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December 28, 1998

Project Number 7752

Mr. James Shafer
Remedial Project Manager
Northern Division, Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop 82
Lester, Pennsylvania 19113

Reference: CLEAN Contract No. N62472-90-D-1298
Contract Task Order No. 0302 - Naval Station Newport, Newport Rhode Island

Subject: Responses to Comments, Derecktor Shipyard Draft FS Report

Dear Mr. Shafer:

Attached are responses to comments to the Draft Feasibility Study for Derecktor Shipyard at Naval Station Newport in Newport Rhode Island. Comments were provided by the USEPA on November 6, 1998, and comments were provided by the RIDEM on November 16, 1998.

In addition, a single (though substantial) comment was received from NOAA on October 26, 1998. This comment relayed a concern for the contaminant concentrations that would remain if Alternative 3B was selected and implemented at the site. Because the USEPA provided a similar comment, a separate attachment to this letter has not been prepared in response to NOAA's comment. NOAA is referred to the response to EPA's comment no. 54.

It would be advisable to hold a conference call to discuss these responses. If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Stephen S. Parker', written over a horizontal line.

Stephen S. Parker
Project Manager

SSP/
attachment

- c: M. Griffin, NETC (w/encl. - 4)
- K. Keckler, USEPA (w/encl. - 3)
- P. Kulpa, RIDEM (w/encl. - 4)
- J. Stump, Gannett Fleming (w/encl. - 2)
- K. Finkelstein, NOAA (w/encl. - 1)
- D. Egan, TAG (w/encl. - 1)
- Restoration Advisory Board (w/encl. - 4)
- J. Trepanowski/G. Glenn, B&RE (w/encl. - 1)
- File 7752-3.2 (w/o encl.)

ATTACHMENT A

Responses to Comments from the
U. S. Environmental Protection Agency:
Draft Feasibility Study Derecktor Shipyard
Comments Dated November 6, 1998

GENERAL COMMENTS:

1. The title of the FS should more appropriately be labeled "off-shore," since insufficient information is presented for the on-shore. The majority of the information presented and the development of alternatives all focus on the off-shore. Since the investigation and proposed removal actions for the on-shore remain incomplete, it is difficult to draw conclusions about the appropriateness of remedial alternatives evaluated for the on-shore.

Response: It is the Navy's belief that investigation work on the on shore portions of the site have been completed to the degree necessary for determining an appropriate course of action for the site. As the reviewers will recall, several areas of concern were identified in the on shore portions of the site, and these are currently being addressed through specific investigations and source removal actions. The PCB removal action is near completion as of the date of this response summary. The Navy will submit a removal action report after the removal actions are complete, and this removal action report will describe the material that was removed, where it was disposed, and the confirmation testing that was performed following the removal.

The investigations performed in the on shore areas did not reveal any contaminants that might be actionable under CERCLA, and therefore it is reasonable to provide closure on the CERCLA aspects of this portion of the site accordingly. The Navy does not see the advantage of advancing the on-shore portions of the site through additional steps of the RI and FS process since a solution has been agreed to.

2. A clearer justification for the basis for determining hot spots must be provided in the FS. After a laborious process of developing risk based preliminary remediation goals ("PRGs"), the FS arbitrarily multiplies the PRGs by a multiple of 5. While I recognize that this alternative may remove the most contaminated areas of the offshore, it is unclear how a protectiveness finding can be made for this alternative.

Response: The reviewer is referred to the response to the specific comments pertaining to this issue, namely Comment No. 54.

3. We understand that the revised PRG document will be incorporated into Appendix B. As you know, the PRGs are still undergoing regulatory review and may change as a result. Changes in PRGs may affect the evaluation of alternatives in the FS.

Response: The Navy has addressed comments to the Draft and Draft Final PRG document, and has submitted the Final PRG document under separate cover. This Final will appear as a portion of the final FS report.

4. In various sections of the report, references are made to "a 5-yr review" or 5-yr reviews over a 30 year period. With respect to the 30 year period, it should be explained that this time frame was used for the purposes of cost estimating only. Five year reviews are required as long as wastes above health based levels remain at the site. The text should be modified to reflect this requirement.

Response: The Navy concurs, and revisions will be made as necessary to clarify this point.

5. Executive Order 11990, Protection of Wetlands, is listed as an ARAR with an applicable status for Alternatives 2, 3, and 4 (Tables 5-5, 5-8, and 5-11, respectively). Under Alternative 2, the text (§5.2.2, page 5-19) states that "...This alternative includes actions to evaluate whether degradation or improvement to the subtidal wetlands is occurring...." Under Alternatives 3 and 4, the text (§5.2.3, page 5-31 and §5.2.4, page 5-36, respectively), states "...the land under the ocean at this site does not fit the definition of a wetland stated in the executive order." The text of the FS must be revised and must be consistent with the ARARs tables.

Response: The text in tables for alternative 2 was incorrect, and will be revised to be consistent with that used for alternatives 3 and 4.

6. Alternatives 3A, 3B, and 4 include dredging of contaminated sediments and the disposal of miscellaneous solid waste encountered during dredging (e.g., pipe, conduit, cable, etc.). It is expected that numerous shellfish would also be removed by dredging activities. The management of the shellfish should be discussed for these alternatives.

Response: If necessary, shellfish will be raked from the site prior to dredging to the extent possible and retrieved organisms will either replaced or placed at other locations as directed by agreements with the EPA and RIDEM.

7. The text, tables, and appendices should be reviewed to ensure that the volumes and costs for each alternative are consistent throughout the report. For example, the volume of estimated contaminated sediment to be dredged under Alternative 3A is stated as 33,700 cubic yards on page 4-11; however, Figure 4-2A shows a total of 33,561 cubic yards. Other examples are provided in Attachment A. Please undertake a detailed review of the report to ensure consistency throughout.

Response: The correct volume of sediment to be removed under alternative 3A is 33,651 cubic yards. This revision will be made throughout the revised FS report.

8. Some of the most highly contaminated off-shore areas are located adjacent to outfall locations and appears to indicate that the numerous outfalls (shown on Figures 1-3A and 1-3B) have significantly contributed to the sediment contamination. The results of the drainage system investigations performed during the SASE should be better summarized in the FS report. The presence of accumulated residue and debris within the pipe network leading to the outfalls, and building floor drains that are connected to the storm water drainage system should be identified in the FS with corresponding sample analysis, as available. Evaluation of whether accumulated residue and debris within the drainage system could be continuing sources of contamination to the off-shore environment should be included in the FS. Any on-shore work related to ensuring that future outfall discharges do not re-contaminate the off-shore environment (e.g., storm drain network sampling and cleaning, inspection of building blue prints, tracer studies, etc.) should be clearly specified in the FS.

Response: *Results from sampling of the outfalls performed in the spring of 1998 are presented in the Stillwater Basin Evaluation Report (TTNUS, December, 1998). This report will be summarized as appropriate in Section 1 of the revised FS report.*

9. Since investigations of drain lines from four of the 45 catch basins were inconclusive [in the open area south of Building 42 (CB42-1 through CB42-4)], please summarize activities that resulted after the SASE.

Response: *Test trenches will be excavated by Foster Wheeler Corp as a part of the on shore removal actions to determine any possible connection from Sump 42-5 to the outfalls discharging to Coddington Cove. Up to date information will be provided in the FS revisions as it becomes available.*

10. The ARARs tables in the FS are not correct. ARARs tables should be provided for each alternative retained for detailed analysis in the FS. Please replace the ARARs in the FS with the ARARs tables provided in Attachment B. The National Contingency Plan gives EPA the authority to develop ARARs for remedial activities.

Response: *The Navy concurs with the first element of the comment above, and separate ARARs tables will be provided for Alternatives 3A and 3B as requested in this and other comments described in this response summary.*

In regards to the second element of the comment, the reviewer is asked to refer to the specific comments on the ARARs tables, namely Comment No. 76 and those that follow. The Navy would like to hold a discussion at the earliest opportunity to review the need for evaluation of RCRA C regulations, wetlands regulations, flood plain regulations, and others in the context that they are presented in the EPA's proposed tables. The reviewers should consider the recent agreements made for the McAllister FS report as well as the site-specific conditions that are pertinent to the Coddington Cove sediments.

