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NOTICE OF TECHNICAL INADEQUACY OF RESOURCE CONSERVATION AND RECOVERY
ACT FACILITY INVESTIGATION WORK PLAN CNC CHARLESTON SC
4/4/1994
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

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

APR 08 1994

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Captain Thomas J. Porter
Commanding Officer Naval Shipyard
Charleston, South Carolina 29408-5100

SUBJ: Notice Of Technical Inadequacy (NOTI) of RCRA Facility
Investigation (RFI) Work Plan for Charleston Naval
Shipyard; EPA SC0 170 022 560

Dear Captain Porter:

The U.S. Environmental Protection Agency (EPA) has reviewed Charleston Naval Shipyard's Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan. As a result of this review, EPA has determined that the RFI Work Plan is inadequate. EPA's comments are enclosed. As agreed upon in the March 24, 1994, meeting, the Final RFI Work Plan is due to EPA by May 18, 1994. Submittal of the RFI Work Plan is required under Charleston Naval Shipyard's Hazardous and Solid Waste Amendments (HSWA) portion of the Resource Conservation and Recovery Act (RCRA) Permit effective June 4, 1990, specifically Condition II.C., RCRA Facility Investigation. Note that until the RFI Work Plan is approved, you have not fulfilled the requirements for Permit Condition II.C., RCRA Facility Investigation (RFI), or Permit Condition II.G.l., Plan and Report Requirements, of the HSWA portion of the RCRA Permit.

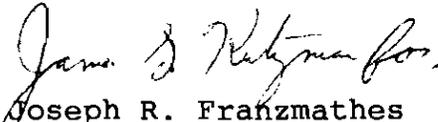
Please note that this is the fourth Notice Of Technical Inadequacy which has been issued to Charleston Naval Shipyard for the RFI Work Plan. Previous Notices of Technical Inadequacy were issued on June 24, 1991, June 11, 1992, and August 9, 1993. Because of the impact of Base Closure on the RFI process, EPA chooses not to initiate enforcement action at this time for failure to adequately address EPA's comments on the previous draft RFI Work Plans. However, failure to adequately address EPA's comments at this time and to meet the deadline for the submission of a Final RFI Work Plan which EPA considers approvable, may result in sanction pursuant to the Resource Conservation and Recovery Act, U.S.C. 6901 et seq, as amended by the Federal Facilities Compliance Act of October 6, 1992. If further time is required for submission of the revised RFI Work Plan, then specific justification must be presented.

Enclosed are comments on the RFI Work Plan from the South Carolina Wildlife and Marine Resources Department, U.S. Department of Interior, and South Carolina Department of Health and Environmental Conservation. Please address these comments as a part of EPA's comments.

To facilitate and expedite EPA's review of the revised RFI Work Plan, EPA requests that a comment-by-comment summary be provided clearly and concisely describing how each of EPA's August 9, 1993, comments as well as the enclosed comments have been addressed within the revised RFI Work Plan. Further, EPA requests that a point-by-point summary be provided clearly and concisely describing how each of the RFI related conditions within the HSWA portion of the RCRA Permit have been addressed within the RFI Work Plan. EPA requests that these summaries be provided concurrently with the revised RFI Work Plan.

If you have any questions concerning the comments, please contact Doyle Brittain of my staff at (404) 347-3016 or (803) 743-9985. If you have any questions concerning compliance and enforcement, please contact Mike Arnett of the RCRA Compliance Section at (404) 347-7603.

Sincerely,


Joseph R. Franzmathes
Director

Waste Management Division

Enclosures (4)

cc: Pat Franklin, COMNAVBASE, Code N4BEC
Bobby Dearhart, COMNAVBASE, Code N4BEC
Captain James Augustin, COMNAVBASE, Code N4
Joe Bowers, SCDHEC
Jane Settle, SCW&MRD
Diane Duncan, USDOJ
Mike Arnett, 4WD-RCRA
Arthur G. Linton, 4FAB-FFC

COMMENTS ON CHARLESTON NAVAL SHIPYARD'S RFI WORK PLAN

GENERAL

1. The Environmental Protection Agency (EPA) is concerned that the Hazardous and Solid Waste Amendments (HSWA) portion of the Resource Conservation and Recovery Act (RCRA) Permit (hereafter referred to as the Permit) was issued effective June 4, 1990, requiring that a RCRA Facility Investigation (RFI) be conducted in accordance with an RFI Work Plan which was to be approved by EPA. As of this date, Naval Base Charleston (the Base) has proceeded, at considerable time and expense, with an investigation and still does not have an EPA approved RFI Work Plan. Two points merit noting:
 - a. All investigations conducted without an EPA approved RFI Work Plan are done at the Base's own risk. EPA assumes no obligation to approve any work done or accept any data generated prior to the Base obtaining an EPA approved Work Plan.
 - b. The Permit identifies specific documents to be prepared and specific investigations to be performed as a part of the RFI. As of this date, some documents have still not been submitted to EPA for review and approval. Some of the documents which have been submitted contain significant inadequacies. EPA is concerned that the RFI Work Plan does not reflect serious consideration of the Permit requirements.
2. In consideration of General Comment 1 above, EPA offers five comments:
 - a. In the Specific Section below, specific comments are provided on the October 14, 1993, Interim Final RFI Work Plan (the draft RFI Work Plan). They are not intended to reflect a comprehensive point by point comparison of the Permit with the RFI Work Plan. EPA expects this analysis to be conducted by the Base and reflected in the Final RFI Work Plan.
 - b. The Permit (Appendix B.I.) requires that the RFI Work Plan contain a Project Management Plan, Sample and Analysis Plan, Quality Assurance Plan (independently or as a part of the Sample and Analysis Plan), Health and Safety Plan (independently or as a part of the Sample and Analysis Plan), and Data Management Plan. EPA expects detailed plans to include procedures and schedules.
 - c. The Permit (Appendix B.II.) requires that the investigation include characterizing the facility (environmental setting), defining the source of contamination (source characterization), defining the

degree and extent of the release of hazardous constituents (contaminant characterization), and identifying the actual and potential receptors (risk assessment). EPA expects detailed plans to include procedures and schedules.

- d. The Permit (Condition II.C.4.) requires that the investigation include the nature and extent of releases and the potential pathways of contaminant releases to the air, land, surface water, groundwater, and subsurface gases. EPA expects detailed plans to include procedures and schedules.
 - e. The Permit (Appendix B.II.) requires that the investigation result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary.
 - 1) EPA expects the RFI Work Plan to identify the quality, quantity, and type of information that will be needed to determine appropriate corrective action before any investigation begins.
 - 2) EPA expects the RFI Work Plan to identify plans, procedures, and schedules to collect that information efficiently, effectively, and expeditiously.
 - 3) Once sufficient information becomes available to determine appropriate corrective action, EPA expects investigation to cease and corrective action to begin.
3. A few examples to illustrate that the RFI Work Plan is incomplete or inadequate are provided below.
- a. The Permit (Condition II.C.4.) requires the submission of schedules of implementation and completion of specific RFI Work Plan actions, i.e., a Corrective Action Management Plan (CAMP). EPA's August 9, 1993, comments on the previous draft RFI Work Plan requested that this CAMP be submitted with the RFI Work Plan. As of this date, this has not been done. The Final RFI Work Plan must be accompanied by a CAMP which:
 - 1) Is aggressive but realistic and attainable.
 - 2) Includes concurrent activities wherever possible, e.g., site characterization, corrective measures study (if any), and risk assessment.

- 3) Uses available information to identify which SWMUs (if any) have sufficient information to bypass the RFI and proceed immediately into corrective measures.
 - 4) Implements President Clinton's Fast Track Cleanup Plan thereby expediting turnover of the Base for other use.
- b. The Permit (Condition II.C.6. and Appendix B.II.) requires a risk assessment. Sections 3.4 and 6.0 of the draft RFI Work Plan refer to the possibility of a risk assessment but contain no work plan. These sections are best summarized by the last sentence in the first paragraph of Section 6.0 which says:

Biological receptors will be evaluated only if significant contaminant levels are identified within specific migration pathways as outlined in section 3.1.

