum entitled *A Comprehensive Review of Common Laboratory Artifacts Detected in Environmental Samples from the Charleston Naval Base* (February, 1998). The Department maintains that the identification of detected compounds as laboratory artifacts must be supported by the QA/QC samples on a site-specific basis.

CH2M-Jones Response:

The laboratory QC blanks related to these samples will be reviewed to further assess this issue and relevant information will be provided as requested. Because the mean soil concentrations of 2-butanone and methylene chloride are below unpaved site-specific SSL values, these two chemicals should not be considered chemicals of concern (COCs) at this site regardless of the results of the laboratory QC samples.

4. Section 5.1, VOCs in Soil

It is stated that acetone exceeds the unpaved site-specific SSL but is below the paved SSL. Consequently, acetone was eliminated from further consideration because the area is paved. This implies that the pavement will be used as a land use control in addition to the reuse restriction expected to be applied over the entire Zone E. As such, a No Further Action determination is not appropriate, and the maintenance of the pavement is expected to be at least part of the final remedy for AOC 525. Of course, this comment does not apply should the Navy be able to demonstrate that the acetone is a laboratory artifact.

CH2M-Jones Response:

We will look to see whether there is any contamination of QC blanks with acetone. If the blanks show no acetone contamination, we understand that SCDHEC may choose to consider acetone a COC for soil from a leaching concern or to not consider it a COC, due to its confirmed presence in the decontamination fluid used on the equipment and occurrence as a common laboratory contaminant.

In the event that SCDHEC chooses to consider acetone a soil COC, the Navy and CH2M-Jones will change the recommendation for the site from NFA to a recommendation for a Corrective Measures Study (CMS), with pavement/land use controls as a presumptive remedy to ensure that the building or pavement which currently act to preclude infiltration remains in place. Because the site is already designated in an area that will have land use controls (Zone E), this is not expected to be a significant impact. There are currently no plans to develop this property or remove the building or existing pavement. We are in agreement with the approach proposed above by the SCDHEC reviewer.

5. Section 5.1.1

The Navy must present the calculated BEQ concentration for the subsurface soil. Though the Department has calculated this value (642.11 ppb) and determined it is below the screening value of 1400 ppb, the BEQ concentration for subsurface soil must be presented to complete the administrative record.

CH2M-Jones Response:

The requested BEQ value will be provided.

Hydrogeology Comments Prepared by Paul Bergstrand

AOC 525 is described as a paint booth in Building 223. A water curtain was used to capture paint dust before a dry filter system was installed. The water curtain system reportedly discharged to the storm sewer before 1972 and to the sanitary sewer after 1972.

The Navy has not described, sampled or addressed the water curtain system, the connections of the water curtain system to the storm and sanitary sewers or the storm and sanitary sewers.

A site visit was conducted on 4 September 2002 with Mr. Rob Harrell of SDIV, Mr. Jerry Stamps, Mr. Gil Rennhack, Mr. Don Hargrove and Mrs. JoCherie Overcash of DHEC. Large steel plates were noted to the north behind the painting booth (see Photos & Figure). The steel plates had holes drilled and water was visible below the steel plates. Sediments appeared to be under the steel plates. This area would be the most logical location for a paint booth water curtain settling basin. The area with the large steel plates has not been described, sampled or addressed.

The goal of the AOC 525 RFI Report Addendum was to complete the nature and extent investigation for chemicals of potential concern (COPCs) identified in surface soil, subsurface soil, and groundwater. Because the water curtain, storm sewer, sanitary sewer, and the probable paint booth water curtain settling basin have not been sampled or addressed, it is not apparent by this document that the goal was achieved. Because the RFI Report Addendum did not achieve the goal, the document should not be approved.

Comments and actions necessary to complete the RFI Report Addendum are summarized in the attachment. Several maps and figures have been included for reference.

Questions regarding this correspondence should be directed to me at 803.896.4016 or by e-mail at bergstpm@dhec.state.sc.us.