11. The Location-Specific ARAR and Action-Specific ARAR tables (Tables 5-8, 5-9, 5-11, and 5-12) should be reviewed for both accuracy and completeness. Several ARARs listed on Table 5-11 are Action-Specific and not Location-Specific (including Hazardous Waste Management Regulations and Clean Air Act Regulations). Several additional potential state ARARs should be evaluated for inclusion in the ARAR tables including Regulations for the RI Pollutant Discharge Elimination System, Rules and Regulations Pertaining to the Operation and Maintenance of Wastewater Treatment Facilities, and Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases.

Response: *As stated in the response to the previous comment, the Navy would like to hold a discussion at the earliest opportunity to review the need for evaluation of some of these ARARs. As described in the responses to specific comments, some of these revisions will be made, others require discussion prior to determining applicability.*

12. The costs quoted in the document do not appear to include potential cost of habitat mitigation measures that may be required. The FS must analyze required habitat restoration, including a discussion of the appropriateness of active restoration versus passive restoration and an allowance for these costs.

Response: *It is unclear why habitat restoration needs to be evaluated in the FS. It seems inappropriate to perform the restoration of an industrial site when the use of the property will remain industrial. The Navy concurs that special or protected*

habitats that may be found during pre-design work will require restoration if they are interrupted. However, a search for these habitats has not been done for all the areas that would be dredged. It would be prudent to hold a discussion with the regulatory parties regarding this issue before revisions reflecting the need for habitat mitigation are made.

13. If the limited dredging is implemented, will a shell fishing and lobstering ban be required around the docks where the dredging is to occur? Please clarify throughout the document. It is important to evaluate this under the Overall Protection of Human Health and the Environment criterion and explain whether the ban has been instituted for reasons other than contamination at Derecktor Shipyard. Add state shellfish/lobstering ban regulations as location-specific ARARs.

Response: If limited dredging is implemented, a shellfishing and lobstering ban will be required to meet the protectiveness requirements for human health under the subsistence fisherman scenario.

SPECIFIC COMMENTS

No. & Page

Comment

1. p. ES-4, ¶2 In the first sentence insert "in waters owned by the State of Rhode Island" after "Coddington Cove."

Response: This revision would result in poor grammatical context. Instead, a new second sentence will be added as follows: "The subtidal land and waters of Coddington Cove are owned by the State of Rhode Island."

Change the second sentence to: "In addition, a ban on the collection of shellfish and lobster would need to be imposed by the State of Rhode Island, with the Navy posting the areas to be restricted, including the north breakwater."

Response: The Navy concurs with this suggested revision, although striking the words "need to".

2. p. ES-4, ¶3 In the first sentence insert "annual monitoring to determine contaminant levels and" after "dredging) includes."

Response: A new second sentence will be added as follows: "Annual monitoring of sediment contaminant levels will be performed in areas where risk is elevated and dredging does not occur."

Insert new third and fourth sentences: "Annual monitoring is required to assess levels of contamination left in place after dredging or redistributed during the dredging activity. Habitat mitigation measures may be required to address dredging disturbance to protected habitats under applicable federal and state standards."

Response: Regarding the proposed third sentence, the reviewer is referred to the response to the first portion of this comment. Regarding the proposed fourth sentence, the reviewer is asked to refer to the response to general comment no. 12.

3. p. ES-4, ¶4 In the first sentence insert "annual monitoring to determine contaminant levels and" after "dredging) includes."

Response: The same revision will be made as described in the response to comment 2, above.

Insert new fourth and fifth sentences: "Annual monitoring is required to assess levels of contamination left in place after dredging or redistributed during the dredging activity. Habitat mitigation measures may be required to address dredging disturbance to protected habitats under applicable federal and state standards."

Response: The same revision will be made as described in the response to comment 2, above.

4. p. ES-5, ¶1 Insert a new second sentence: "Habitat mitigation measures may be required to address dredging disturbance to protected habitats under applicable federal and state standards."

Response: The same revision will be made as described in the response to comment 2.

5. p. 1-1, §1.0 The first sentence of the second paragraph states that the FS was developed to address both on-shore and off-shore contamination issues at the site. While the FS presents some information regarding the on-shore contamination, the on-shore contamination is being addressed by other means (*i.e.*, removal actions, additional studies concerning naturally occurring arsenic levels, *etc.*). The first sentence of the second paragraph needs to be revised.

Response: The reviewer is referred to the response to General Comment No. 1, above.

6. Figure 1-3A Three areas of potential concern are shown along the north waterfront. These areas of potential concern were identified during the preliminary assessment. The figure indicates that each of these areas are "fill areas along bulkhead." The SASE investigated the catch basins near these areas, but neither borings nor test pits were conducted in the fill areas. It does not appear that samples were collected from these fill areas. Comparing the location of these areas to Figure 2-1, the southern two areas are onshore from sample locations DSY-2 and DSY-28. The northern area is potentially onshore of DSY-27. DSY-2, DSY-27, and DSY-28 are among the most contaminated areas in the offshore environment. It should be clarified whether these "fill areas along bulkhead" were investigated post SASE or when they will be investigated.

Response: As the reviewer correctly states, these areas have not specifically been sampled as part of the SASE, or as any activity subsequent to that investigation. None of the reviewing agencies have suggested this need until now. This fill was supposedly placed to replace eroded material that was lost through damaged sheet piling. The distance of the offshore stations from the sheet piling and the fill areas, and historical knowledge of these fill areas indicates that there is likely to be no direct connection. It has always been assumed that contamination in the marine portions of the site is a result of practices on shore and along Pier 1, and this is reflected in the distribution of contaminants in the sediment. However, the Navy will consider the need for sampling the fill areas, and will advise the oversight parties of their determination.

7. p. 1-12, §1.3.3 It is stated that the hydraulic conductivity ranges from 0.48 feet per day (MW03) to 1.71 (MW12) feet per day. Please clarify whether these values are for the overburden or the bedrock.

Response: The conductivity ranges stated are for overburden wells. Conductivity was not measured in the bedrock well, MW05. This will be clarified in the revised FS report. The reader is referred to the SASE report for the site (Brown and Root Environmental, June 1997).

The water elevation in bedrock well MW05 was continually below the elevation of seawater during the water level survey in September 1996. Potential explanations should be provided for this anomalous occurrence.

Response: The low salinity of the water within the well indicates that the source of the water is from upgradient or from the unconsolidated material above the bedrock. Density of the stratum and a lack of observed water carrying fractures in the core indicates that the bedrock carries water poorly at this location. Since there is not a co-located overburden well, it cannot be determined conclusively that the bedrock is receiving water from the overburden, but this is likely to be the case.

8. p. 1-19, ¶1 A chronic water quality criterion for copper in salt water *does* exist. It just happens to be identical to the acute criterion (2.4 ug/l for total dissolved metals and 2.9 ug/l for total recoverable metals). Rhode Island water quality standards are also available and contain values for both acute and chronic exposures.

Response: The NOAA Screening reference guide for inorganics does not reflect this statement, however, the comment will be checked, and the appropriate correction will be made for the revised report.

9. p. 1-20, §1.4.1 It is implied that the PCB contamination in the off-shore area is from sources other than NETC/Derecktor Shipyard (*i.e.*, rivers that discharge to Narragansett Bay, atmospheric deposition, *etc.*). This implication should either be substantiated with relevant facts and references, or it should be removed from the report. Known PCB contaminated areas are present on the on-shore of Derecktor Shipyard. PCB transformers have also been purported to have been stored at Derecktor Shipyard.

Response: The paragraph states facts that are correct as written. However, the reviewer correctly states that PCBs are present in on-shore areas of the site, and this will be added to the paragraph to dissuade the reader from the interpreted implication that the contamination in marine sediment is derived from sources other than Derecktor Shipyard.

10(a). p. 1-23, §1.4.4 The purpose of this section is to summarize the nature and extent of contamination in the on-shore soil. Although the section summarizes the SASE findings, the section does not summarize the removal actions that have occurred. It is imperative that the current nature and extent of surface and subsurface soil contamination be adequately characterized in this FS if it is to include the on-shore.

Sump excavation activities and other removal actions completed on the on-shore need to be clearly identified in the text and with figures. The Derecktor Shipyard Building S42-1 Sump Pit Removal/PCB Soil

Removal Work Plan and completion of associated activities needs to be discussed. Activities planned for sump pits S42-2, S42-3, S42-4, and S42-5 need to be identified.