This is not consistent with the above mentioned permit conditions, and does not address EPA's August 9, 1993, Comment 2 on the previous draft RFI Work Plan. EPA expects a risk assessment to be performed as required by the Permit and in accordance with the Risk Assessment Guidance for Superfund. EPA /540/1-89/002. December, 1989. (RAGS). This should be closely coordinated with the U.S. Department of Interior and South Carolina Wildlife and Marine Resources Department, as well as EPA and the South Carolina Department of Health and Environmental Control (SCDHEC). EPA expects the RFI Work Plan to have detailed plans, to include procedures and schedules, for conducting this risk assessment.

- c. In the RFI Work Plan, Page 3-14, Section 3.10, says:

Phase I of the RFI comprises an initial set of borings and monitoring wells to determine site hydrogeologic characteristics and to identify soil and groundwater contamination. Phase II will be implemented to fully delineate the extent of contamination, if necessary.

This type of statement is typical throughout the RFI Work Plan. EPA considers this to be a commitment lacking in sufficient specific information to constitute a work plan. EPA expects the RFI Work Plan to include the: Who? What? When? Why? Where? and How?

- d. In the RFI Work Plan, Page 4-5, Paragraph 1, says:

The subcontracted laboratory's NEESA approved Quality Assurance Plan will be submitted for inclusion as Appendix P.

Page 4-9, Paragraph 1 says:

The laboratory will be required to prepare and submit a laboratory QA plan ---.

Appendix P says:

Will be submitted when a laboratory is selected.

EPA is concerned that an incomplete RFI Work Plan has been submitted for EPA's review and approval. Further, samples have been, and are being, analyzed by some laboratory unknown to EPA. As noted in General Comment 1 above, this work is being done at the Base's own risk.

- e. In the RFI Work Plan, Page 4-34, Section 4.14, the statement is made that:

E/A&H's use of the laboratory will be accomplished by a services agreement. The contract will specify the scope of services to be performed by the laboratory, the specific analytical quality assurance requirements to be met, and the information to be developed and reported.

Before EPA can approve the RFI Work Plan, EPA must know which laboratory will do the analyses and have the opportunity to review the specific procedures to be used.

- f. In the RFI Work Plan, Page 7-1, Section 7.1, Paragraph 3, reference is made to a subcontractor. While EPA recognizes the need for subcontractors, the RFI Work Plan must include the plans and procedures which they will use. These may be prepared by the subcontractor and included within the RFI Work Plan, or they may be prepared by the Contractor and imposed on the subcontractor. In either case, EPA must have the opportunity to review and approve procedures used as a part of this RFI Work Plan.
- g. Throughout the RFI Work Plan, no mention is made of air emissions or air monitoring. There is only limited mention of soil gas monitoring. EPA expects all environmental pathways to be investigated.

h. In the RFI Work Plan, Page 4-7, Paragraph 4, says that NEESA is responsible for ensuring that the quality of laboratory analyses is acceptable. While EPA recognizes that NEESA provides support to the Base, it must be recognized that the Base is the RCRA permitted entity and therefore the one which EPA holds responsible for quality assurance. EPA expects to have the opportunity to review the sampling and analysis plan, including the quality assurance plan, as a part of the RFI Work Plan.

i. In the RFI Work Plan, Page 4-28, Section 4.11.1. says:

E/A&H will follow strict chain-of-custody procedures in accordance with NEESA 20.2-047B, Chapter 3.8, and corporate standard operating procedures for chain-of-custody.

EPA can not approve the RFI Work Plan without the opportunity to review these procedures. All standard operating procedures to be used at the Base must be provided as a part of the RFI Work Plan.

j. In the RFI Work Plan, Page 4-33, Section 4.12, the commitment is made to calibrate instrumentation in accordance with NEESA 20.2-047B and/or as outlined in the NEESA-approved laboratory QAP and the EPASOPQAM or the manufacturer's recommendations. EPA can not approve an RFI Work Plan based on commitments such as this without having the opportunity to review the specific procedures to be used in each instance. These procedures must be provided as a part of the RFI Work Plan.

k. In the RFI Work Plan, Page 4-46, Section 4.18, Paragraphs 3 and 4 say:

Methods for assessing data precision, accuracy, and completeness by laboratory will be outlined in the NEESA-approved laboratory QAP. --- Preventive maintenance to be performed by the analytical laboratory will be in accordance with the laboratory SOPs as established in an NCR-approved QA plan.

EPA must have the opportunity to review and approve these procedures before EPA can approve this RFI Work Plan.

1. In the RFI Work Plan, APPENDIX S, Hazard Communications Program, the hazard communications program for Tennessee is presented. This Section should be changed to reflect compliance with South Carolina's Hazard Communications Program.

4. In the RFI Work Plan, Page 4-8, Paragraph 5, says:

EnSafe/Allen & Hoshall will serve as the engineering subcontractor for this project. As the engineering subcontractor, EnSafe/Allen & Hoshall is responsible for designing and implementing all RFI activities.

This raises two questions:

 - a. Since EnSafe is the prime contractor, why are they subcontracting to themselves?
 - b. Does this involve additional administrative costs?

5. In the process of preparing for Base Closure, a number of additional sites have been identified where hazardous wastes are being or have been managed. A RCRA Facility Assessment (RFA) for these sites was submitted on February 18, 1994.
 - a. Several of EPA's August 9, 1993, comments on the previous draft RFI Work Plan were related to these additional sites. These comments were not addressed in the current draft RFI Work Plan. EPA expects these comments to be addressed in the RFA currently being prepared.
 - b. Some of these additional sites will require no further action, some will require confirmatory sampling, some will require an RFI, and some may have sufficient information known to proceed immediately with corrective measures. In any case, most of the Final RFI Work Plan should be independent of the specific sites. Thus, when EPA and SCDHEC approve the RFA, the RFI Work Plan should require only minor changes to incorporate the newly discovered sites. For example, the Project Management Plan, Sample and Analysis Plan, Quality Assurance Plan, Health and Safety Plan, and Data Management Plan, should be affected little or none by the number of sites at the Base.

6. Throughout the RFI Work Plan, various names are used to identify the Base thus causing confusion. Examples include:
 - a. Page i Charleston Naval Shipyard
 - b. Page i Naval Shipyard

- c. Page i NSY
- d. Page 1-3 Charleston Naval Base
- e. Page 1-3 Naval Base South
- f. Figure 2-1 NAVBASE Charleston
- g. Page 2-15 base
- h. Page 2-23 CNSY

Only one way of referring to the Base should be used. The same point applies to reference to documents and SWMUs.

7. Throughout the RFI Work Plan, reference is made in various ways to the EPA Engineering Compliance Branch Standard Operating Procedures and Quality Assurance Manual, February 1, 1991, (ECBSOPQAM). Reference to this document should be consistent throughout the RFI Work Plan.
8. Throughout the RFI Work Plan, acronyms are used without being defined. Acronyms should be identified the first time they are used. An acronym glossary in the RFI Work Plan would be a useful reference.
9. For each of the SWMUs listed throughout the RFI Work Plan, ground water, soil, and/or sediment samples are proposed to be analyzed for a limited list of constituents depending on the type of known contaminants at the SWMU. EPA's August 9, 1993, Comment 5 identified the need for a complete site characterization. This has not been addressed in the current draft RFI Work Plan. The RFI Work Plan needs to identify in detail how a complete characterization will be conducted at each site to include ground water, surface water, soil, sediment, soil gas and ambient air. See General Comment 2.d. above.
10. EPA's August 9, 1993, Comment 7 identified the need for an inventory of groundwater monitoring wells to identify the wells and their integrity, and describe their construction. This has not been done in the current draft RFI Work Plan.
11. On May 4, 1990, EPA issued the HSWA portion of the RCRA Permit, which became effective June 4, 1990. That Permit expires June 4, 1995. Permit Condition I.D.2. requires that a complete application for a new permit be submitted to EPA at least 180 days before the current permit expires. With the identification of a number of additional sites to be investigated at the Base, EPA anticipates that major changes will be necessary in the new permit.

One part of the current and future permits involves an RFI with an accompanying schedule [a Corrective Action Management Plan (CAMP)].

On July 2, 1993, President Clinton signed a Five Point Plan for Fast Track Cleanup at Closing Bases.

On September 27, 1993, Phase III of the Base Realignment And Closure (BRAC III) was enacted by Congress. Naval Base Charleston was designated as one of the Bases to close.

