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LETTER REQUESTING SPECIFIC CHANGES BE MADE TO DRAFT RESOURCE  
CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION WORK PLAN DATED 15  
FEBRUARY 1995 CNC CHARLESTON SC  
5/1/1995  
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL



Commissioner: Michael D. Jarrett

Board: William E. Applegate, III, Chairman  
 John H. Burriss, Vice Chairman  
 Richard E. Jabbour, DDS, Secretary

Toney Graham, Jr., MD  
 Sandra J. Molander  
 John B. Pate, MD  
 Robert J. Stripling, Jr.

Promoting Health, Protecting the Environment

CERTIFIED MAIL

May 1, 1995

Captain William F. Nold  
 Commanding Officer  
 Charleston Naval Shipyard  
 Charleston, SC 29408-5100

Re: Zone E Draft RCRA Facility Investigation  
 (RFI) Workplan, Dated February 15, 1995  
 Charleston Naval Shipyard  
 SC0 170 022 560

Dear Captain Nold:

On January 30, 1995, the South Carolina Department of Health and Environmental Control (Department) received authorization from the U.S. Environmental Protection Agency (EPA) to implement portions of the RCRA Corrective Action program covered under the Hazardous and Solid Waste Amendments (HSWA) requirements. Consequently, the Department and the U.S. EPA have reviewed the above referenced Zone E RFI Workplan in accordance with applicable State and Federal Regulations, and the Charleston Naval Shipyard's Hazardous Waste Permit, effective June 5, 1990. Based on this review the Charleston Naval Shipyard has not adequately fulfilled the requirements of Permit Condition IV.C.4.

Comments from both the Department and U.S. EPA are attached. Within thirty (30) days upon receipt of this letter, please make the specified changes and resubmit the Zone E RFI Workplan in final form to the Department and U.S. EPA. Please note that implementation of the Zone E RFI Workplan cannot begin until final approval has been provided by the Department in accordance with Permit Condition IV.K.1.

Should you have any questions regarding this issue, please contact me at (803) 896-4178 or Joe Bowers at (803) 896-4024.

Sincerely,



David Walton, Project Engineer  
 Hazardous Waste Permitting Section  
 Bureau of Solid & Hazardous Waste Management

Attachments

cc: Joe Bowers, Hydrogeology  
 Rick Richter, Trident EQC  
 Bobby Dearhart, COMNAVBASE  
 Tony Hunt, SOUTHNAVFACENGNCOM  
 Doyle Brittain, EPA Region IV

MEMORANDUM

TO: David Walton, Engineer  
Hazardous Waste Permitting Section  
Division of Hazardous and Infectious Waste Management  
Bureau of Solid and Hazardous Waste Management

FROM: Joe B. Bowers, Hydrogeologist *JBB*  
Hazardous Waste Section  
Division of Hydrogeology  
Bureau of Solid and Hazardous Waste Management

DATE: April 21, 1995

RE: Charleston Naval Base and Shipyard (NAVBASE)  
SC0 170 022 560  
Charleston County

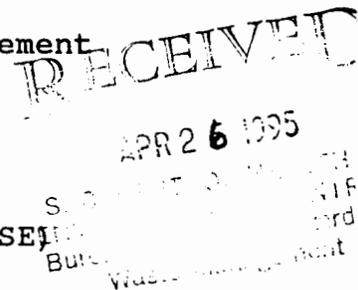
Review of the Draft Zone E RFI Workplan, dated February 14, 1995

As requested, the above referenced workplan has been reviewed with respect to the requirements of R.61-79.264.101 Subpart F of the South Carolina Hazardous Waste Management Regulations (SCHWMRs), as amended, Hazardous Waste Permit SC0 170 022 560 and appropriate guidance documents, including the RCRA Facility Investigation Guidance (EPA 530/SW-89-031), dated May 1989 and Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual, dated February 1, 1991.

Assessment of the extent of contamination is discussed in section 1.2 of the workplan. It is noted in this section that:

Sampling will continue until the extent of any contamination is determined, which is defined herein as the horizontal and vertical area in which concentrations of COPC in the investigated media are above either PRGs or background concentrations, whichever is appropriate.