Response: Additional text will be added to bring the report up to date regarding the actions both on-shore (removal actions, sump excavations and sample collections) and off-shore (docking of the mothballed warships at Pier 1. These changes will be provided throughout Section 1 of the revised report.

11. p. 2-1, last ¶ Change the first sentence to: "ARARs are promulgated federal environmental and state environmental and facility siting requirements..."

Response: The Navy concurs and the requested revision will be made.

12. p. 2-2, ¶1 Under both Applicable Requirements and Relevant and Appropriate Requirements change "facility citing" to "facility siting."

Response: This revision will be made as noted throughout the revised report.

13. p. 2-4, §2.2.1 The last sentence states that this section presents each medium of concern for this FS and includes marine sediment, shellfish, and terrestrial soils. However, the subsections only present discussions of marine sediment and terrestrial soils. While it appears that the shellfish medium of concern has been merged with the marine sediment medium of concern, this section should either be modified to include an independent discussion of the shellfish medium of concern or shellfish should be identified as an indirect medium of concern.

Response: The reviewer correctly indicated that the shellfish is an indirect medium of concern, based on the assumption that the shellfish are continuing to be affected by the contaminants in the sediments. This will be clarified in Section 2.2.1 of the revised report.

14. p. 2-4, §2.2.1.1 The reference to Section 1.7 in the fourth paragraph should be changed to Section 1.6.2.

Response: This correction will be made as noted in the revised report.

15(a). p. 2-5, §2.2.1.2 Although this section discusses risks to humans as a result of exposure to PCBs and arsenic in terrestrial soils, is not complete. Section 1.4.4 of this FS states TPH was detected in surface soils in the North Waterfront area at concentrations up to 4900 mg/kg and in the Central Shipyard area up to 2000J mg/kg. The RIDEM Direct Exposure Criteria for TPH is 500 ppm (residential) and 2500 ppm (industrial/commercial). The text should explain to the reader why TPH was not assessed in the preliminary risk assessment and whether it poses an unacceptable risk. Elevated levels of PAHs (North Waterfront and Central Shipyard areas) and high concentrations of pesticides (Central Shipyard area) were detected in the surface soils. The text should explain to the reader the results of the preliminary risk assessment and whether PAHs pose an unacceptable risk. All of the contaminants of potential concern identified in the SASE preliminary human health risk assessment should be identified in this summary section of the FS.

Response: *Because there is no specific toxicity information that can be used for TPH, it was not specifically evaluated in the on-shore risk evaluations. However, individual PAHs were evaluated, and no elevated risk was noted for the North waterfront surface soils, where the high level of TPH (4900 mg/kg) was detected. At this location, Benzo(a)pyrene was detected at 530 ug/kg, benzo(a)anthracene was detected at 605 ug/kg, benzo(b)fluoranthene was detected at 805 ug/kg, benzo(k)fluoranthene was detected at 1030 ug/kg, and indeno123cd perylene was detected at 380 ug/kg. These concentrations were used in a maximum exposure scenario for various receptors. The PAH concentrations used in the risk evaluation did not contribute significantly to estimated risk which were below EPA Target ranges for all receptors, with the exception of residential use of the property.*

This text will be added to the FS as appropriate.

15(b). Additional detail regarding the removal action is necessary in order to drop terrestrial soils as a medium of concern. At a minimum, the locations of contaminants that were identified as yielding unacceptable risk and the locations that are slated for removal actions need to be pictorially presented and discussed in the text. The schedule for the removal action completion must be included as well.

Response: *This additional detail shall be presented in conjunction with the update of actions performed at the site by the Navy. A figure will be added to Section 1 describing the soil removal areas, and available information regarding completion of the removal action will be included. The reader should be advised that these changes will be made within section 1.4 of the revised report, and this section 2.2.1.1 will only reference those discussions.*

16(a). p. 2-9, Table 2-1 The potential and recommended PRGs for aquatic ecological receptors (resuspended sediment) for PCBs are listed as 530 mg/kg and 1060 mg/kg, respectively. The units of mg/kg should be corrected to ug/kg.

Response: *This error will be corrected.*

16(b) Why is the "recommended" aquatic-bedded sediment PRG for total PCBs presented in Table 2-1 different than what was presented in the most recent PRG development document?

Response: *The PRGs described in this report are those derived after regulatory comments were addressed as summarized in the October 26, 1998 response summary. The Draft FS report was provided prior to the completion of the final PRG document. The version referred to in the comment above is the Draft Final. The PRGs in the Draft FS have again been revised following final comments and Final PRGs are reflected in the Final PRG document, dated November 1998.*

16(c) Typically only one PRG per contaminant is presented in an FS. Therefore, presentation of both a "potential" and a "recommended" PRG seem to serve no purpose. The development of the PRGs will be included as an appendix to the FS. To clarify the text, please present only one PRG per contaminant in the body of the FS.

Response: *The Navy concurs with this approach. Only the PRGs used for development of alternatives and costs will be stated in Table 2-1.*

17. p. 2-12, ¶5 Regarding the second sentence, elsewhere in the report it discusses how the piers are used by divers collecting lobsters. The area around the piers should at least be considered viable lobster harvesting areas (since area lobsters are likely attracted to the piers for cover and then disperse throughout the area to forage).

Response: *The reviewer should be clear that the breakwater (bounding the north side of Coddington Cove) is accessed by divers collecting lobsters. The Piers are not accessible by divers. The Piers are not viable harvesting areas because of the ships that are docked (Pier 1) and active (Pier 2) in these areas.*

18(a). p. 2-21, §2.3 Only four [DSY-27 (V9), DSY-28, and DSY-29 and DSY-30] of the eight stations presented in Table 2-3 were sampled below a depth of 0.5 feet, and three of these exhibited contamination below 0.5 feet. While the expected depth of contamination at the other four stations is shown as 0.5 feet in Table 2-3, it is very likely that the contamination extends below this depth at these stations. The assumed depth of contamination can greatly impact the quantity of sediment estimated to exceed PRGs. This section should emphasize the uncertainty of the sediment volume calculations.

Response: *The Navy concurs, and the text will be revised as noted.*

18(b) In addition, it is stated that the detailed assumptions and calculations of area and volume for each area are presented in Appendix C. There are no assumptions or calculations listed in Appendix C. Please correct.

Response: *The Navy concurs, and the text will be revised as noted.*

19. p. 3-4, ¶3 Change the second and third sentences to: "Since the wastes in the bay were disposed (without regulatory approval) by a generator of RCRA C waste, the contaminated marine sediments will need to be handled as RCRA C hazardous waste. However, the waste may be tested for hazardous characteristics under applicable federal and state standards. Any waste tested and determined not to be hazardous may be disposed in a RCRA Subtitle D solid waste landfill without pretreatment. Because the available data regarding contaminant concentrations at depth is limited, and sediments have not been sampled for all disposal parameters, a contingency has been included for treating part of the materials as hazardous waste."

Response: *While RCRA waste may have been discharged to Coddington Cove in the past, the waste does not currently exist in its original form. Studies show that contaminants are currently present in marine sediment. Although there are allowances in the FS for managing some of the sediment as RCRA C material, these marine sediments are not, by definition, RCRA regulated waste.*

The Navy will sample marine sediments for RCRA characteristic hazardous waste during removal for handling and disposal purposes. If any sediment is found to exhibit RCRA C characteristics, RCRA cleanup standards will be applied as described. However, it has not been our experience that it is EPA policy to make such determinations of media based on origin of contaminants.

20. p. 3-12, Table 3-2 While Access Restrictions were retained under Limited Action in Table 3-1, Access Restrictions were not included in Table 3-2. Please correct.

Response: The access restrictions were included in Table 3-2 as part of the institutional controls. The Navy concurs that this approach is confusing and the table will be revised.

21. p. 3-17, bullet 1 Insert after "Implementability:": The Navy will monitor and maintain the buoys, fences, and signs in perpetuity. In addition, the NETC Police...."

Response: The intent of this revision will be met, although since the context is a discussion of what would be required, the gramatics of the sentence will be modified.

22. p. 3-17, bullet 2 Insert after "costs for placement": "and long-term maintenance." Ensure that long-term maintenance is included in the cost estimate.

Response: The Navy concurs, and this revision will be made. Long term maintenance under this alternative is currently included in the cost estimates presented in the appendicies.