One part of President Clinton's plan involves the development of a BRAC Cleanup Plan (BCP), including a schedule, for expedited investigation of environmental conditions at the Base and cleanup of contamination so the property can be turned over to the community for other uses.

Concurrent compliance with South Carolina Department of Health and Environmental Control (SCDHEC) and EPA Permit requirements, President Clinton's Five Point Plan, and BRAC III requirements will require careful orchestration by the Base, SCDHEC, EPA, and natural resource trustees. Thus, it is imperative that the Final RFI Work Plan, submitted in response to the comments contained herein, be approvable by SCDHEC and EPA, and be consistent with the BCP.

12. The Environmental Baseline Survey has identified 72 leaking underground storage tanks within a 1-mile radius of the Base. An additional 23 underground storage tanks have been identified within a 1/4 mile radius of the Base. Preliminary information indicates that some of those leaking tanks have wastes which are migrating onto the Base. The RFI Work Plan needs to identify plans, procedures, and schedules for monitoring the environment around the perimeter of the Base to determine wastes which are migrating onto and/or off of the Base.

SPECIFIC

1. Table of Contents. EPA suggests that the RFI Work Plan format be consistent throughout. Sections 2.0 and 3.0 both include SWMU specific information. Yet, the Table of Contents does not identify the SWMUs in Section 2.0 but it does in Section 3.0.
2. Table of Contents. Not all SWMUs are listed here requiring that the reader hunt for information on some SWMUs; all SWMUs should be listed in the Table of Contents.

3. Table of Contents. Some field investigations are not identified in the Table of Contents or addressed in the RFI Work Plan. An investigation of air is required by Conditions II.A.4., II.B.2.c., II.C.4., II.D.3.
4. Table of Contents. Section 3.31 should read "SWMU #36,---."
5. Table of Contents. Section 5.0 should be entitled "DATA MANAGEMENT PLAN".
6. List of Figures. Figure 2.21. Inconsistent terminology is used throughout the RFI Work Plan to describe the old and new areas where fire-fighters are trained. Either "Fire-Fighter" or "Fire-Fighting" should be selected and used consistently.
7. List of Tables. Table 2-2. The asterisk should be deleted.
8. Page i. USEPA's Interim Final RFI Guidance Document (EPA 530/SW-89-031) is identified here but is not listed as a reference in Section 8.
9. Page i. Paragraph 1. The statement is made that:

The purpose of this document is to develop a plan for characterizing prior or continuing releases from the 36 Solid Waste Management Units (SWMUs) originally identified during the RCRA Facility Assessment (RFA) and subsequent Addendum.

Paragraph 2 refers to:

--- each of the 36 SWMUs

and:

--- 27 SWMUs where contamination from prior releases has not been sufficiently identified and delineated.

This raises four questions.

- a. Are the 27 SWMUs part of, or in addition to, the 36 SWMUs? If they are part of the 36 SWMUs, what happened to the other 9 SWMUs?
- b. How many SWMUs were identified in the Permit? What action does the Permit require for each of these SWMUs?

It merits noting that the purpose of this RFI Work Plan is to comply with the Permit.

EPA is concerned that this type of confusion persists throughout the RFI Work Plan. A fresh, thorough review and re-write of the RFI Work Plan needs to be done which focuses on the purpose of the RFI; meets statutory, regulatory, and permitting requirements; uses EPA and SCDHEC guidance; takes advantage of all available information about the Base; includes BRAC III requirements; and is written in a clear, factual, concise manner, which follows a logical thought process. Use of a technical writer would greatly enhance the quality of this RFI Work Plan. Please note that EPA does not envision this as being a justification for an extension of time to submit the revised RFI Work Plan.

Reference should be made to the Permit, Appendix B, Section II, which says:

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors. The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary.

Thus, the RFI will collect sufficient sampling and analysis data to characterize the contamination sources and environmental pathways, to identify the actual or potential effects of contamination on human health and the environment, and to identify and evaluate potential corrective measures. The RFI Work Plan must reflect this in entirety.

10. Page i. Paragraph 2. Line 3. Use of the word "detailed" is an opinion and should be deleted.

11. Page ii. Paragraph 1. Line 7. It says:

The RFI plan identifies potential receptors of regulated constituents which may have been released from the various SWMUs at NSY.

This is not correct. See General Comment 3.b. above.

12. Page ii. The last sentence says:

Implementation of the RFI will be guided by a Corrective Action Management Plan (CAMP) which will be submitted under separate cover.

As of this date, this has not been done. This was identified in EPA's August 9, 1993, comments on the previous draft RFI Work Plan. See General Comment 3.a. above.

13. Page 1-1. First paragraph. Second sentence. See General Comment 2 above.
14. Page 1-1. Second paragraph. Reference is made to the Part B permit application; it should also reference the Permit.
15. Page 1-2. First paragraph. It says in part:

--- For any SWMU suspected to be the source of a contaminant release to the environment, information must be available to sufficiently characterize the nature, extent, and rate of migration of releases of hazardous wastes or constituents to soils, groundwater, subsurface gas, air, and surface water. This information is used to determine whether interim corrective measures (ICM) or a corrective measures study (CMS) will be necessary. It is also used in formulating and implementing appropriate corrective measures. Such corrective measures may range from stopping the release through application of source control techniques to full-scale clean up of the affected area. "No action" may also be an appropriate measure. If sufficient information to determine what is most appropriate is lacking prior to the RFI, it must be generated during the RFI. The RFI Workplan identifies needed information and describes procedures for gathering and organizing it during the RFI.

This is the best written section in the entire RFI Work Plan and EPA agrees with it fully. Unfortunately, it is not reflected throughout the RFI Work Plan. EPA would only add as a penultimate sentence:

If sufficient information to determine what is most appropriate is known prior to the RFI or becomes known during the RFI, then the RFI should be terminated and that appropriate action taken.

16. Page 1-3. Paragraph 1. Line 5. Where is "Harbor Area?"
17. Page 1-3. Paragraph 1. Last line. "Area" should not be capitalized.
18. Page 2-1. Paragraph 1. It says:

Section 2.6 focuses on current conditions in each identified SWMU. This characterization includes, for each SWMU, a summary of previous investigations and

studies, methods of investigation, plans and tables delineating and summarizing data, interpretation of the data, and identification of data gaps.

This is exactly what Section 2.6 should do, but what has not been done. To the extent that information is known, it should be presented as stated above. Then, Section 3.0 should identify data gaps. Without making a similar comment for each SWMU, consider one typical example. On Page 2-78, Paragraph 3, the statement is made that:

Ensafe certified that closure of the interim status unit was completed according to the conditions of the Closure Plan. A review of the closure activities by DHEC determined that the unit was not fully characterized and additional delineation would be required.

Then the reader is left in suspense not knowing the activities of Ensafe or SCDHEC, the results therefrom, or the data which need to be collected.

19. Pages 2-1. Paragraph 3. Page 2-2. Paragraphs 1 and 2. These three paragraphs independently attempt to explain the organization and name of Naval Base Charleston. All three paragraphs need to be consolidated and rewritten as one paragraph. See Specific Comment 9 above.
20. Pages 2-4. Paragraph 3. Reference is made to the Base being filled with solid wastes and dredge spoils over the last 70 years. The Base is 93 years old. There is reason to believe that the Base began filling in the marsh land when it began operation.
21. Figure 2-4. Portions of this figure are illegible.
22. Page 2-14. Paragraph 2. Is the minus sign before 250 appropriate?
23. Page. 2-14. Section 2.3.6.
 - a. EPA's August 9, 1993, Comment 9 on the previous draft RFI Work Plan identified the need for determining the effects of contaminant migration on the Cooper River, Shipyard Creek, and the wetlands. EPA can not locate where this comment has been addressed in the current draft of the RFI Work Plan.

- b. EPA's August 9, 1993, Comment 10 on the previous draft RFI Work Plan identified the risk of a threat of shallow ground water to on-base personnel, particularly construction workers. EPA can not locate where this comment has been addressed.

- 24. Page 2-15. Line 5. It says:

Contaminants entering the shallow groundwater system at NSY do, however, represent a potential threat to the environment, since contaminants have the potential to migrate via the shallow system to adjacent surface waters.

EPA agrees and that is the reason for General Comment 3.b. above.