As discussed with NAVBASE on numerous occasions, the determination of the extent of contamination must be made in comparison to background concentrations. In an effort to speed the assessment process at NAVBASE, the Department will not require the language included in the workplan to be revised. However, NAVBASE must



acknowledge and accept this requirement. All assessments at NAVBASE must be completed to background concentrations. The Department will not approve an RFI Report until NAVBASE completes assessment of SWMUs and AOCs in this manner.

Several comments have been generated from review of this RFI Workplan. These comments are included as an attachment to this memorandum. NAVBASE should respond to these comments and submit a revised RFI Workplan to the Department for review and approval prior to beginning field work.

Should you have any questions regarding these comments, please contact the writer at (803) 896-4024.

**Attachment**

cc: Rick Richter, Trident District Office  
Doyle Brittain - DoD Remedial Section, EPA Region IV

**REVIEW OF THE DRAFT ZONE E RCRA FACILITY INVESTIGATION WORKPLAN**

Dated February 14, 1995

Charleston Naval Base and Shipyard (NAVBASE)

SCO 170 022 560

Reviewed by Joe B. Bowers

April 21, 1995

**General Comments**

1. The workplan notes on page 1-5 that site-specific groundwater flow directions may be influenced by the quaywall located along the water front in Zone E. In order to develop an accurate conceptual model of groundwater flow, additional information should be collected on the extent of the quaywall. The quaywall's total length, depth of installation, etc. should be determined. It is not necessary to revise the Zone E RFI Workplan to include this information, however, NAVBASE should gather this information as quickly as possible so that it may be considered during assessment of Zone E.

**Section 2.3.4 Sampling and Analysis Plan**

2. The first paragraph in this section contains the following sentences: "The potential for surface water impacts will be further evaluated if the additional groundwater data to be collected indicate a high probability that contaminated

groundwater is being discharged to the Cooper River. These media were excluded from the investigation." The meaning of these sentences is unclear. However, impacts to all media should be investigated under the RFI. If the Cooper River is receiving adverse impacts from contaminants associated with sites in Zone E (or any other zone), this must be assessed during the RFI. The workplan should be revised to clarify the meaning of these sentences.

3. The second paragraph under this section notes that the samples will be analyzed to Data Quality Objective Level (DQO) Level II to supplement the existing DQO Level III data. However, all samples collected should be analyzed at DQO Level III. The workplan should be revised accordingly.

**Section 2.4 SWMU 22 - Old Plating Shop Wastewater Treatment System (WWTS), SWMU 25 - Building 44, Old Plating Operation, and AOC 554 - Paint Shop, Former Building 1003**

4. The workplan proposes the analysis of soil and groundwater samples collected at SWMUs 22 - Old Plating Shop Wastewater Treatment System, 25 - Building 44 Old Plating Operation, and AOC 554 - Paint Shop at Former Building 1003 for Volatile Organic Compounds and inorganic constituents. However, since

semivolatile organics were detected during previous assessment events, they should also be included in the list of analyses. The workplan should be revised accordingly.

5. The workplan proposes the collection of a sediment sample near the northwest corner of SWMU 25 (see Figure 2-03 in the workplan). The reason for collecting a sediment sample in this location is unclear. It appears more appropriate to collect a soil sample from this location. The workplan should be revised to justify the collection of a sediment sample adjacent to SWMU 25, or to propose the collection of a soil sample, whichever is appropriate.
  
6. In the document titled Process Decontamination and Closure Procedures submitted to the Department in June 1994, it is noted in Appendix B that two Underground Storage Tanks (USTs) are located at Building 44. No mention is made of this in the Zone E RFI Workplan. The RFI Workplan should be revised to indicate the locations of these tanks, and to propose assessment measures to determine if these tanks have impacted the environment. The workplan should be revised accordingly.

**Section 2.15 SWMU 102 - Mercury Spill, Building 79**

7. The workplan does not identify the suspected location of the

mercury pool that was reported under building 79. The location should be identified and sampling concentrated in this area.

**Section 2.16 SWMU 106 - Blast Area, Drydock 3 and AOC 603 -  
Burning Dump**

8. According to Table 2.33 (SWMU 106 and AOC 603 Sampling Plan), one soil sample is proposed in the area of SWMU 106 (Blast Area). This does not appear to be a sufficient number of soil samples to be collected from an area of this size (approximately 50 feet by 200 feet). Additional soil samples should be collected from this area. The workplan should be revised accordingly.