Hydrogeology Comments Prepared by Paul Bergstrand

RFI Report Addendum, AOC 525, Zone E, Revision 0

SCDHEC General Comments

1. AOC 525 is described as a paint booth in Building 223. The RFI indicates that a water curtain was used to capture paint dust before a dry filter system was installed. The water curtain reportedly discharged to the storm sewer before 1972 and to the sanitary sewer after 1972. The RFI report, however, did not provide any maps or figures representing the water curtain, the water curtain settling basin (if any) or the water curtain connections to the storm or sanitary sewer. A site visit to AOC 525 was conducted on 4 September 2002 with Mr. Rob Harrell of SDIV, Mr. Jerry Stamps, Mr. Gil Rennhack, Mr. Don Hargrove and Mrs. JoCherie Overcash of DHEC. Large steel plates were noted to the north of Building 223 directly behind the painting booth (see photos and Figure). The steel plates had holes drilled and water was visible below steel plates. Sediments were noted to be under the steel plates. This area would appear to be the most logical location for a paint booth water curtain settling basin. The Navy must describe the water curtain waste management process for this AOC and provide the appropriate "as built" drawings, diagrams and figures to show where and how the water curtain was used, any appurtenances such as a settling basin and the connections to the storm and sanitary sewers. The Navy may need to sample sediments under plates for paint waste. The presence of a settling basin would require acceptable sampling and suitable analysis. The Navy must collect appropriate storm and sanitary sewer samples in order to complete the RFI for this site.

CH2M-Jones Response:

The above representation of the AOC 525 paint booth as a "water current" paint booth is incorrect. Additionally, the reviewer makes several assertions about what the RFI states regarding paint booth operations at AOC 525 that we found was not possible to confirm in the RFI report. One statement above, which is similar to a statement provided in the RFIRA prepared by CH2M-Jones for this site, also appears to be impossible to be correct. Each of these problems with the SCDHEC reviewer's comments are discussed below.

The Final RCRA Facility Assessment report (EnSafe, 1995) clearly describes AOC 525 as consisting of "five dry-filter type paint booths." The RFA report never uses the phrase "water curtain" in any of its discussion of AOC 525 paint booths. Thus, the reviewer's representations of AOC 525 as a "water curtain" paint booth are incorrect. The phrase "water curtain" paint booth was also not found in any reference to AOC 525 in the RFI report.

We were unable to confirm the reviewer's statements that: "The RFI indicates that a water curtain was used to capture paint dust before a dry filter system was installed. The water curtain reportedly discharged to the storm sewer before 1972 and to the sanitary sewer after 1972." Our review of the draft Zone E RFI Report (Section 10.19, AOC 525 Paint Booth, Building 223, November 1997) did not reveal any of these statements in the RFI report nor the use of the phrase "water curtain" in any reference to the paint booths at AOC 525, nor could we locate any RFI reference to discharges from the AOC 525 paint booths to the

sanitary sewer after 1972. If the reviewer could provide specific page numbers to the RFI report where references to AOC 525 water curtains and discharges from the dry paint booths to the sanitary sewer occur, it would be helpful. However, based on the specific RFA description of AOC 525 consisting of five dry-filter type paint booths, the reviewer's suggestion that AOC 525 is comprised of a "water curtain" paint booth is incorrect.

The statement that the paint booths at AOC 525 discharged to the storm sewer prior to 1972, which originally occurred in the RFA and was the basis for a similar comment to a statement we provided in Section 1.1 of the RFIRA for AOC 525, is also incorrect. In fact, Building 223 was not constructed until 1973. Therefore, it is not possible for any paint booths at AOC 525 to have discharged to a sewer in 1972 (or prior to 1972), since Building 223 and the paint booths did not yet exist. The text in the RFIRA will be revised to reflect this corrected information. This issue is a key one because it indicates that the reason for the investigation of the dry-filter paint booths at AOC 525 was based on a lack of knowledge about when these dry filter-type paint booths were actually placed in operation.

The suggestion that water may have been used at one time in the dry filter paint booths at AOC 525 occurs once in the RFA report, section 5.6.3, Migration Pathways, of the AOC 525 discussion as follows: "Prior to 1972, water used to capture paint dust from the paint spray booths was discharged directly into the Cooper River."