23. pp. 3-19 to 3-25, §3.3.5 Identify and evaluate dredging equipment and techniques that can generate smaller quantities of wastewater. Approximate the volume of wastewater that would likely be generated by dredging and excavation. Identify technologies and constraints on maintaining high solid content dredged materials while reducing the quantity of wastewater requiring treatment.

Response: The Navy concurs, and available information will be added to this section as appropriate.

24. p. 3-22, bullet 2 In the first sentence change "general marine dredging" to "dredging hazardous marine materials."

Response: The Navy concurs with the intent, although the material is not known to be hazardous. The sentence will read: "dredging of contaminated sediment".

25. p. 3-22, bullet 3 There may be operation and maintenance costs to any habitat mitigation measures that may be required under applicable federal and state standards.

Response: The Navy would like to discuss the need for habitat mitigation in this area as discussed in the response to general comment no. 12.

26. p. 3-24, bullet 2 Make same text change as for page 3-22, bullet 2.

Response: Refer to the response to comment no. 24, above.

27. p. 3-25, bullet 1 Make same text change as for page 3-22, bullet 3.

Response: Refer to the response to comment no. 25, above.

28. p. 3-25, §3.3.5.2 It is stated in the bullet on this page that the capital costs for hydraulic dredging of contaminated materials are "moderate." This should be changed to "moderate to high" to be consistent with Table 3-2 that lists capital costs for both dredging methods as "moderate to high."

Response: The Navy concurs, and this revision will be made.

29(a). p. 3-25, ¶2 In the second sentence change "Disposal media" to "Hazardous materials."

Response: Refer to the response to comment no. 19, above.

29(b). Insert a new third sentence: "Hazardous materials may be tested to determine if they are characteristically hazardous. If they are not hazardous, they may be disposed in a RCRA Subtitle D solid waste facility. Contaminated debris may also be decontaminated, to allow for reuse on the site or disposal as solid waste."

Response: Refer to the response to comment no. 19, above.

30. p. 3-25, ¶3 In the first sentence insert "hazardous" before "materials handling."

Response: Refer to the response to comment no. 19, above.

31. pp. 3-26 to 3-32, §3.3.6 Expand the discussion of dewatering activities and treatment/disposal of residual water. Identify what clarifier agent(s) is likely to be used (e.g., alum) to remove inorganics by metal precipitation. Estimate the total mass of the agent(s) that might be needed to treat the wastewater, and identify any water quality issues related to use of the agent(s).

Response: The Navy concurs, and available information will be added to this section as appropriate.

Concerning treatment/disposal of residual water, identify conditions where suspended particle removal efficiencies may be significantly reduced (e.g., may depend on particle sizes, specific gravity of wastewater). Identify any treatment volume constraints that might exist (e.g., limitations on pre-treatment storage volumes, option A versus B) and may be a logistic bottleneck in the treatment of residual water.

Response: The Navy concurs, and available information will be added to this section as appropriate.

32. p. 3-27, §3.3.6.2 The disposal of residual water from dewatering at a POTW is considered a "viable option." Given the nature of the residual water (i.e., high salinity), it is not evident that it would be acceptable to a POTW. Please specify whether the local POTW was contacted regarding the acceptability of the residual water. Initial inquiries should be made before identifying this method of disposal as a viable option.

Response: The reviewer is correct in assuming that treatment at the POTW could probably not occur through the existing system as implied by the text. This entry will be struck from the report.

33. p. 3-28, ¶1 In the last sentence change "may be required" to "will be required."
- Response: The Navy concurs, and this revision will be made.*
34. p. 3-28, ¶2 Change the first sentence to: "It is anticipated that once the marine sediment has been tested for hazardous characteristics, approximately 80% of the material may be disposed in a RCRA Subtitle D landfill following dewatering."
- Response: The Navy concurs, and this revision will be made.*
- In the second sentence change "However, because of uncertainties in characterizing the sediment contamination and sample frequency, it was assumed that a small volume (approximately 20 percent)" to "It is assumed that the rest of the material is tested as hazardous (approximately 20 percent) and."
- Response: The Navy concurs, and the intent of this revision will be made as follows: "It is assumed that the remainder of the sediment (estimated to be 20%) will exhibit RCRA C characteristics and..."*
35. p. 3-29, §3.3.6.3 In the first bullet on this page, it is stated that RCRA Subtitle D and RCRA Subtitle C facilities are unlikely to be able to accept the volume of sediment anticipated. This is inconsistent with the remainder of the document that suggests that RCRA Subtitle C facilities are available to accept the anticipated volume (e.g., Table 3-2, page 3-13) for treatment and/or disposal. This discrepancy should be corrected.
- Response: The availability of space for the volumes specified will be difficult to find, although it is assumed throughout this process that the space will be found somewhere. This will be clarified throughout the revised document.*
36. p. 3-29, ¶5 Change the first sentence to "It is anticipated that once the marine sediment has been tested for hazardous characteristics, approximately 80% of the material may be disposed in a RCRA Subtitle D landfill following dewatering."
- Response: The Navy concurs, and this revision will be made.*
37. p. 3-30, ¶1 In the first sentence insert "characteristic" after "the material is classified as." Since the source of the waste is from a RCRA C generator, all the material is hazardous waste until tested otherwise.
- Response: The text will be revised: "Application of this calculation does not define or classify material as characteristic hazardous waste or not, it only provides an indication of whether the material should be tested. However, it is used in this report as an indication of how much sediment may be characteristic RCRA C waste."*
- The Navy does not believe that the marine sediment is RCRA listed waste. Refer also to the response to Comment No. 19.*
38. p. 3-30, §3.3.7 It is stated that the TCLP 20 times "rule of thumb" is typically used for soils and is therefore a more conservative rule with respect to sediment. The "rule of thumb" was developed for generators of hazardous waste as

a cost-effective way to help the generator determine whether it is necessary to run the TCLP on a solid waste. The rule therefore applies to a wide range of solid waste types and the suggestion that it is more conservative for sediment should be removed from the report.

Response: The requested revision will be made.

39(a). p. 3-30, §3.3.7.1 It is not apparent that on-base treatment (solidification/stabilization) is a cost-effective option relative to off-base treatment. A treatability study would be necessary for on-base treatment to determine the best volumes/combinations of stabilization agents to ensure that the treatment is effective for the site-specific waste. Transportation costs would also increase under the on-base treatment option owing to bulking from the addition of stabilization/solidification agents.

Response: While the Navy concurs with the fact that these costs are going to be high, costs for transportation of wet sediment is also high. This may have to be done by barge, limiting the number of locations where material could be taken. Then there may still be a cost for transportation of bulking materials. The Navy also concurs that a treatability study would be required at any location. This will be clarified in the revised report.

39(b) The capital costs for on-base treatment are listed as low to moderate and the O&M costs are listed as low. For off-base treatment, capital costs are listed as low and there are no O&M costs, suggesting that off-base treatment may be more cost-effective.

Response: This is actually an error in the Draft Report. It is anticipated that the cost for on and off base treatment would be similar. The Draft Final FS report will be revised to reflect this point.

39(c) Section 4.0 discusses "stabilization" for the purpose of removing excess liquid only (not for the purpose of immobilizing compounds as discussed in Section 3.0). In addition, Table 3-3 (Page 3-33) appears to differentiate the purpose of stabilization for on-base treatment ("stabilization/solidification for bulking" where the word "bulking" appears to refer to the removal of excess liquid) and off-base treatment ("stabilization/solidification for treatment of metals"). If the intent of adding agents to the waste material is simply to remove excess liquid, then this should not be referred to as stabilization/solidification. The text and tables in Sections 3.0 and 4.0, and the associated cost estimates in Appendix D, should be modified to clarify these issues. Please limit the use of the term stabilization/solidification to its traditional meaning.

Response: The Navy concurs, and these revisions will be made.

40. p. 3-32, §3.3.7.2 The statement "No sediment removed from the off-shore area is anticipated to require any off-base treatment" is confusing given that the previous bullet states that 20% of the dredged material (contaminated sediment) is expected to require treatment at a RCRA Subtitle C facility. This discrepancy should be corrected.

Response: The Navy concurs, and this revision will be made.

42(a). p. 3-33, Tab 3-3 Process Option for Removal needs to include a bullet for habitat mitigation.