**Section 2.23 AOC 531 - Substation and Storage, Building 459**

9. The workplan notes the possible presence of a 20,000 gallon Underground Storage Tank at this AOC. As part of the proposed work, the workplan proposes to determine the presence of this tank. If the presence of this tank is verified during field work, potential impacts to the environment from this tank must be verified, including collection of additional soil samples and installation of monitoring wells. The workplan should be

revised accordingly.

**Section 2.32 AOC 563 - Locomotive House, Former Building 37**

10. It is recognized that many of the actual locations of borings and/or monitoring wells will vary from the proposed locations included in the workplan. However, in general, monitoring wells and soil sampling locations should be as close to the SWMU or AOC under investigation as possible. Thus, if possible, the locations of the monitoring wells at AOC 563 (Locomotive House) should be adjusted so that they are closer to the AOC.

**Section 2.44 AOC 590 - Alley between Buildings 79 and 1760**

11. Due to the possibility that the acetone and cutting oil released at this AOC may have been adulterated, the workplan should be revised to include analyses of metals in samples collected at this AOC.

**Section 2.46 AOC 596 - Former Torpedo Storage, Building 101**

12. The workplan should be revised to include the analyses of metals in samples collected at this AOC.

cnav.51



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.  
ATLANTA, GEORGIA 30365

RECEIVED

APR 21 1995

S. C. &  
ENV. CONTROL  
Bureau of Solid and  
Hazardous Waste Management

April 20, 1995

4WD-FFB

John Litton, Manager  
Hazardous Waste Section  
South Carolina Department of  
Health and Environmental Control  
Division of Hazardous and  
Infectious Waste Management  
Bureau of Solid and Hazardous  
Waste Management  
2600 Bull Street  
Columbia, SC 29201

SUBJ: Zone E RFI Work Plan

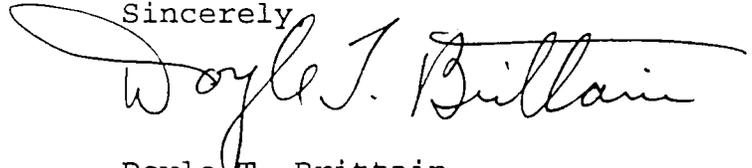
Dear Mr. Litton:

The U.S. Environmental Protection Agency (EPA) has reviewed the February 16, 1995, draft Zone E Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan. EPA's comments are enclosed. EPA recognizes the lead responsibility of the South Carolina Department of Health and Environmental Control (SCDHEC) in the Resource Conservation and Recovery Act (RCRA) and Hazardous and Solid Waste Amendments (HSWA). However, in consideration of the Community Environmental Response and Facilitation Act (CERFA) and the closure of Naval Base Charleston, EPA maintains an interest in working closely with the SCDHEC and Naval Base Charleston on all environmental investigations and corrective action at Naval Base Charleston including but not limited to RCRA. Please consider EPA's comments in your response to Naval Base Charleston on the subject document.

It is the policy of EPA Region IV to require a written response to review comments provided on draft documents. We also request that any risk assessment or ecological assessment comments be provided to EPA Region IV for review prior to requiring their consideration by a facility.

If you have any questions, please call me at (803) 743-9985,  
or (404) 347-3555, VMX 2061.

Sincerely

A handwritten signature in cursive script that reads "Doyle T. Brittain". The signature is written in black ink and is positioned below the word "Sincerely".

Doyle T. Brittain  
Senior Remedial Project Manager

Enc.