- 25. Page 2-15. Last line. Page 2-16. Lines 1-2. It says:

Although aquatic habitats in the Cooper River, Noisette Creek, and Shipyard Creek may be threatened, human health is not directly threatened by contaminant migration, since these surface bodies do not function as potable supplies.

While human health might possibly not be directly threatened by migrating contaminated groundwater, human health might possibly be directly threatened by contact with that water and/or by gaseous and liquid contaminant migration. Thus General Comment 3.b. is very important.

- 26. Page 2-16. Paragraph 2. "Permeabilities" is misspelled.
- 27. Pages 2-14 - 2-16. No mention is made of air emissions. See General Comment 2.d. above.
- 28. Page 2-17. This section states that types of waste have remained relatively constant over the years although the volumes may have fluctuated as a result of production requirements. It then describes the types of inspections conducted by the Base since EPA and SCDHEC conducted an inspection at the Base in 1990. This raises several points.
 - a. For each SWMU where hazardous wastes were generated or stored, a brief description of the industrial processes which generated the wastes would be very helpful.
 - b. For each SWMU where hazardous wastes were generated or stored, a brief description of waste disposal practices would be very helpful. This should include the time before, as well as after, creation of environmental

statutes or regulations. The Environmental Baseline Survey currently underway at the Base should provide useful information.

- c. The fact that the EPA/SCDHEC inspection was a surprise to the Base is irrelevant. Continued mention of this inspection throughout the RFI Work Plan, with or without reference to it being a surprise, adds nothing to the quality of the RFI Work Plan and therefore should be deleted. The RFI Work Plan should focus on "need to know" type information. See Specific Comment 9 above.
 - d. The inspections instituted as a result of the inspection add nothing to the quality of the RFI Work Plan and therefore should be deleted.
- 29. Page 2-17. Paragraph 3. Line 4. "South" should be capitalized.
 - 30. Page 2-18. Paragraph 3. Southern Division Naval Facilities Engineering Command is referred to by several different names. Only one name should be selected and used consistently throughout the RFI Work Plan.
 - 31. Page 2-18. Paragraph 3. Lines 4-5. The phrase "accurately and in detail" is an opinion and should be deleted.
 - 32. Figure 2-9. This figure is illegible.
 - 33. Figure 2-10. This figure is illegible.
 - 34. Page 2.18. Section 2.6. This is a critical section. Clearly, concisely, and factually, it should identify all that is known, and needs to be known, about every SWMU. Instead, it contains generalized summaries, conclusions, and contradictions. For example, consider SWMU 6. Page 2-24 says:

The public works storage yard (SWMU #6) contains three isolated areas near the surface of the ground containing slightly elevated lead levels. This unit is also currently being assessed for clean closure status under the risk assessment (Ref. 16).

Yet, Section 2.6.6 says:

Results of the analyses indicate that soils in the Public Works Storage Yard are contaminated with metals including barium, cadmium, chromium and lead. --- However, groundwater has not been characterized for this site.

See General Comments 2 and 9 above.

35. Page 2-18. Section 2.6. Each SWMU needs to be identified by building number or proximity thereto and map coordinates.
36. Page 2-22. Documentation on the agreement between SCDHEC and NSY defining "clean" should be included in the Appendix.
37. Page 2-23. Paragraph 3. Reference is made to a risk assessment currently in review at EPA and SCDHEC. EPA will not evaluate the results of a risk assessment prior to receipt of assurance that the risk assessment was conducted in accordance with an EPA approved RFI Work Plan.
38. Page 2-23. Paragraph 4. This paragraph is vague and confusing. At best, it identifies the existence of a problem but provides no plan for obtaining or analyzing existing data or collecting additional data needed. EPA recognizes the issue regarding background concentrations. However, for the purposes of an RFI Work Plan, EPA expects a detailed plan describing how it will be addressed. This is a critical issue regarding the Base; it involves the question "How clean is clean?" EPA expects the RFI Work Plan to identify the concentrations of contaminants in the environment at the Base, and to identify which are naturally occurring and which are anthropogenic. EPA suggests that the RFI Work Plan identify the on-Base sources of anthropogenic contaminants, and attempt to identify off-Base sources which have directly or indirectly adversely impacted the Base. EPA's August 9, 1993, Comment 11 has not been addressed.
39. Page 2-24. Section 2.6.1.
 - a. EPA's August 9, 1993, Comment 12 regarding additional sampling at SWMU 1 has not been addressed.
 - b. Considering the toxicity of cyanide compared to cadmium and chromium, why is cyanide not mentioned here?
40. Page 2-25. Paragraph 2. Line 10. The word "were" should be deleted.
41. Page 2-25. Paragraph 3. EPA's August 9, 1993, Comment 6 does not approve the use of proposed action levels. This comment has not been addressed.
42. Page 2-28. Paragraph 1. "Bin" should be capitalized.

43. Page 2-28. Paragraph 4. This paragraph is not clear. Is it being proposed that the Base be allowed to call SWMU 1 clean closed with 481.5 ppm of lead contamination at the site? EPA will not approve this.
44. Page 2-28. "Bin" should be capitalized.
45. Page 2-29. Paragraph 1. Penultimate line. "Area" should not be capitalized.
46. Figure 2-12. This figure is illegible.
47. Page 2-31. Paragraph 3. EPA does not agree that:

lead apparently is not migrating vertically through the soil column.

The data cited in the preceding paragraph contradict this conclusion. EPA's August 9, 1993, Comment 18 has not been addressed.
48. Page 2-35. Line 2. "Bin" should be capitalized.
49. Page 2-35. Section 2.6.3. EPA's August 9, 1993, Comment 13 regarding pesticide and rodenticide analyses has not been addressed.
50. Figure 2-15. This figure is illegible.
51. Page 2-45. Paragraph 3. Last sentence. The meaning or intent of this sentence is not clear.
52. Page 2-47. Paragraph 1.
 - a. Reference is made to an investigation under a risk assessment. It is implied that approval of the risk assessment by EPA and SCDHEC "will determine if the soils can be clean closed." As noted in Specific Comment 37 above, the point is moot. The site has not been fully investigated as required by the Permit. Pending completion of the RFI Work Plan with its risk assessment, EPA will not make any determination regarding the site.
 - b. EPA's August 9, 1993, Comment 23 has not been addressed.
53. The terms "Phase I" and "Phase II" are used throughout this RFI Work Plan but are not defined.

54. Page 2-54. Paragraph 3. Penultimate sentence. It says:

Since potential migration of this plume to nearby surface waters could create a sheen in violation of applicable water quality criteria, the soil and groundwater contamination should be delineated and remediated.

While this statement is true, it is also misleading. The fact that it would cause a violation of applicable water quality criteria is of secondary importance. The plume should be delineated and remediated because no form of environmental contamination is acceptable.

55. Page 2-55. Section 2.6.9. No mention is made of cyanide being disposed of or sampled for. This must be done.
56. Page 2-55. Table 2-8. Wastes from SWMUs 22 and 25 should be listed here. These wastes are critical.
57. Page 2-62. Section 2.6.10. This section needs to be revised to reflect the relocation of the hazardous waste storage area.
58. Page 2-62. Paragraph 1. Sentence 3. The length of time authorized for storage of hazardous wastes needs to be verified. The time stated here is questionable.
59. Page 2-63. Section 2.6.11. Calcium hydroxide should be spelled out rather than written as a chemical formula.
60. Page 2-65. Paragraph 3. First sentence. The words "standard units" should be deleted.
61. Page 2-66. Section 2.6.13. Use of SWMU 12 was discontinued in 1971. Use of SWMU 13 began in 1973. Where was fire fighter training done between 1971 and 1973?
62. Page 2-66. Section 2.6.14. This is one of the most important SWMUs at the Base. Of every SWMU, this one should be most thoroughly documented. A table like Table 2-8 would be useful here. The volumes and types of chemicals disposed of here needs to be carefully identified.
63. Page 2-68. Paragraph 1. Line 3. The numbers add up to 101%. This needs to be corrected.
64. Page 2-73. Section 2.6.18. This is also the area that was used for the storage of hazardous wastes after use of SWMU 21 was discontinued. It needs to be investigated accordingly. EPA disagrees with the conclusion that no additional sampling is needed at this site.