A more generic statement about how paint booth wastes were handled at the CNC before 1972, but not confirmed in the case of the paint booths at AOC 525, appears later in the RFA report, in section 5.6.4, Evidence of Release: "The preliminary review found no spill reports, inspection reports, employee interviews, or visual observations which would indicate any release at this unit. However, prior to the 1972 installation of a sanitary sewer system, wastewaters containing paint wastes were discharged directly into the Cooper River. The age of Booth 35 suggests the possibility of past releases from this unit."

It appears that in spite of the lack of evidence of a release of contamination from these dry-filter paint booths, there was speculation at the time the RFA was prepared that a single dry filter paint booth, Booth 35, may have operated prior to 1972 and thus may have had wet-type operations prior to 1972. However, since Building 223 was not constructed until 1973 and the paint booths were not installed until after the building was constructed, such speculation about Booth 35 or the other booths being in operation prior to 1972 is clearly incorrect. The description of the paint booths as dry-filter operations and the construction of these facilities after 1973 suggests that the AOC 525 paint booths were in fact never water-using or "water curtain" paint booths.

Regarding the steel plates behind Building 223 referred to above, a construction drawing was located that indicates that these steel plates were part of operations of the facility "Shipbuilding Ways 343," which occupied the location of Building 223 prior to its construction. Thus, the steel plates do not have any relationship to paint booths at AOC 525. Speculation that these plates are part of a subsurface water curtain paint booth operation at AOC 525 are thus incorrect. A copy of the construction drawing showing these steel plates associated with Shipbuilding Ways 343 will be provided.

Based on the lack of any water curtain paint booths associated with AOC 525, the fact that the steel plates are not associated with AOC 525, and lack of contamination found at this site during the RFI, no further soil or groundwater investigations are warranted.

2. AOC 525 has only one shallow monitoring well, 525GW001, to assess groundwater at this site. The nearest shallow monitoring is approximately 175 feet to the south west of the AOC and is side gradient. The nearest upgradient monitoring well is >650 feet to the northwest. This results in the Navy defining the groundwater flow at this AOC with one monitoring well. Furthermore, the RFI Report Addendum has not fully addressed the waste management process of this AOC. Without understanding the site groundwater flow or the waste management process it is not possible to conclude that the single shallow monitoring well is adequate to assess the groundwater at this site. The Navy may need to install upgradient and downgradient monitoring wells. The Navy must demonstrate adequate groundwater assessment at this AOC.

CH2M-Jones Response:

The Zone E RFI work plan specified the level of groundwater sampling and investigation required for this site after careful review of site conditions, assessment of the potential for release and impacts to the environment, and evaluation of relevant operational data. The CNC BCT that developed and approved the Zone E RFI work plan considered a single well adequate to assess whether groundwater was impacted at the site. It was installed based on a thorough and appropriate review of site information and installed where the team believed it was most likely to detect impacts from site operations. Because of the time frame that the RFI work plan was developed (1994 to 1995), the CNC BCT members that developed the work plan were able to interview site personnel that had worked at the facility for many years and use information from these employees to refine the investigation work plan and best locate the sampling locations to detect potential contamination.

The well that was installed does not indicate the presence of contamination. Consequently, there is no reason to install additional wells, either upgradient or downgradient.

SCDHEC Specific Comments

3. Page 2-2, Section 2.1.2

This section states that *"Because methylene chloride was not detected in groundwater at the site, the concentration of methylene chloride was considered protective of shallow groundwater. Therefore it was not considered a COC."* The Navy fails to consider or address the following:

- A. The subsurface methylene chloride detection in 525SB001 has increased from the surface soil detection (0.002 mg/kg surface to 0.011 mg/kg subsurface). How or why there is an increase of methylene chloride in soil was not addressed.
- B. The soil screening value for methylene chloride is 0.001 mg/kg. The soil detections in 525SB001 exceed the soil screening value. The groundwater from the only monitoring well (525GW001) was only sampled once for VOCs. One round of VOC analysis may not be sufficient to determine that the soil contamination levels are protective of groundwater.

The Navy must address these issues in order to document the methylene chloride levels in soil at 525SB001 are protective of groundwater. In order to demonstrate the soil contamination levels are protective of groundwater the Navy must purge and resample the well for SVOC and VOC analysis.