Response: *The Navy would like to discuss the need for habitat mitigation in this area as discussed in the response to general comment no. 12.*

42(b) Process Option for Disposal needs to include testing for characteristic hazardous waste and possible decontamination of debris. Off-Base RCRA Subtitle C should be "landfill or TSDF"

Response: *The Navy concurs, and this revision will be made.*

42(c) Technology for Treatment - There was no discussion in the text of Thermal/Physical/Chemical/Biological Treatment.

Response: *The Navy concurs, and this revision will be made.*

43. p. 4-3, Table 4-1 Under the column "Receptor Addressed," aquatic ecological receptors should not be listed for the limited action alternative since there will be no reduction of ecological risk from this alternative. Under the column of "Key Components," the references to "Institutional Controls - lobster fishing ban" should be changed to "Institutional Controls - shellfish and lobster fishing ban" to be consistent with the text of the report.

Response: *Regarding the ecological receptors, the Navy concurs that the limited action alternative does not provide active reduction of risk to the receptors, however, it does provide some amount of protection by identifying where the exposures to COCs at concentrations above the PRGs exist, and documenting them over time. Long-term monitoring has been selected by the EPA at many sites as a remedy, with five year reviews. This alternative is anticipated to be selected for McAllister Point Off-Shore Areas. The monitoring would be performed to monitor contaminant levels to assess compliance with RAOs. Therefore, the Navy proposes to leave this portion of the table as is.*

Regarding the comment on "Key Components", the Navy concurs, and this revision will be made.

44. p. 4-3, Table 4-1 Limited Action - Key Components: Add "shellfish" to "lobster fishing ban."

Response: *The Navy concurs, and this revision will be made.*

Limited Dredging, Hot Spot Dredging, and Dredging and Disposal - Key Components: Add "Testing for hazardous characteristics," "Possible decontamination of contaminated debris," and "Possible solidification of sediment."

Response: *The Navy concurs, and this revision will be made.*

Limited Dredging - Receptor addressed: Will there still be a risk from shellfish ingestion after the limited dredging?

Response: *There could be a risk from ingestion of shellfish for the subsistence fisherman at areas 18 and 30 unless the institutional controls are invoked. Alternative 3A*

includes both limited dredging to address ecological receptors and institutional controls to address human receptors.

45. p. 4-4, ¶1 Remove the last sentence. Technical limitations and costs are not grounds for implementing an alternative that does not meet ARARs unless the limited criteria for a waiver are met.

Response: The Navy concurs and the requested revision will be made.

46. p. 4-4, ¶3 Replace all but the first sentence with: "Since the wastes in the bay were disposed (without regulatory approval) by a generator of RCRA C waste, the contaminated marine sediments must be handled as RCRA C hazardous waste. However, the waste may be tested for hazardous characteristics under applicable federal and state standards. Any waste tested and determined not to be hazardous may be disposed in a RCRA Subtitle D solid waste landfill without pretreatment. Because the available data regarding contaminant concentrations at depth is limited, and sediments have not been sampled for all disposal parameters, a contingency has been included for treating part of the materials as hazardous waste."

Response: The reviewer is referred to the response to comment no. 19.

47. p. 4-4, bullet 3 Split this into separate descriptions of Alternatives 3A and 3B. For the limited removal, will institutional controls and access restrictions still be required for the inshore area to be dredged?

Response: Institutional controls are included in both alternatives 3A and 3B as described in Table 4-1. This will be clarified in the revised report.

48. p. 4-6, ¶1 In the second sentence insert "to enforce the ban and" after "RIDEM's cooperation would be needed."

Response: The Navy concurs, and this revision will be made.

49. p. 4-8, ¶3 Remove this paragraph since this alternative will not meet ARARs.

Response: It is the Navy's understanding that Alternative 2 is viable, and should be carried through the Feasibility Study. As stated previously, long term monitoring has been selected as a remedy for sites where cost or environmental damage stemming from active cleanup is prohibitive. The subject text states facts that correctly apply to the context of the alternative. The Navy would like to discuss the effectiveness of the alternatives in light of this and similar comments.

50. p. 4-8, §4.2.2 The last sentence of paragraph 1 states that long-term monitoring would include elutriate chemistry tests (PCBs, PAHs, metals). However, the cost estimate for Alternative 2 in Appendix D does not include elutriate testing. This discrepancy should be corrected.

Response: The Navy concurs, and this revision will be made.

51. p. 4-8, §4.2.3 Separate the discussions of Alternatives 3A and 3B.

Response: The Navy concurs, and this revision will be made in accordance with this and other comments described in this response summary.

52. p. 4-9, bullets Add "Testing for hazardous characteristics," "Possible decontamination of contaminated debris," and "Treatment of discharge water, if necessary."

Response: The Navy concurs, and this revision will be made.

53. p. 4-9, ¶5 Clarify whether a shellfish/lobstering ban would still be required under the limited dredging (3A) alternative.

Response: As described in Table 4-1 the institutional controls would be required for both alternatives 3A and 3B. This will be clarified in the Draft Final FS report.

54. p. 4-9, §4.2.3 Alternative 3B involves the removal and off-site disposal of sediments ("hot spots") with COCs in excess of five times the recommended ecological PRGs. The basis/justification for the factor of five should be provided.

Response: The basis for this factor is simply the lowest multiplier that would allow an effective reduction in the amount of sediment requiring removal. Thus the name was given: hot spot dredging. This action would remove the sediment where concentrations of COCs are highest.

There is no threshold that is crossed at that level apart from the obvious: The concentrations of COCs in the sediment exceeds the Recommended PRGs) by 5x. This limitation is applicable to high molecular weight hydrocarbon exposure to aquatic receptors from bedded sediments. Other contaminants and other receptors only exceed the Recommended PRGs by a factor of 1 or 2. However, the Navy would add that the RPRGs are developed from risk values and actionable risk vs. non-actionable risk is separated by orders of magnitude. In determining a risk based action level, a change to one half an order of magnitude is relatively small.

This issue should be discussed to determine the usefulness in retaining this alternative in the future revisions of the FS report.

55. p. 4-11, ¶3 In the second sentence insert "tested for hazardous characteristics," after "transported to Pier 1,."

Response: The Navy concurs, and this revision will be made.

56. p. 4-11, §4.2.3 The fourth paragraph states that disposal contractors suggest using fly ash to absorb remaining liquids in the sediment after dewatering. Care should be taken if fly ash is used because it can contain elevated levels of metals that, in addition to the levels of metals present in the sediment, may cause problems when the waste is analyzed (TCLP tested) for off-site disposal.

Response: Material brought to the site for mixing with the sediment will be tested prior to use. Testing parameters will include RCRA C waste characteristics, as well as any additional information needed by the final receiving facility for disposal. Testing results will be provided to the regulatory authorities for approval prior to allowing the material on site.

57. p. 4-11, ¶4 In the first sentence insert "in a RCRA Subtitle C or D facility" after "prior to disposal."

Response: *The Navy concurs, and this revision will be made.*

Insert new third sentences: "The separated liquid will be treated, if necessary, before discharge back into the Bay."

Response: *The Navy concurs, and this revision will be made.*

In the current third sentence change "gravity draining in addition to stabilization" to "gravity draining. In addition, liquid remaining in the sediments will be stabilized."

Response: *The Navy concurs, and this revision will be made.*

At the end of the last sentence add: ", which will meet applicable waste handling standards."

Response: *The Navy concurs, and this revision will be made.*

58. p. 4-13, ¶1 Replace the second and third sentences with: "Since the wastes in the bay were disposed (without regulatory approval) by a generator of RCRA C waste, the contaminated marine sediments will need to be handled as RCRA C hazardous waste. However, the waste may be tested for hazardous characteristics under applicable federal and state standards. Any waste tested and determined not to be hazardous may be disposed in a RCRA Subtitle D solid waste landfill without pretreatment. Because the available data regarding contaminant concentrations at depth is limited, and sediments have not been sampled for all disposal parameters, a contingency has been included for treating part of the materials as hazardous waste."

In the third sentence change "Therefore, it is" to "It is."

Response: *The reviewer is referred to the response to comment no. 19.*

59. p. 4-15, ¶1 Add a new last sentence: "Mitigation measures to address alteration of protected habitats may be required under federal and state standards."

Response: *The Navy would like to discuss the need for habitat mitigation in this area as discussed in the response to general comment no. 12.*

60. p. 4-15, bullets Add "Testing for hazardous characteristics" and "Possible decontamination of contaminated debris."