65. Page 2-77. Paragraph 2. SWMU 9 is referred to as the "old sanitary landfill" here, but is referred to as the "closed landfill" on Page 2-55. Throughout the RFI Work Plan, SWMU 9 is referred to by one or the other of these names but neither consistently causing confusion. One name should be selected and used consistently throughout the RFI Work Plan.
66. Page 2-77. Section 2.6.21. This section is entitled "Old Paint Storage Area" which is misleading. At one time, this area was used for the storage of all types of hazardous wastes, as a blasting operation to remove paint, and for a drum crusher operation. Thus, the area was used for many purposes and should be designated accordingly.
67. Page 2-77. Paragraph 4. Reference is made to sandblasting operations in this area. Was sand the blasting media used, or was some other agent used? The appearance of the area suggests that Black Beauty was a blasting agent. One type of Black Beauty commercially available years ago contained heavy metals and carcinogens. Was this type of Black Beauty used here? What is the origin or chemical composition of the blasting media used here through the years?
68. Page 2-77. Paragraph 5. Did the sandblasting residues contain metals other than those listed?
69. Page 2-78. Paragraph 2. The statement is made that:
- Samples of paint chips from the concrete pad and soil areas were analyzed using EP Toxicity characteristic leaching procedures for metals.
- a. Page 2-77 acknowledges that the area was used for the storage of paint wastes. Why was there no sampling for organics, pesticides, or PCBs? EPA is concerned that this is one example of sampling which has been done but is inadequate to characterize a site. See General Comment 9 above.
- b. The Toxicity Characteristic Leaching Procedure is mentioned here. Page 2-78, Paragraph 3, and Page 2-79, Table 2-13 mention EP Toxic. Which method was used to determine toxicity?
- c. Based on the appearance and history of SWMU 21, EPA does not agree that no further action is required. EPA requires that a full RFI be conducted at this SWMU.
70. Page 2-80. Section 2.6.22. SWMU 22. Old Plating Shop Waste Treatment System. Of the 36 SWMUs, 4 are of particular concern. SWMUs 22 and 25 are of particular concern since they are 2 of the industrial processes which

generated highly hazardous wastes. SWMUs 9 and 14 are of particular concern since they are two of the larger landfills, were built in a marsh, and received all types of wastes including those from SWMUs 22 and 25. Without slighting other SWMUs, the RFI Work Plan should stress the importance of complete, concise, and accurate information for these 4 SWMUs. Compare the amount, type, and manner of presentation of information given for SWMU 9 with that given for SWMUs 14, 22, and 25.

71. Page 2-80. Paragraph 1. Line 1. Reference is made to SWMU 22 being within the CIA but no reference is made to its proximity to any building or other landmark until Page 2-84. Because of its relation to SWMU 25, this location and relationship should be established early. Reference to a SWMU being within the CIA is irrelevant and should be deleted throughout the RFI Work Plan. The RFI Work Plan should focus on "need to know" type information.
72. Page 2-80. Paragraph 1. It states that after 1973, plating sludge was transported off base for disposal. Was it disposed of as a solid or a hazardous waste?
73. Page 2-80. Paragraph 2. Reference is made to "threshold values established by EnSafe." This term needs to be defined and the basis for it described. EPA must have the opportunity to review these values before EPA can approve the RFI Work Plan.
74. Page 2-80. Paragraph 3. Reference is made to soil samples for pH, cadmium and chromium. Why only these three parameters? Why was not cyanide sampled for?
75. Page 2-84. Paragraph 2. Last sentence. It says:

To avoid duplication of effort for these two complementary units, SWMUs #22 and #25 will be addressed together under SWMU #25 for future investigative and remediation work.

That future investigative and remediation work is not identified. Section 2.6 is supposed to identify work which has been done, data gaps, and work which needs to be done. Yet, Section 2.6 does not do this. This type of information is needed for each SWMU. See General Comments 2.e. and 9 above.

76. Page 2-84. Paragraph 3. The building number for this SWMU needs to be provided.

77. Page 2-84. Paragraph 3. The statement is made that the plating sludge is hauled off base for disposal. Is it disposed of as a solid or a hazardous waste?
78. Page 2-85. Section 2.6.24. EPA's August 9, 1993 Comment 15 regarding field and analytical screening at this SWMU has not been addressed.
79. Page 2-86. Paragraph 2.
- a. The statement is made that:

The purpose of the study was to determine necessary actions prior to building demolition. Samples were collected primarily from process tanks so that interim corrective measures to remove the tanks could begin. Samples were also collected from an overhead structure, wall, floor and floor drain (Figure 2-26).

While EPA encourages remedial action as early as possible, interim action must be consistent with the final remedial action required. Also, considering the concentrations and types of contaminants identified in Paragraph 3, demolition materials may be hazardous waste and subject to disposal accordingly. It is suggested that SCDHEC and EPA be involved early in this process and kept informed as it progresses.

- b. No mention is made of the survey for or presence of asbestos. This needs to be explained.
80. Page 2-86. Paragraph 3.
- a. The contaminants listed are called metals but include cyanide. A more appropriate name is suggested.
- b. Although SWMUs 22 and 25 are not in operation, they are in close proximity to other industrial activities thus having the potential for workers in the area to be exposed to these contaminants. With contaminant concentrations such as 84,340 ppm of cadmium; 446,000 ppm of mercury; and 129,100 ppm of cyanide measured:
- 1) It is critical that an adequate buffer zone around this area be identified and secured.
 - 2) It is critical that workers in the area be safeguarded from fumes generated during demolition.

- 3) It is critical that personnel involved in the demolition be adequately protected (dermal, respiratory, and ingestion) and monitored during demolition.
- 4) It is critical that fumes be controlled during demolition.
- 5) EPA expects the air to be monitored continuously for metals and cyanide during demolition.

81. Page 2-86. Paragraph 4.

- a. Barium should be included in the list in Paragraph 3 above.
- b. The term "extensive" is an opinion and should be deleted.

82. Page 2-88. Paragraph 2. It says:

An investigation and building decontamination is proposed for this SWMU. A phased approach delineating potential contamination on the building's concrete floor, subsurface soils, and groundwater will be required to determine the effort required for remediation. This SWMU is fully addressed in Section 3.22 of this RFI Work Plan.

This raises two points:

- a. This is not the type of information which should be contained in Section 2.6. Data gaps and work that needs to be done should be presented here. See General Comment 3.c. above.
- b. The term "fully" is an opinion and should be deleted.

83. Page 2-88. Paragraph 3. The statement is made that the area was clean closed on the day it was brought to management's attention during the SCDHEC and EPA site inspection.

- a. Clean closure is a regulatory term to describe an environmental criteria subject to the approval of SCDHEC and EPA. Factual information needs to be presented here which allow SCDHEC and EPA to make that determination.
- b. Reference to the inspection should be deleted here and throughout the RFI Work Plan.

84. Page 2-88. Paragraph 6. Page 2-89. Paragraph 1. Most of this material is irrelevant, contributes nothing to the quality of the RFI Work Plan, and should be deleted.
85. Page 2-89. Section 2.6.28. Same as Specific Comment 9 above.
86. Page 2-90. Paragraph 3. Same as General Comment 3.c. above.
87. Page 2-90. Section 2.6.30. Same as General Comment 3.c. and Specific Comment 9 above.
88. Page 2-91. Paragraph 2. Same as General Comment 3.c. above.
89. Page 2-91. Paragraphs 2&3. In part, they say:

Numerous spills were also noted in the unit. Additionally, a storage shed was noted as having a bad solvent odor. No releases have been reported from this unit; however, hazardous constituents have the potential to migrate to surface waters during filling of the drydock with water to remove the ships. --- The potential for migration of the paints and thinners is limited since the paints harden and the thinners volatilize before the drydock is filled anyway.

"Numerous spills --- bad solvent odor --- No releases --- potential to migrate." EPA is concerned about this type of regulatory interpretation.

90. Page 2-95. Paragraphs 1&2. "Building" should be capitalized.
91. Page 3-1. Paragraph 1. In part, it says:

This portion of the RFI Workplan details proposed field and laboratory investigations to be performed at the Charleston Naval Shipyard. The purpose of this work is to fill in gaps in the existing data, resulting in a sufficiently complete characterization of the site's environmental setting, the nature and extent of contamination, and to assess the risks the site may pose to human health and the environment.