CH2M-Jones Response:

Methylene chloride concentrations in soil are addressed in the RFIRA per agreements presented in the CNC Project Team Notebook (CH2M-Jones, 2001), first using generic SSLs (DAF=1) and then using site-specific SSLs that are calculated based on both a paved and unpaved scenario. This chemical was found to be below its unpaved site-specific SSL, thus further assessment is not warranted.

As noted in the response to the following comment, in the event that we are unable to confirm why the four groundwater samples were not analyzed for VOCs and SVOCs at AOC 525, an additional groundwater sample will be collected and analyzed for VOCs to assess current groundwater quality.

4. Page 2-3, Section 2.2

This section states *"Groundwater was sampled during four sampling events at AOC 525."* and *"However, the RFI evaluated only the data from the first sampling event."* While this is technically correct this section fails to point out that groundwater was only sampled once for VOCs and twice for SVOCs during the four sampling events at AOC 525. AOC 525 is described as a paint spray booth which managed paint and paint solvents. The Zone E RFI Workplan proposed four rounds of groundwater VOC and SVOC sampling and analysis which would be appropriate for a paint spray booth. A decision, however, was made to limit groundwater VOC analysis to only one sampling event and SVOC analysis to two events. The Final Comprehensive Project Management Plan, dated July 1996, outlines a process to document the reduction of analytical parameters. The

documentation supporting the reduction of analytical parameters has not been provided.

It should be clearly noted that the Ensafe Draft RFI report did not provide any indication that groundwater analysis of VOCs and SVOCs had been limited or documentation as described above. The documentation regarding the reduction of groundwater analytical parameters must be provided and discussed in the revised RFI Report.

CH2M-Jones Response:

The RFI work plan indicated that four samples would be collected from the well at AOC 525 and analyzed for VOCs and SVOCs. We have been unable to confirm why the planned four samples were not analyzed for VOCs and SVOCs. However, we will continue to assess the reason for this; it is possible that this was discussed at a BCT meeting and a decision to reduce the sampling was documented. If we are unable to confirm how this decision was made, we agree to collect an additional groundwater sample from this well and analyze for VOCs and SVOCs.

5. Page 5-1, Section 5.1

The RFI Report Addendum states that *"Acetone, 2-butanone and methylene chloride were detected above their generic SSLs in soil at AOC 525."* This section continues by stating the VOCs *"were not detected in shallow groundwater samples, indicating that the current soil-groundwater equilibrium is sufficiently protective of groundwater. In addition, acetone, 2-butanone and methylene chloride are common laboratory and/or field decontamination contaminants."* The Navy has failed to support these conclusions for the following reasons.

- A. The RFI assessment for soil and groundwater has not been completed.
- B. The reduction of groundwater VOC analysis on the COPC/COC refinement has not been discussed and must also be considered.
- C. The AOC is described as a paint spray booth and the chemicals such as acetone, 2- Butanone (Methyl Ethyl Ketone) and Methylene Chloride may be present in the environment as a result of Naval activity.
- D. The Department understands that it is possible for environmental samples to become tainted with common laboratory and/or field decontamination contaminants. While the possibility of common laboratory and/or field decontamination contaminants is valid, the Navy has not provided any data to support this contention.

The Navy must provide adequate data to support the contention that the environmental samples had become tainted with common laboratory and/or field decontamination contaminants. After the Navy has completed additional sampling, as described in previous comments, this section must be reevaluated and revised as necessary.

CH2M-Jones Response:

We assume that the suggestion that the RFI is not completed is based on premise expressed in the first comment that AOC 525 consists of a water curtain paint booth and that the steel plates discussed in the first comment are a part of the water curtain system, and, as such, more investigation is required. Given that the steel plates are not a part of the AOC 525 paint booth system, and that AOC 525 is not a water curtain paint booth, we do not believe that additional investigations are necessary. The sample results do not indicate contamination that warrants further investigation.

6. Page 5-2, Section 5.2

The RFI Report Addendum states “groundwater COPCs were not identified at AOC 525.” The Navy has failed to support this conclusion for the following reasons.