Response: *The Navy concurs, and this revision will be made.*

61. p. 4-15, §4.2.4 The area to be covered in the Pre-Design Investigation (PDI) under Alternative 4 is 1,806,720 square feet as shown in Figure 4-3. Establishing a grid pattern of 200 feet in this area would result in a minimum of 45 stations. However, the second paragraph of this section states that this approach would result in approximately 34 boring stations. The calculation for the number of boring stations should be reviewed and the text (and cost estimate in Appendix D) should be corrected.

Response: *The Navy concurs, and this revision will be made.*

Add "and bulking" after "Dewatering excavated sediments."

Response: *The Navy concurs, and this revision will be made.*

62. p. 4-17, ¶3 In the second sentence insert "tested for hazardous characteristics," after "transported to Pier 1,."

Response: *The Navy concurs, and this revision will be made.*

63. p. 4-17, ¶4 In the first sentence insert "in a RCRA Subtitle C or D facility" after "prior to disposal."

Response: *The Navy concurs, and this revision will be made.*

Insert new third sentences: "The separated liquid will be treated, if necessary, before discharge back into the Bay."

Response: *The Navy concurs, and this revision will be made.*

In the current third sentence change "gravity draining in addition to stabilization" to "gravity draining. In addition, liquid remaining in the sediments will be stabilized."

Response: *The Navy concurs, and this revision will be made.*

At the end of the current fourth sentence add: ", which will meet applicable waste handling standards."

Response: *The Navy concurs, and this revision will be made.*

64. p. 4-17, ¶5 & p. 4-18, ¶1 Replace the second and third sentences with: "Since the wastes in the Bay were disposed (without regulatory approval) by a generator of RCRA C waste, the contaminated marine sediments will need to be handled as RCRA C hazardous waste. However, the waste may be tested for hazardous characteristics under applicable federal and state standards. Any waste tested and determined not to be hazardous may be disposed in a RCRA Subtitle D solid waste landfill without pretreatment. Because the available data regarding contaminant concentrations at depth is limited, and sediments have not been sampled for all disposal parameters, a contingency has been included for treating part of the materials as hazardous waste."

In the third sentence change "Therefore, it is" to "It is."

Response: *The reviewer is referred to the response to comment no. 19.*

65. p. 4-17, §4.2.4 The reference to Table 2-4 on this page should be changed to Table 2-3. If Table 2-4 is the correct reference, it was missing from the document and was therefore not reviewed. Please clarify.

Response: *The Navy concurs, the correct reference is Table 2-3. This revision will be made.*

66. p. 4-18, ¶4 Add a new last sentence: "Mitigation measures to address alteration of protected habitats may be required under federal and state standards."

Response: *The Navy would like to discuss the need for habitat mitigation in this area as discussed in the response to general comment no. 12.*

67. p. 4-19, ¶2 Remove the second sentence since Alternatives 1, 2 and 3B do not meet ARARs.

Response: *It is the Navy's understanding that these alternatives are viable, and should be carried through the Feasibility Study. The Navy would like to discuss the effectiveness of the alternatives in light of this and similar comments.*

68. p. 5-3, ¶1 In the second sentence insert "monitoring and" after "requiring sediment."

Response: *The Navy concurs, and this revision will be made.*

69. p. 5-6, ¶5 In the first sentence change "Four" to "Five." Alternatives 3A and 3B should be analyzed separately.

Response: *The Navy concurs, and this revision will be made.*

70. p. 5-8, ¶4 Replace the first sentence with: "Section 304 of the federal Clean Water Act and the Rhode Island Water Pollution Control standards are chemical-specific ARARs used to develop sediment PRGs. Since Alternative NS/ER-1 does not address sediment contamination the Alternative does not satisfy these ARARs (Table 5.1). In addition several non-promulgated criteria (TBCs) were used in developing sediment PRGs."

Remove the third sentence.

Response: *The text of the comment indicates that it was made in reference to the report for McAllister. There is no NS/ER-1 alternative in this report. However, the intent of the comment does apply to the paragraph cited.*

The Navy concurs that water pollution control standards were one of many groups of criteria used to develop PRGs. However, it is our understanding that it has not been determined by EPA and RIDEM counsel as to whether these criteria, or AWQC and RI Water quality criteria should be considered ARARs that apply to sediment and/or porewater. This issue needs to be determined before the revisions can be made as requested. In addition, the third sentence is correct, and will remain unless a justification is provided for deletion.

71. p. 5-9, Table 5-1 Clean Water Act, Section 304 and state Water Pollution Control are promulgated and are therefore "Relevant and Appropriate" and under Action to be Taken. Change "The criteria cannot be directly applied to sediment" to "Since contaminated sediment would be left in place the no-action alternative does not meet these standards."

Response: *The Navy would like to discuss the reviewers determination that these regulations are relevant and appropriate. As noted in the response to the previous comment, it is the Navy's opinion that water quality criteria do not apply directly to sediment or porewater in sediment.*

72. p. 5-12, last ¶ In the first sentence change "by effectively" to "only indirectly through institutional controls by;" insert "and lobster" after "shellfish;" and change "Section 2, and that" to "Section 2. Shellfish and lobster."

Response: The Navy agrees to revise the text to reflect the intent of this comment.

73. p. 5-13, ¶1 In the last sentence insert "and lobstering" after "shell fishing."

Response: The Navy concurs and this change will be made.

74. p. 5-13, last ¶ Replace the sentence with "Section 304 of the federal Clean Water Act and the Rhode Island Water Pollution Control standards are chemical-specific ARARs used to develop sediment PRGs. Since Alternative 2 does not address sediment contamination the Alternative does not satisfy these ARARs (Table 5.1). In addition several non-promulgated criteria (TBCs) were used in developing sediment PRGs."

Response: The reviewer is asked to please refer to the responses to comments No. 70 and 71.

75. p. 5-14, Table 5-4 Clean Water Act, Section 304 and state Water Pollution Control are promulgated and are therefore "Relevant and Appropriate" and under Action to be Taken. Change "The criteria cannot be directly applied to sediment" to "Since contaminated sediment would be left in place the no-action alternative does not meet these standards."

Response: The reviewer is asked to please refer to the responses to comments No. 70 and 71.

76. p. 5-15, Table 5-5 Use attached revised Table 5-5.

Response: The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report. The tables provided by the EPA use citations of federal wetlands regulations, flood plain regulations and RCRA regulations that the Navy believes are inappropriate for the nature and location of the sediments that are affected by the different alternatives. This location is dissimilar to McAllister Nearshore areas in that none of the affected sediments are present in the intertidal areas, and thus it is not believed that flood plain regulations nor the wetlands regulations apply. These issues should be discussed prior to moving forward with this effort so that unnecessary costs and legal implications are not brought into play inappropriately.

77. p. 5-18, Table 5-6 Use attached revised Table 5-6.

Response: The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.

78(a). p. 5-19, ¶1 In the first sentence change "could include wetlands," to "includes wetlands, flood plain."

Response: It is the Navy's understanding that the wetland regulations were promulgated to protect habitat and natural resource areas as well as (in the context of the comment above) flood storage capacity. The reviewer is requesting that the area be considered a flood plain, and that the site has some amount of flood storage capacity. Since the site is actually land under ocean, there is no material flood

storage capacity. It is not clear to the Navy what useful purpose making this change would serve. The text would imply that the area is somehow protected for flood storage or wetland resources.

The reviewer is also asked to refer to the response to Comment No. 76 above.

78(b). Change the second sentence to "Leaving waste in place fails to address federal requirements to protect wetland and flood plain resources. The actions of long-term monitoring, installing and maintaining buoys, and instituting an access..."

Response: The reviewer is asked to please refer to the response to General Comment No. 12 above.

78(c). Replace the third sentence with: "Leaving waste in place violates federal and state action-specific hazardous waste provisions."

Response: The reviewer is asked to please refer to the responses to comment 19.

79. p. 5-19, ¶2 Delete the second sentence since these pertain to location-specific standards.

Response: This comment indicates that action specific ARARs do not apply to coordination with state and federal agencies under the limited action alternative. This is not the Navy's understanding of the Action specific ARARs. The Navy would prefer to discuss this issue with the reviewer prior to making this change.