cc: Ann Ragan, SCDHEC  
Joe Bowers, SCDHEC  
David Walton, SCDHEC

ENVIRONMENTAL PROTECTION AGENCY COMMENTS  
ON THE ZONE E RFI WORK PLAN  
FOR NAVAL BASE CHARLESTON

GENERAL

1. Page 2-1 and other places throughout the remainder of the Zone E RFI Work Plan. Reference is made to data collected in previous investigations. Any data that either has been, or is being, collected apart from an approved RFI Work Plan is collected at the risk of Naval Base Charleston. EPA assumes no obligation to use these data for decision making purposes. Please note that this is not a new comment from EPA; EPA has made this point on numerous previous occasions.
2. A thorough review needs to be made of the Comprehensive RFI Work Plan to ensure that all procedures being used or planned for use are included in the Comprehensive RFI Work Plan. See General Comment 1 above. Specific examples of modifications needed include:
  - a. Section 2.8.4, Page 2-41 and other places throughout the remainder of the RFI Work Plan. Reference is made to the use of a mercury vapor detector. These procedures are missing from the Comprehensive RFI Work Plan. Before data are collected, the Comprehensive RFI Work Plan needs to be revised to include the appropriate procedures.
  - b. Section 2.11.4, Page 2-57, and other places throughout the remainder of the RFI Work Plan. Reference is made to the use of the High Volume Air Sampler to collect particulate matter up to ten microns in diameter. These procedures are missing from the Comprehensive RFI Work Plan. Before data are collected, the Comprehensive RFI Work Plan needs to be revised to include the appropriate procedures. Before these data are collected, EPA suggests that consideration be given to specific conditions under which these monitors will be operated and the interpretation which will be made of the data.
3. Since the Comprehensive RFI Work Plan was approved, subcontracts have been awarded to companies to do environmental investigations. Before these subcontractors conduct these environmental investigations, the Comprehensive RFI Work Plan needs to be examined and as appropriate revised. See General Comment 1 above.
4. Section 2.2.4, Page 2-8, and throughout the remainder of the Work Plan. No mention is made of dioxin sampling. In addition to the Appendix IX scan at Data Quality Objective (DQO) Level IV, dioxin sampling needs to be conducted throughout Naval Base Charleston using the same strategy as

outlined in the Zone H RFI Work Plan. This includes dioxin and congeners. Because of previous dioxin detections at Naval Base Charleston, the analysis for dioxin should be mentioned explicitly.

5. Section 4.0 is the Health and Safety Plan. Most of this information is the same as that contained in the Comprehensive RFI Work Plan. The whole purpose for the Comprehensive RFI Work Plan was to provide needed information once so that it would be equally applicable to all Zone Specific RFI Work Plans thereby reducing costs, paper, and review time. EPA suggests that Naval Base Charleston consider the original intention of the Comprehensive and Zone Specific RFI Work Plans.
6. The site specific health and safety information that does appropriately belong in the Zone E RFI Work Plan could easily be made a short section within Sections 2 and 3. This would eliminate the need for a lot of repetition of the Sections 2 and 3 information in Section 4. Again, it would reduce costs, paper, and review time.
7. Much of the information provided on each site is both lengthy and identical to the information provided on every other site. As discussed in the Zones H, C, and I RFI Work Plans, much of this information could be stated once in the front of the Zone specific RFI Work Plan thereby reducing costs, paper, and review time.
8. Because of the high density of Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) in Zone E, the grid-based sampling plan used for the other zones was abandoned. In addition to the SWMU specific sampling locations, 25 supplemental locations were proposed. The supplemental sampling and the abandonment of the grid-based approach should have been mentioned at the outset before the description of planned sampling at the individual SWMUs. This change would add to the clarity of the document.
9. At each site, soil gas will be monitored with a Photoionization Detector (PID). How will the PID information be used? Will the soil gas be sent for analysis if the PID gives a positive reading?
10. EPA agrees that a mercury vapor detector is a preferred method for finding a source of the vapors. However, if mercury vapor is present, then, for the risk assessment, some quantitative measure of mercury in the ambient air will be needed. This may be a potential data gap and should be kept in mind. If the mercury vapor detector can provide a quantitative measure of mercury in ambient air, this will not be a problem.

SPECIFIC

1. Table of Contents, Page ii, Section 2.12.3. This section has been omitted.
2. Table of Contents. Page viii, Figure 2-05. "Pickling" is misspelled.
3. Table of Contents, Page ix, Figure 2-15. "Burning" is misspelled.
4. Table of Contents, Page ix, Figure 2-18. "Building" is misspelled.
5. Table of Contents, Page ix, Figure 2-27B. Part of the title is missing.
6. Table of Contents, Page x, Figure 4-4. The site number is missing.
7. Table of Contents, Page x, Figures 4-12 and 4-13. The word "Day" is missing.
8. Section 2.1.5, Page 2-5, Paragraph 1. "Separated" should be "separate."
9. Section 2.1.5, Page 2-5, Paragraph 3. "Advanced" should be "advance."
10. Section 2.1.5, p. 2-5. EPA recommends that all samples collected in the field be screened with a radiation meter.
11. Section 2.2, Page 2-6. Based on information available at this time, EPA does not agree that soil-gas monitoring needs to be performed.
12. Section 2.3.1, Page 2-10. Clarify that the comparison of chemical data to the USEPA Region III Risk Based Concentrations identifies Chemicals of Potential Concern (COPCs) for the human health assessment but not for the ecological assessment. Many of the inorganic concentrations for SWMU 21 sediment samples, as shown in Appendix D, exceed the USEPA Region IV sediment screening values, indicating a potential concern for ecological receptors.
13. Section 2.3.4, Pages, 2-13 and 2-14, Paragraphs 2 and 1 respectively. There is discussion of collecting "DQO Level II (data) to supplement the existing DQO Level III data," and the statement that "samples will not be collected for chemical analysis." Note General Comment 1 above.