- A. The RFI assessment for soil and groundwater is not complete.
- B. The reduction of groundwater VOC analysis on the COPC/COC refinement has not been discussed and must also be considered.

After the Navy has completed additional sampling, as described in previous comments, this section must be reevaluated and revised as necessary.

CH2M-Jones Response:

Per previous comment responses and depending on whether another groundwater sample needs to be collected, this issue will be reconsidered as necessary.

7. Page 6-1. Sections 6.3 and 6.4

These sections of the RFI Report Addendum address potential linkage to the sanitary and storm sewers at the CNC. Both sections state “There are no data suggesting that there was an impact to the sanitary sewers from AOC 525.” and “There are no data that indicate a linkage between AOC 525 and AOC 699, the storm sewer, exists.” The report fails to note that the storm and sanitary sewers associated with AOC 525 did not have any analytical data collected. Therefore without analytical samples it would be impossible to have any data to “suggest” or “indicate” an impact to the sewers. The Navy must provide diagrams of the sanitary and storm sewers, the as built drawings of the water curtain system, and show how the water curtains drained into the sewers. The Navy must collect adequate storm sewer and sanitary sewer samples in order to complete this RFI investigation.

CH2M-Jones Response:

As previously discussed, there are no data in the RFA or RFI that indicate that water curtain paint booths are part of this AOC or that any discharges to the sewer occurred from these paint booths. Therefore we do not believe that additional investigations of the sewers are warranted. Because these paint booths were not constructed prior to 1973, they were not capable of discharging to the storm sewer. No references to these paint booths discharging to the sanitary sewers were found in the RFA or RFI.

8. Page 6-2, Section 6.6

This section states "...the Cooper River, which lies approximately 250 feet east of the site." The GIS indicates the Cooper River is more than 400 feet to the east of the site. Please review and revise as necessary.

CH2M-Jones Response:

The RFIRA will be revised as requested.

Necessary Actions

This is a brief summary of necessary actions for the Navy to conclude the RFI Report Addendum. The numbers correspond to the comments. The Department will reevaluate all information in the revised RFI Report.

- 1 & 7. The Navy must describe the water curtain waste management process for this AOC and provide the appropriate "as built" drawings, diagrams and figures to show where and how the water curtain was used, any appurtenances such as a settling basin and the connections to the storm and sanitary sewers. The Navy may need to sample sediments under plates for paint waste. The presence of a settling basin would require acceptable sampling and suitable analysis. The Navy must collect appropriate storm and sanitary sewer samples in order to complete the RFI for this site.

CH2M-Jones Response:

Because the AOC 525 paint booths are dry-filter type, there are no water curtains associated with them. The steel plates behind Building 223 are not part of this AOC and are not a settling basin. No additional investigations of this AOC or sewers is necessary.

2. The Navy may need to install upgradient and downgradient monitoring wells. The Navy must demonstrate adequate groundwater assessment at this AOC.

CH2M-Jones Response:

There are no data indicating that additional groundwater investigations are required. We disagree with the need to install additional wells.

3. The Navy must document that the methylene chloride levels in soil at 525SB001 are protective of groundwater. In order to demonstrate the soil contamination levels are protective of groundwater Navy must purge and resample well 525GW001 for SVOC and VOC analysis.

CH2M-Jones Response:

We agree to collect and analyze an additional sample, unless we can document the reason (i.e., BCT agreement) why samples were not analyzed for VOCs and SVOCs.

4. The documentation regarding the reduction of groundwater analytical parameters must be provided and discussed in the revised RFI Report.

CH2M-Jones Response:

We will provide this information if it is available. Otherwise we will resample the well as previously discussed.

- 5 & 6. The Navy must provide adequate data to support the contention that the environmental samples had become tainted with common laboratory and/or field decontamination contaminants. After the Navy has completed additional sampling, as described in previous comments, the COPC/COC Section must be reevaluated and revised as necessary.

CH2M-Jones Response:

This is an option only for acetone, as discussed in our response to comments from Jerry Stamps. It is unnecessary for other VOCs.

8. The Navy must review the distance from AOC 525 to the Cooper River and revise the text as necessary.

CH2M-Jones Response:

The report will be revised as requested.