80. p. 5-20, ¶3 Add a new last sentence: "The current shell fishing ban would need to be extended to lobstering."

Response: The Navy concurs and this change will be made.

81. p. 5-21, §5.2.3 Split this discussion into separate discussions for Alternatives 3A and 3B. As an example, if the limited dredging removes all of the contamination from the shoreline area, than the shell fishing and lobstering ban would not be needed. However, under the hot-spot excavation the ban will need to be retained.

Response: The Navy concurs and this change will be made. However, the reviewers interpretation is incorrect: Under both limited dredging options the shellfishing and lobstering ban would be required to protect human (subsistence fisherman) receptors.

82. p. 5-21, ¶5 In the first sentence does the statement only refer to access restrictions to the shoreline? No fishing restriction has been proposed in the cove (via boat access).

Response: The reviewers interpretation is incorrect: Under both limited dredging options the shellfishing and lobstering ban would be required to protect human (subsistence fisherman) receptors. Access from both shoreline and seaward boundaries of the site would be restricted as described on Page 4-10 paragraph 2, which describes the elements of the alternative.

83. p. 5-21, ¶6 In the first sentence insert "testing to determine its hazardous characteristics," after "removing some sediment."

Response: *The Navy concurs, and this revision will be made.*

84. p. 5-22, ¶3 Change the paragraph to: "Mitigation measures to address alteration of protected habitats in or adjacent to the Site may be required under federal and state standards. However, most of the effected areas are with a designated port and have been previously dredged or altered by port construction and maintenance."

Response: *The Navy would like to discuss the applicability of wetland regulations to the subtidal areas of this site, as discussed in the response to general comment no. 12.*

85. p. 5-23, bullet 1 Remove the last sentence since the risks will not be sufficiently reduced to be protective of the environment.

Response: *The Navy proposes to leave the sentence in, but revise it to state "...risks would be reduced." This is a correct and appropriate statement for the context of the text.*

86. p. 5-23, §5.2.3 In the second bullet on this page, it is stated that marine aquatic receptors could continue to be impacted by contaminant concentrations as high as 197 mg/kg copper (station 3) under Alternative 3B. The reference to station 3 should be corrected to station 2 because station 3 would be dredged under Alternative 3B.

Response: *The reader should note that the PRG for copper was discarded in the last revision of the PRG document for the site. Thus, the referenced paragraph will be revised accordingly.*

87. p. 5-23, last ¶ Replace the sentence with "Section 304 of the federal Clean Water Act and the Rhode Island Water Pollution Control standards are chemical-specific ARARs used to develop sediment PRGs. In addition several non-promulgated criteria (TBCs) were used in developing sediment PRGs."

Response: *The reviewer is asked to refer to the responses to comments 70 and 71. The Navy does not believe that water pollution control standards or AWQC are apply to the sediment or porewater as ARARs.*

88. p. 5-24, Table 5-7 Action to Be Taken to Attain ARAR: Revise the text to read, "Alternative 3 reduces risks to human receptors, so these criteria are met." Delete "eliminates exposure" since this can not be achieved.

Response: *The elimination of exposure is effectively achieved if there is no-one taking shellfish from the site. The reviewer may not agree that the institutional controls would be 100% effective in the elimination of the taking of shellfish from the affected areas of Coddington Cove, and the Navy would have to concur. In order to be proactive, this argument is assumed, and the revision will be made as requested.*

89. Tables 5-8 & 5-11 While Section 2.1.2 (Page 2-3) mentions flood plain regulations as a location specific requirement that may be applied to the site, these regulations are not listed as ARARs in Tables 5-8 or 5-11. The determination should be made whether these regulations (*i.e.*, Executive Order 11988, RCRA Flood plain Restrictions for Hazardous Waste Facilities, RCRA Flood plain Restrictions for Solid Waste Disposal

Facilities and Practices) are applicable or relevant and appropriate. Since, Alternatives 3A, 3B, and 4 consider the establishment of an on-base staging and treatment area for dredged sediments and wastewater (associated with dewatering of the dredged sediments), they are applicable for such an action.

Response: *Flood plain regulations would apply if the treatment facility is constructed within the flood plain. Pier 1 and the shoreline portions are not within the flood plain, they are within a "Storm Hazard Zone" which could be affected by 500 year storm wave action (FEMA, 1998). Any construction of permanent and temporary structures will be conducted in accordance with applicable regulations.*

90. Table 5-7, 5-8 & 5-9 **Make these tables apply to Alternative 3A only. Use the attached tables. Replace Tables 5-10, 5-11, and 5-12 with the attached tables for Alternative 3B.**

Response: *The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.*

91. p. 5-31, ¶1 **Replace with the following two paragraphs: "Alternative 3A will meet all federal and state location-specific ARARs. Alternative 3A will also meet all action-specific ARARs regulating monitoring and dredging, including hazardous waste and water discharge standards.**

Alternative 3B does not meet federal and state location-specific ARARs regarding wetlands, flood plains and aquatic resources because contamination will be left in place that poses ecological risks. Alternative 3B will meet all action-specific ARARs regulating monitoring and dredging, including hazardous waste and water discharge standards.

Response: *The comment reflects the adoption of the tables submitted with the comment summary. The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.*

92. p. 5-31, ¶4 **In the first sentence, separate the discussion between the two Alternatives. In the second sentence, please clarify whether human health risks remain only in the undredged area.**

Response: *The Navy concurs and the requested revisions will be made. The reviewer should be advised that the institutional controls would need to be implemented for areas 18 and 30 as well as undredged shoreline areas left under alternative 3B.*

93. p. 5-32, ¶2 **In the fifth sentence add at the end: ", however active mitigation measures may be required under federal and state standards."**

Response: *The reviewer is referred to the response to general comment no. 12. The Navy would like to discuss the need to evaluate mitigation measures for the alternatives described in the FS.*

94. p. 5-32, ¶3 **In the second sentence change "commercial fishing" to "commercial shell fishing and lobstering." No ban on fin fish fishing has been proposed**

Response: The Navy concurs, and this revision will be made.

95. p. 5-33, ¶4 Replace the paragraph with: "The State of Rhode Island generally requires dredging projects to be conducted between November 1 and January 15 to protect sensitive species. The Navy will investigate the use of aquatic habitats on Site by sensitive species to determine potential impacts from dredging during different times of the year. It is anticipated that the long-term benefits of conducting the remedial action during a single dredging period (estimated to last 6 months for Alternative 3A) will outweigh any short-term risks to sensitive species."

Response: The Navy concurs, and this revision will be made.

96. p. 5-33, ¶6 In both the first and second sentences insert "hazardous and non-hazardous" before "material."

Response: The Navy concurs, and this revision will be made, with the caveat that for costing purposes, the material is assumed to contain both hazardous and non hazardous material based on characteristics testing.

Remove the last sentence since there are no local hazardous waste landfills to accept the hazardous material dredged under Alternative 3B.

Response: The Navy concurs, but the revision will be limited to the deletion of the word "local" from the sentence.

97. p. 5-34, §5.2.3 The Present Worth value for the 50% volume increase (listed as \$24,141,597) should be corrected to be consistent with Appendix E (\$24,141,957).

Response: The Navy concurs, and this revision will be made.

98. p. 5-35, §5.2.3 The Present Worth for Alternative 3B (listed as \$2,017,889) should be corrected to be consistent with Appendix D (\$2,018,666). Additionally, the cost for the five year reviews should be \$21,500 (not \$21,550 as listed).

Response: The Navy concurs, and this revision will be made.

99. p. 5-35, ¶2 In the first sentence insert "testing to determine its hazardous characteristics," after "removing sediment,."

Response: The Navy concurs, and this revision will be made.

100. p. 5-35, ¶3 Change the paragraph to: "Mitigation measures to address alteration of protected habitats in or adjacent to the Site may be required under federal and state standards. However, most of the affected areas are within a designated port and have been previously dredged or altered by port construction and maintenance."

Response: The Navy would like to discuss the applicability of wetland regulations to the subtidal areas of this site, as discussed in the response to general comment no. 12.

101. p. 5-36, ¶2 Change the Table references to 5-13, 5-14, and 5-16. Change the second sentence to: "Section 304 of the federal Clean Water Act and the Rhode Island Water Pollution Control standards are chemical-specific ARARs used to develop sediment PRGs. In addition several non-promulgated criteria (TBCs) were used in developing sediment PRGs. The Alternative meets all chemical-specific ARARs."