This is another excellently written section in the RFI Work Plan, comparable to that mentioned in Specific Comment 15 above, and EPA agrees with it fully. Unfortunately, it is not reflected throughout the RFI Work Plan. EPA would only add:

If sufficient information to determine what is most appropriate is known prior to the RFI or becomes known during the RFI, then the RFI should be terminated and that appropriate action taken.

92. Page 3-1. Paragraph 1. It continues:

Phase I of the investigation will be conducted to address data gaps identified at 27 of the 36 SWMUs. Groundwater will only be investigated in Phase I where specified. Phase II of the investigation will be to more specifically characterize the nature and extent of the contamination of both soils and groundwater where necessary.

This raises several points:

- a. The terms Phase I and Phase II need to be defined and their purpose stated.
- b. If Phase I addresses the data gaps at 27 of the 36 SWMUs, Phase II is not needed. See General Comment 3.c. above.
- c. Groundwater should be investigated if it has a data gap. The meaning and intent of the term "where specified" is not clear.
- d. Only soils and groundwater are mentioned. Yet, the Permit, Conditions II.C.4. and Appendix B.II.C.1.-4. require investigation of groundwater, soil, surface water, sediment, and air. See General Comment 2.d. above.
- e. No mention is made of a risk assessment. See General Comment 3.b. above.

These Comments apply throughout the RFI Work Plan and in particular to Section 3.0. They will not be repeated for each particular SWMU.

EPA is concerned that the commendable statements which introduce this Section (See Specific Comment 9 above) are so quickly contradicted, in the same paragraph (See Specific Comments 92.a-e above). EPA is equally concerned with the cause for this contradiction.

93. Page 3-1. Paragraph 2. Line 8. Use of "strict" is an opinion and should be deleted.

94. Page 3-3. Paragraph 1. It is stated that:
- Analysis will include those parameters listed in Section II.A.2 and 2.B of the Part B Permit, where applicable.
- a. Analytical parameters should be listed here.
 - b. What is meant by the term "as applicable?" Is this to mean that the RCRA Permit might not be complied with?
95. Page 3-4. Table 3-1. A table presents the number and types of samples to be collected. No mention is made of subsurface gas, air, surface water, or risk assessment. Pending major revision to Section 2.0 of the RFI Work Plan, EPA is not able to review the adequacy of Section 3.0. Table 3-1 should be revised based on revisions made in Section 2.0 and 3.0, and the results of additional information such as RFA and the Environmental Baseline Survey.
96. Page 3-5. Paragraph 3.
- a. See General Comment 3.b. above.
 - b. The term TES should be defined.
 - c. One of the requirements of Base Closure is that an Environmental Impact Statement (EIS) be conducted. A major part of the EIS is the same as the risk assessment. For efficiency and expediency, it is important that the EIS and risk assessment be closely coordinated and conducted concurrently.
97. Page 3-6. Paragraph 2. See General Comment 3.a. above.
98. Page 3-6. Section 3.6.
- a. The RFI is being performed under a RCRA Permit. Therefore, investigations and remedial actions should be conducted using RCRA terminology, e.g., instead of using Target Analyte List (TAL), Appendix IX should be used. This is true for this reference and throughout the RFI Work Plan.
 - b. The statement is made that:

SWMU #1 is being closed under approved closure to health-based concentrations as determined by risk assessment.

- 1) EPA has not approved procedures for performing a risk assessment so determining closure under a risk assessment is premature.
- 2) EPA has not approved closure of SWMU #1.
3. EPA expects the Base to conduct a complete site characterization before EPA will make any decision regarding approval for closure. EPA has no intention of making any decision on any SWMU until the RFI has been completed, a portion of which includes the risk assessment. See General Comments 2 and 9 above.

99. Page 3-6. Paragraph 5. "Bin" should be capitalized.

100. Page 3-6. Section 3.7. An incomplete site characterization has been proposed. See General Comment 9 above. EPA's August 9, 1993, Comment 18 has not been addressed.

101. Page 3-9. Section 3.8. EPA's August 9, 1993, Comment 19 regarding sediment and surface water sampling has not been addressed.

102. Page 3-14. Section 3.10. Paragraph 1. The statement is made that:

Phase II will be implemented to fully delineate the extent of contamination, if necessary.

The purpose of Section 2 is to identify data gaps; the purpose of Section 3 is to identify how those data gaps will be filled. This statement does not satisfy the purpose of either Section 2 or 3. EPA expects the RFI Work Plan to identify how the site will be completely characterized. EPA's August 9, 1993, Comment 21 has not been addressed.

103. Page 3-16. Section 3.11. Reference is made to well borings without identifying them. When were the well borings made? Where? Why? How? How many? EPA expects the Base to conduct a complete site characterization before EPA will make any decision regarding closure. See General Comment 9 above.

104. Page 3-17. Section 3.11.2. EPA's August 9, 1993, Comment 22 regarding location of ground water monitoring wells has not been addressed.

105. Page 3-19. Section 3.12.1. The Field Manual referred to should be identified.

106. Page 3-21. Paragraph 2. The "3.12.2" at the end of this paragraph should be moved to the beginning of the title for the next section.
107. Page 3-21. Paragraph 3. It is stated that five groundwater monitoring wells will be installed, the locations of which will be selected in the field by a hydrogeologist during installation. EPA expects more planning and objective criteria than this.
108. Page 3-22. Section 3.13.1. Soil sampling depths have not been identified. EPA's August 9, 1993, Comment 25 has not been addressed.
109. Page 3-25. Section 3.14.1. Four paragraphs equating to one page is used to describe recent geophysical surveys, the results of which are contained - not here but - in a separate report. They are not summarized here nor is the information used to show how a data gap was filled. EPA expects to have the opportunity to review the procedures used. EPA expects to see how these surveys provided information critical to the RFI. This type of information should be summarized in Section 2.0. EPA expects this SWMU to be fully characterized. See General Comments 1, 2 and 9 above.
110. Page 3-26. Figure 3-8. Since the geophysical surveys have been completed, Figure 3-8 should be updated accordingly.
111. Page 3-27. Paragraph 1. The term "TDS" is used without being defined.
112. Page 3-27. Section 3.14.2.
 - a. The term "BGS" is used without being defined.
 - b. Three paragraphs equating to almost one page are used to describe a recent soil gas survey, the results of which are contained in a separate report. They are not summarized here nor is the information used to show how a data gap was filled. EPA expects to see how these surveys provided information critical to the RFI. This type of information should be summarized in Section 2.0.
 - c. EPA needs to review the soil gas survey sampling and analytical procedures before we can comment on the data. See General Comments 1 and 2 above.
 - d. EPA questions the basis for selecting the "target analytes" and would like to see a broader analytical scan.

- e. "The soil gas survey incorporated in investigation for qualitative purposes, with the results being integrated with the geophysical survey to try to delineate trends in the data." This sentence is unintelligible. Although EPA encourages innovative technology, EPA expects that no work of any kind be done unless there is some confidence that it will provide useful results (" --- to try to delineate trends ---").

113. Page 3-28. Section 3.14.3.

Over half a page is used to describe recent test trenching, the results of which are promised for the final RFI Report. They are not summarized here nor is the information used to show how a data gap was filled. EPA expects to have the

opportunity to review the procedures used. EPA expects to see how these surveys provided information critical to the RFI. This information should be summarized in Section 2.0.

114. Page 3-30. Paragraph 5. The term "TPH" is used without being defined.

115. Page 3-32. Paragraph 3.

- a. The statement is made that "Samples will not be collected---." EPA does not approve such restrictive statements. Contamination at this SWMU must be characterized. The question is "What sampling strategy is necessary to characterize contamination at this SWMU?"

- b. The word "substantial" is used. EPA's definition is that if a crack will not contain a liquid, it is substantial.

116. Page 3-33. Figure 3-10. The abbreviation "Appor." is used; EPA suspects "Approx." is intended.

117. Page 3-34. Section 3.17.1. Same as Specific Comment 112.c. above.

118. Page 3-35. Paragraph 2. It says:

The next phase of additional site assessment work will be implementation of a soil boring and sampling program. The purpose of this program is to characterize and delineate the horizontal and vertical extent of soil contamination in the area. The actual scope of this work phase will be largely dependent upon the results of the geophysical surveys. Twenty-five soil borings are proposed for the initial phase of

fieldwork. It is possible additional sampling will need to be conducted based on potential data gaps identified in phase I.