14. Section 2.3.4, Page 2-14. With respect to the proposed locations of the four sediment samples in the Cooper River, indicate what the dashed/dotted line represents in Figure 2-02.
15. Page 2-16, Figure 2-02. A shallow well should be placed in the southeast corner of the site. The soil borings should be spread more about the site for better coverage.
16. Section 2.4, Pages 2-18 - 2-23. This is an area of special concern to EPA. Of particular concern is the former electroplating shop (SWMU 25) and wastewater treatment system (SWMU 22) within this area. Mention is made of previous investigations underneath the concrete floor of the wastewater treatment system (16 locations), in the process waste material and equipment within Building 44, and limited soil and groundwater monitoring (3 wells) in the area of SWMUs 22 and 25.
  - a. It should be no surprise that relatively low concentrations of contaminants were measured below the concrete floor of SWMU 22.
  - b. It should be no surprise that elevated concentrations of contaminants were measured within the process equipment of SWMU 25 (e.g., cadmium at 2.02 to 84,340 ppm, chromium at 18 to 11,940 ppm, mercury at 6.7 to 446,000 ppm, lead at <0.08 to 6,920 ppm, and cyanide at 83 to 129,000 ppm).
  - c. EPA is surprised that 16 samples have been collected beneath a small concrete floor, but soil and groundwater samples have been collected at only 3 locations in the vicinity of SWMUs 22 and 25.

The conspicuous absence of life within Building 44 (mice, roaches, crickets, spiders, etc.) and the irritation to the skin and mucous membranes of people upon entering Building 44 all suggest a high risk to human health and the environment. The age and physical condition of Building 44 and the wastewater treatment plan suggest a low potential for future re-use, i.e., they will probably be demolished.

EPA has five comments regarding the SWMUs 22 and 25 area.

- a. Page 2-21 states that "Based on the site history and the data generated during previous assessments, analytical parameters for soil and groundwater are proposed to be limited to VOCs and inorganics." EPA disagrees with this. In addition to the previous discussion, see also General Comment 1 above. A sampling plan needs to be designed which fully

characterizes the soil and groundwater in the vicinity of these SWMUs.

- b. The structures and related equipment of SWMUs 22 and 25 need to be sampled to determine whether or not, after demolition, the demolition debris can be disposed of as a hazardous or non-hazardous waste.
  - c. The exclusion zone needs to be carefully selected to ensure that other persons in the vicinity will not be endangered by sampling and analysis activities.
  - d. Sometimes inorganics implies inclusion of metals and sometimes metals are identified separately. There needs to be consistency in the use of terminology. This area needs to be investigated for inorganics including cyanides and metals along with the other parameters.
  - e. Page 2-21 refers to the *Final Comprehensive Project Management Plan*. What document is intended here?
17. Page 2-29, Figure 2-04. The soil boring on the north side of SWMU 23 should be moved inside the SWMU. Two soil borings should be placed inside SWMU 63.
  18. Section 2.8, Page 2-39. Reference is made to sampling in connection with the mercury gauge room. No mention is made of sampling underneath the building floor. The area underneath the floor of this building needs to be sampled also.
  19. Page 2-43, Figure 2-07. Some wipe samples should be collected inside the former gauge room.
  20. Section 2.10.3, Page 2-49: Clarify the locations of the proposed sediment samples (i.e., Cooper River?).
  21. Figure 2-11, Page 2-65. "Day" is missing from the title.
  22. Figure 2-12, Page 2-69. "Day" is missing from the title.
  23. Section 2.15.4, Page 2-75 and Figure 2-14, Page 2-78 identify locations and types of samples underneath the floor of the building but no samples around the building. The soil and groundwater around the building need to be investigated also, similar to Section 2.17.4, Page 2-85, and Figure 2-16, Page 2-88 for Building 13A.
  24. Section 2.16, Page 2-79. The Burning Dump is identified as being located "near Drydock 3." Yet Figure 2-15, Page 2-83