This raises several points:

- a. "Phase" should be capitalized.
- b. In the RFI Work Plan:
 - 1) Section 2.0 is supposed to identify data gaps and work that needs to be done in Section 3.0 to fill those data gaps,
 - 2) geophysical surveys have been conducted but those procedures and data are not contained in the RFI Work Plan,
 - 3) twenty-five soil borings are to be conducted in the initial phase of fieldwork,
 - 4) Phase I might identify additional data gaps,
 - 5) and Phase II has not started.

EPA can not approve such a Work Plan. This concept of collecting data, to justify collecting additional data, to justify collecting additional data, ---, must end. EPA expects to see the RFI Work Plan revised:

- 1) In Section 2.0, analyze and summarize all available information, and identify data gaps and additional data needed.
- 2) In Section 3.0, present a strategy for performing that additional work (who? what? when? why? where? how? how much?) to fill those data gaps, efficiently, effectively, and expediently. To do this, EPA suggests:
 - a) Consider each SWMU independently and collectively with other SWMUs for purposes of investigation and remediation. Subdivide the Base into work zones accordingly.
 - b) Identify presumptive remedies for each SWMU and/or work zone.
 - c) Collect sufficient Data Quality Objective (DQO) Levels 1 and 2 type screening data to identify the need for DQO Levels 3 and 4 type data.

- d) Collect sufficient DQO Levels 3 and 4 type data to identify a select few remedies which would be appropriate for each SWMU.

NOTE: EPA believes that, as a general rule, one mobilization should be required for collecting the data. Re-mobilizations should be the exception to the rule and then only under extenuating circumstances.

- e) End the RFI and proceed with remedial action as soon as sufficient data are available to identify a select few remedies.
- f) Conduct the Corrective Measures Study and Risk Assessment concurrently with the RFI. (A permit modification will be required for the Corrective Measures Study.) Coordinate data needs so that one mobilization meets all needs.

See General Comment 2.e. above.

119. Page 3-36. Figure 3-11. Since the geophysical surveys have been completed, Figure 3-11 should be updated accordingly.

120. Page 3-37. Paragraph 3.

- a. It is stated that the soil and groundwater investigation is to fill in current data gaps and ensure that migration of contaminants is not occurring. Failure to address media other than soil and groundwater is addressed in General Comments 2 and 9 above and need not be reiterated here. However, throughout the RFI Work Plan, the following phrase is used: "ensure that migration of contaminants is not occurring." Ensuring the contamination is not migrating is not a purpose of the RFI; determining the rate of migration is. Throughout the RFI Work Plan, this change needs to be made.
- b. EPA's August 9, 1993, Comments 30 and 31 have not been addressed.

121. Page 3-41. Paragraph 2. "Phase" should be capitalized.

122. Page 3-44. Paragraph 4. Lines 4 and 5. "Building" should be capitalized.

123. Page 3-48.
- a. Section 3.23.1. EPA's definition of a substantial crack is one that will not contain a liquid.
 - b. Section 3.24.2. It should read "--- Phase I indicate that ---."
124. Page 3-51.
- a. Section 3.25. Location of specific areas of contamination have not been identified.
 - b. Section 3-25.1. EPA's definition of substantial cracks is that they will not contain a liquid.
125. Page 3-53. Paragraph 4. The word "apparent" should be deleted; the underground storage tank either is or is not present.
126. Page 3-60. Paragraph 2. "Phase" should be capitalized.
127. Page 4-1. This section deals with Quality Assurance. See General Comments 1 and 2 above.
128. Page 4-2. Paragraph 5.
- a. Reference is made here to the RFI resulting from the RFA. While the RFA is important, the RFI is being performed as a result of the RCRA Permit. This change should be noted here as well as in other places in the RFI Work Plan.
 - b. Listing the SWMUs here is redundant. This listing should be deleted.
129. Page 4-4. Table 4-1.
- a. The title for the "Completeness" column should be corrected.
 - b. "Static Water Level" should be on the same line.
 - c. For the PID/FID, in the Reference column, the superscript for the subscript for SOP should be deleted.
130. Page 4-7. Paragraph 5. Linda Martin is being replaced. EPA suggests that this position be referred to by title rather than name.

131. Page 4-13. Section 4.6.1. Page 4-14. Section 4.6.2. It says:

The shallow monitoring wells will be installed in the uppermost portion of the surficial aquifer and the total depth of each well will vary depending on site conditions. --- The installation of deep wells may become necessary to ascertain the vertical extent of potential groundwater at the NSY.

Apparently this last sentence should read:

---potential groundwater contamination at ---.

Because of the wide variety of contaminants at the Base, their impact on and interaction with the groundwater presents many unknowns. Therefore, it is important that groundwater be sampled to include not only the contamination in the groundwater but the Light Non-Aqueous Phase Liquids (LNAPLS) and Dense Non-Aqueous Phase Liquids (DNAPLS) which are potentially present.

132. Page 4-18. Item 3. Reference is made to "a State of South Carolina Water Resources Commission report (Ref. ?)." The reference for this report should be provided.
133. Page 4-19. Item 5. The abbreviation "MCL" is used without definition.
134. Page 4-21. Last line. The term "gallons per feet" is used. This should be "gallons per foot."
135. Page 4-23. Section 4.9. Reference is made to the EPA Engineering Compliance Branch Standard Operating Procedures and Quality Assurance Manual, February 1, 1991, (ECBSOPQAM). This document is referred to in a variety of ways throughout the RFI Work Plan. It should be referred to in only one way.
136. Page 4-25. Table 4-3. Superscripts are used in the Sample Preservation column but accompanying footnotes are not provided.
137. Page 4-25. Table 4-3. EPA Method 8240. Container Size/Material column. What does the "(4)" indicate? How many vials and jars are to be used, i.e., should these terms be singular or plural?
138. Page 4-28. Section 4.11.1. It says:

The field sampling team should take measures to ensure that samples are delivered to the analytical laboratory

within 24 hours of collection. Due to the time constraints placed upon the field sampling team by courier service schedules, it may not be possible to meet the 24 hour sample delivery time limit. However, under no circumstances will samples be delivered to the laboratory more than 48 hours subsequent to time of collection.

The adequacy of delivery times depends on the specific method's holding times and the conditions under which the samples are stored. Holding times and conditions govern, rather than being governed by, courier service.

139. Page 4-32. Example A).

- a. The term 2-feet is not clear. Is 2 feet or 2-X feet intended?
- b. The term 2"-4" feet is not clear. What is intended here?

140. Page 4-34. Section 4.13.2. The second sentence is irrelevant.

141. Page 4-36. Table 4-4. The term "(4) 40 ml. glass vials" is not clear.

142. Page 4-43. Section 4.18. Precision, accuracy, and completeness are defined here. These terms should be defined the first time they are used in the RFI Work Plan. This should include the terms comparability and representativeness.

143. Page 4-49. Section 4.20.2. It says:

A copy of this (Quality Assurance) report will be forwarded to the SCDHEC, EPA, and NSY QA offices.

All reports to EPA should be submitted to the name and address of the EPA official who signed the HSWA portion of the RCRA Permit, or his successor.

144. Page 4-50. Section 4.21.2. The term AOC needs to be defined.

145. Page. 4-51. Section 4.21.3. Last paragraph. It says:

If from the analytical data, the waste does not exhibit any of the characteristics of a hazardous waste (40 CFR part 261) and the waste does not contain any of the listed hazardous wastes or they are present but at such low concentrations that the appropriate regulatory

levels could not possibly be exceeded, the waste will not be defined as a "hazardous waste," as defined by RCRA Subtitle C. If analytical data indicate that individual analytes are in concentrations significantly close to or above regulatory levels, then the SOUTHDIV Engineer-in-Charge (EIC) will determine whether the waste should be analyzed by the Toxicity Characteristic Leaching Procedures (TCLP) or if other measures are appropriate.

This is illegal and therefore unacceptable to EPA. EPA is concerned about this type of regulatory interpretation.