and other places within the RFI Work Plan state that "THE BURNING DUMP WAS LOCATED AT THE PRESENT SITE OF DRY DOCK NO. 3." While part of the Burning Dump might extend underneath Dry Dock 3, it is EPA's understanding that the Burning Dump was also in the area near Dry Dock 3. Therefore, the investigation should be expanded to include this entire area.

25. Page 2-83, Figure 2-15. The northernmost soil boring should be converted to a shallow monitoring well.
26. Section 2.18.4, Page 2-90: Figure 2-17 shows 6 proposed sediment sampling locations for SWMU #170 and #171, yet no sediment samples are mentioned in the text or in Table 2.37, Page 2-91. Please clarify this.
27. Section 2.19, Pages 2-93 - 2-96 are missing from copies of the Draft Zone E RFI Work Plan submitted to EPA for review, so EPA can not comment on this section.
28. Page 2-96, Figure 2-18. There is no accompanying text for Figure 2-18.
29. Page 2-108, Figure 2-21. An attempt should be made to place a soil boring in each subsection of the SWMU.
30. Section 2.24.4, Page 2-114. Soil boring samples need to be collected at the Hobson Avenue door of Building 6, and also near the floor drain in the vicinity of the Zyglo process.
31. Section 2.24.4, Page 2-115. Same as General Comment 1 above.
32. Section 2.28, Page 2-130.
  - a. If known, indicate the year(s) that the underground pumps were first used to remove water from the drain system along the drydocks and direct it to the sanitary sewer system.
  - b. Since water from the drain system is currently pumped out and directed to the sanitary sewer system, clarify the use of the outfalls.
  - c. If known, indicate the year(s) that the drydock outfalls were first permitted.
33. Section 2.28.1, Pages 2-130 - 2-131. If known, indicate whether the releases mentioned in this section might have discharged through the outfalls into the Cooper River or whether they would have been pumped out of the drain system.

34. Pages 2-136 - 2-140. The figure for AOC 557 is missing. Some text for AOC 556 is also missing.
35. Section 2.29.3, Pages 2-138, and Table 2.58, Page 2-137. Mention is made that sediment contamination is a possible concern and that sediment might be sampled if COPCs are detected in the concrete cores and surface wipe samples. Clarify whether these sediment samples would be collected from an intermittent drainage path or a storm drain.
36. Page 2-166, Figure 2-34. Convert one of the soil borings on the east side of AOC 570 to a shallow monitoring well.
37. Section 2.36.4, Page 2-168, and Table 2.72, Page 2-167. The statement is made that "Prior to 1972, water used to capture particulate matter from the [paint] booth was discharged directly into the storm sewer system." Since storm drain sediment samples will be collected for other AOCs and SWMUs, either include the collection of a storm drain sediment sample for AOC #571 or else indicate why such a sample is not needed.
38. Section 2.38.4, Page 2-176; Table 2.77, Page 2-177; and Figure 2-37. These indicate that two sediment samples will be collected, but the text mentions only one sediment sampling location. Give the location of the second sediment sampling location.
39. Page 2-186, Figure 2-39. Convert the soil boring on the northeast corner of the AOC to a shallow monitoring well.
40. Section 2.42.1, Page 2-191; and Section 2.42.2, Page 2-192. These state that paint-stripping rinsate was discharged to the nearby storm drain. Since storm drain sediment samples will be collected for other AOCs and SWMUs, either include the collection of a storm drain sediment sample for AOC #583, or else indicate why such a sample is not needed (e.g., if the storm drain is no longer present).
41. Page 2-206, Figure 2-44. It seems possible that the asbestos shredder required maintenance, lubricants, etc. These soil samples should also be analyzed for organic compounds.
42. Appendix I, Table I.1. The building numbers and site identification numbers are in random order. Table I.1 would be more user friendly if the locations were in order by building number and/or site identification number.