146. Page 4-51. Section 4.21.4. Second paragraph. It says:

Contaminated soils may be left within the delineated AOC unit from which they were generated provided professional judgment determines the soil will not at any rate affect human health or the environment.

Land Disposal Restrictions apply here and must be complied with.

147. Page 4-55. Item 2. It states that:

The IDW container must be properly labeled.

What constitutes "properly labeled?"

148. Page 4-61. Section 4.21.6. The abbreviation "TSD" should be defined.

149. Page 4-61. Section 4.21.6. Last paragraph. This contradicts Page 4-51, Section 4.21.4, second paragraph.

150. Page 5-1. Section 5.2.1. Regarding documentation in field notebooks, the statement is made:

Entries will be described in as much detail as practical.

More specific guidance than this is needed.

151. Page 5-2. Section 5.2.3. EPA's August 9, 1993, Comment 47 regarding a definition of chain-of-custody has not been addressed.

152. Page 5-3. Section 5.3.2. The Permit provides specific criteria which must be addressed in the RFI and included in the RFI report. This section needs to be revised to comply with these permit requirements.

153. Page 6-1. Section 6.0.

- a. After discussing contaminated groundwater, the statement is made that:

NSY can ensure that there is no future use of the surficial aquifer through the simple expedient of making a notation on its master engineering site plan. If required, a deed restriction on groundwater use could be required.

The Permit, Appendix B.II., paragraph 2 states regarding the RFI:

The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary.

While the RFI Work Plan should identify and evaluate a variety of potential remedies, it is inappropriate for the RFI Work Plan to single out a "no remedial action alternative" for a contaminated area. Further, based on the preliminary information currently available, EPA considers the proposed alternative unacceptable.

- b. The statement is made:

However, as discussed in Section 2, most conditions at NSY present little or no potential for significant impacts to ecological communities due to a nearly flat hydraulic gradient, low values of aquifer hydraulic conductivity, and soil properties which prevent or attenuate movement of constituents.

EPA considers this conclusion to be premature since it is based on information which is neither complete nor conclusive. It is inappropriate for the RFI Work Plan.

154. Page 7-1. Section 7.1. The statement is made that the:

Health and Safety Plan is written for field operations to be conducted at 27 of the 36 SWMUs located at the Charleston Naval Shipyard ---. The monitoring program is being conducted to assess the nature and extent of contamination (if present) at the site and to determine if follow up action is required to maintain compliance with environmental regulations.

- a. EPA expects the Health and Safety Plan to be written to include all RFI related activities including but not limited to field operations.
 - b. EPA expects the Health and Safety Plan to be written to include all RFI activities at the Base including but not limited to the 36 SWMUs identified in the Permit. Thus, it will include other SWMUs identified during the RFI process.
 - c. The purpose for the monitoring program is neither correct nor consistent with the objectives stated on Page 1-1, Section 1.1, Paragraph 1, of the RFI Work Plan.
155. Page 7-2. Section 7.2.1. No mention is made of Level A Personnel Protection and Safety Equipment (PPE). EPA is concerned that there is a probability for the need for Level A PPE when work is done in areas such as SWMUs 9, 14, 21, 22, and 25. Cyanide and chemical warfare agents are examples of contaminants potentially requiring Level A PPE.
156. Page 7-5. Section 7.3.1. Most of the information in this section is duplicative of Section 2. Ideally, this section should present in tabular form the contaminants of concern at each SWMU and the level of protection required.
157. Page 7-6. Table 7-1. Cyanide is identified as a contaminant of concern but only a modified Level D PPE is specified. This raises two points.
- a. Why is cyanide identified as a potential contaminant because of wastes stored at SWMU 21 but not at SWMUs where cyanide wastes were generated or disposed, e.g., SWMUs 9, 14, and 25?
 - b. Cyanide is acutely toxic by respiration, ingestion and dermal absorption. Level A PPE should be used wherever cyanide contamination is suspected.
158. Page 7-17. Table 7-2. This table would be more useful if each chemical were listed in alphabetical order.
159. Page 7-21. Section 7.5. Protective chaps to prevent snake bites should be included in the table mentioned for Section 7.3.1.
160. Page 7-22. Section 7.6. The General Rules of Conduct are appropriate but not as a part of the RFI Work Plan.
161. Page 7-23. Section 7.6.1. Second sentence. Table 7-3 is identical to Table 7-1. One is not needed.

162. Page 7-27. Table 7-4.

- a. Level A. Criteria for Use. Second Bullet. "Consult standard references---" is not prudent. The purpose of the Health and Safety Plan should be to provide the information that a worker needs without having to refer to other literature.
- b. Level A. Criteria for Use. Fourth Bullet. Something was left out here.
- c. Level A. Equipment. First Bullet. The first time an abbreviation is used, it should be defined.
- d. Level A. Equipment. Seventh Bullet. The word "work" is out of place or something got left out of this part of the sentence.
- e. Level C. Equipment. Personnel are told that they need a "respirator equipped with cartridges suitable for the hazard" but they are not told which cartridge is appropriate for specific hazards and where those cartridges are located. A table identifying SWMUs, hazards, and corresponding cartridges would be helpful.

163. Page 7-28.

- a. Level D. Criteria for Use. First Bullet. Level A should be included.
- b. Level. D. Equipment. Fourth and Fifth Bullet. ANSI standards are stated here but not for Levels A, B, or C. Why?

164. Page 7-32. Section 7.6.3. Last sentence. "Inclement" is misspelled.

165. Page 7-33. Section 7.6.3.1. The statement is made:

Disposable gloves and any disposable clothing will be disposed of in sealable bags and placed in a dumpster for disposal at a landfill.

If these are contaminated with hazardous waste, they should be disposed of as hazardous waste. Whether or not the items qualify as a RCRA regulated waste, contact with these items by other persons might involve legal liabilities.

166. Page 7-34. Section 7.6.3.1. Last paragraph. What is the procedure for disposing of these wastes?

167. Page. 7-34. Section 7.6.5. First sentence. A frequency for receiving these tests would be more informative than to say that personnel "have had" them.
168. Page 7-35. Section 7.6.5. What qualifications are acceptable for the physician?
169. Page. 7-35. Section 7.7. Lines 7 and 8. PPE should be capitalized.
170. Page 7-36. Section 7.8. For the purposes of the RFI Work Plan, the names of specific individuals here will be current for only a short period of time. An alternate method of identification which can be kept current is needed.
171. Page 7-40. Section 7.9. Same as preceding comment. Also, the telephone numbers for the Law Enforcement, Fire Department, and Ambulance Service are typed wrong.
172. Page 7-42. Section 7.9.2. Directions are provided for the nearest civilian hospital. The Base has a large hospital and a Branch Medical Clinic with a medical doctor who specializes in occupational medicine. Directions to the Base hospital and Branch Medical Clinic should also be provided. Civilians working at the Base and encountering an emergency may receive emergency treatment at the Base medical facilities.
173. Page 7-42. Section 7.10. Examples of forms should be included here.
174. Page 8-1. Section 8.0.
 - a. Applicable regulations should be identified.
 - b. The reference list should include the Risk Assessment Guidance for Superfund, EPA/540/1-89/022. December, 1989. (RAGS).
 - c. Last line. The word "Lead" should be capitalized.
 - d. The HSWA portion of the RCRA Permit should be included.
 - e. The listing "EPA Office of Toxic Substances Agency" is incorrect.

APPENDIX

1. APPENDIX C. The entire reference should be included here.

2. APPENDICES D-O. While this information needs to be documented, it contributes little to the RFI Work Plan. It is better contained in a report in a file than in the RFI Work Plan.
3. APPENDIX Q. This should be a part of the Project Management Plan.
4. APPENDIX R. While this information needs to be documented, it contributes little to the RFI Work Plan. It is better contained in a report in a file than in the RFI Work Plan.
5. APPENDIX S. E/A&H Corporate Health and Safety Manual. This Section presents a lot of important information, some of which is reiterated in Section 7 of the main part of the RFI Work Plan. However, Section 7 does not present as much or as well the information presented in Appendix S. Section 7 should be revised to provide only site specific information which benefits by, rather than duplicates, Appendix S.
6. APPENDIX T. A map is needed showing directions to the Naval Base Charleston Hospital and Branch Medical Clinic.
7. APPENDIX U. These forms should be included in Section 7 of the RFI Work Plan.