Response: *The reviewer is referred to the response to comments no. 70 and 71.*

102. p. 5-36, ¶3 Replace the second through fourth sentences with: "Mitigation measures to address alteration of protected habitats in or adjacent to the Site may be required under federal and state standards. However most of the affected areas are within a designated port and have been previously dredged or altered by port construction and maintenance."

Response: *The Navy would like to discuss the applicability of wetland regulations to the subtidal areas of this site, as discussed in the response to general comment no. 12.*

In the last sentence change Table 5-8 to Table 5-14.

Response: *The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.*

103. Table 5-10 Use the revised Table 5-10 for Alternative 3B provided in Attachment B.

Response: *The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.*

104. Tables 5-11 & 12 Use the revised Tables 5-11 and 5-12 for Alternative 3B provided in Attachment B.

Response: *The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.*

105. p. 5-37, Table 5-10 Change to Table 5-13. Clean Water Act, Section 304 and state Water Pollution Control are promulgated and are therefore "Relevant and Appropriate."

Response: *The Navy would like to discuss the ARARs tables with the EPA prior to incorporating them into the FS report, as discussed in the response to Comment No. 76.*

106. pp. 5-38 to 43 Location-specific table should be renumbered 5-14 and action-specific table as 5-15. Use table text from revised Alternative 3A - Limited Dredging location- and action-specific tables, changing only the reference to the "Limited Dredging Alternative" in the Action to be Taken text for the federal flood plain Order.

Response: *The requested revisions will be made to the extent possible considering the responses to other comments described within this response summary.*

107. Table 5-11 The header on each of these pages refers to "Alternative 3." This should be corrected to "Alternative 4."

Response: *The Navy concurs, and the requested revisions will be made.*

108. p. 5-44, ¶5 In the third sentence add at the end: ", however active mitigation measures may be required under federal and state standards."

Response: *The reviewer is referred to the response to general comment no. 12. The Navy would like to discuss the need to evaluate mitigation measures for the alternatives described in the FS.*

109. p. 5-45, ¶2 Replace the paragraph with: "The State of Rhode Island generally requires dredging projects to be conducted between November 1 and January 15 to protect sensitive species. The Navy will investigate the use of aquatic habitats on Site by sensitive species to determine potential impacts from dredging during different times of the year. It is anticipated that the long-term benefits of conducting the remedial action during a single dredging period (estimated to last 8 months) will outweigh any short-term risks to sensitive species."

Response: *The Navy concurs, and the requested revisions will be made.*

110. p. 5-45, ¶5 Before "material" insert "hazardous and non-hazardous."

Response: *The Navy concurs, and this revision will be made, with the caveat that for costing purposes, the material is assumed to contain both hazardous and non hazardous material based on characteristics testing.*

111. p. 5-46, Cost Table O&M may be required if habitat mitigation measures are required.

Response: *The reviewer is referred to the response to general comment no. 12. The Navy would like to discuss the need to evaluate mitigation measures for the alternatives described in the FS.*

112. p. 5-46, ¶4 In the first sentence remove "and 3B."

Response: *The Navy concurs, and this revision will be made, and an additional statement will be made describing the effect of alternative 3B: "Alternative 3B would reduce risk to the environment by removing portions of sediment that contain highest concentrations of COCs."*

113. p. 5-47, ¶1 Change the first full sentence to: "Alternative 3B would not be effective in reducing risk since it would only remove the sediments posing the highest risk to aquatic receptors and will not meet the RAO for protection of the environment, but meets the RAO for human health."

Response: *In accordance with responses to comments no. 43 and 49, the Navy proposes alternative text as follows:*

"Alternative 3B would not be completely effective in reducing risk to levels that are deemed acceptable by the adoption of the recommended PRGs. This limitation exists since the alternative would only remove the sediments posing the highest risk to aquatic receptors. However monitoring at the remaining stations where recommended PRGs are slightly exceeded would assess

compliance with RAOs. The alternative would meet the RAO for human health through institutional controls."

The reviewer will note that the areas not dredged under this alternative should be monitored as described under alternative 2. This portion of the alternative will be more clearly explained with the separate descriptions of Alternatives 3A and 3B.

- 114. p. 5-47, ¶¶4&6** Replace with: "Alternatives 4 and 3A will meet chemical-specific standards by removing contaminated sediments that pose a risk for environmental receptors. Alternatives 3B, 2, and 1 do not meet these standards.
- There are no location-specific or action-specific ARARs for the Alternative 1, No Action. Alternatives 4 and 3A meet all location-specific standards for the protection of wetlands, flood plains, aquatic habitats, coastal and historic resources, fish and wildlife, and endangered species. Alternatives 3B and 2 fail to meet habitat protection standards since contamination that poses a risk to environmental receptors will be left in place.
- Alternative 2 meets action-specific ARARs for long-term monitoring and institutional controls. Alternative 3A and 3B meet action-specific standards for monitoring, institutional controls, and dredging and handling hazardous and non-hazardous waste. Alternative 4 meets action-specific ARARs for dredging and handling hazardous and non-hazardous waste."

Response: The Navy will assess the applicability of the above text after a revision of the ARARs tables. Any revisions to the text will describe how the alternatives meet or do not meet the ARARs as described in the Tables.

- 115. p. 5-49, ¶3** In the second sentence insert "hazardous and non-hazardous" before "sediments that would be removed."

Response: The Navy concurs with the revision in the current context of the paragraph, and this revision will be made.

- 116. p. 5-50, §5.2.5** The table on this page is missing Net Present Worth ("NPW") costs for +50% volume for Alternatives 3A, 3B, and 4. These costs should be added to the table. Also, several discrepancies were noted on this table. For example, the NPW and NPW Sensitivity (-30% volume) costs for Alternative 3A are not consistent with the costs presented on page 5-34, Appendix D, or Appendix E. This table should be reviewed carefully and made consistent with the rest of the report.

Response: The Navy concurs. The table will be checked and revised in accordance with revisions to the Appendices.

- 117. p. 5-50, last ¶** Replace with: "The costs provided for Alternatives 3A, 3B and 4 assume no regulatory restrictions on periods of dredging activities. If dredging periods are limited, significant additional mobilization and demobilization costs would be incurred."

Response: The Navy concurs with the suggested text and this revision will be made.

118(a). App D, Alt 2 Under the estimated analytical costs of long-term monitoring (item #1) in Alternative 2, the 16 samples/year for biota chemistry, amphipod toxicity, and *arbacia* toxicity are not accurately costed (dollar sums appear to be for 10 samples/year) and the quantities are not consistent with the previously-stated assumptions.

Response: *The Navy concurs, and this revision will be made.*

118(b) Actions to evaluate subtidal wetlands are supposedly included in Alternative 2, the cost estimate included in Appendix D does not list any costs associated with wetlands. This discrepancy should be corrected.

Response: *There is no necessity for determination of wetlands under Alternative 2, and text making that reference shall be searched for and corrected. The Navy concurs that location and evaluation of special and protected habitats is necessary for dredging alternatives 3A, 3B and 4. This effort would be performed as a part of the pre-design investigation, and therefore item 1 for those three alternatives will be revised accordingly.*

119(a). App D, Alt 3 Under Alternatives 3A, 3B, and 4, it is stated that the actual dewatering and wastewater treatment process will be determined based on a bench scale laboratory study using samples of site sediments. However, costs for this study have not been included in the cost estimates. Please correct.

Response: *The Navy concurs, and this revision will be made.*

119(b) Under Alternatives 3A, 3B, and 4, UV Peroxide is listed as an example treatment process for the fluids generated from dredged sediment dewatering. This example is not consistent with the text of the report (see page 3-27). Moreover, the effectiveness of UV Peroxide is questionable given the salinity and potential turbidity of the influent water. This discrepancy should be corrected and the costs associated with the wastewater treatment process should be verified.

Response: *The Navy concurs, and this revision will be made.*

119(c) Alternatives 3A, 3B, and 4 include the collection and analysis of confirmation samples (from dredged areas) for PCBs, metals, pesticides, and PAHs. Since there were no pesticides in the list of recommended PRGs, it is not clear why they are included for analysis. This issue should be clarified, or the text and cost estimate should be corrected.

Response: *The Navy concurs, pesticides should not be included in confirmation testing. This revision will be made.*

120. Appendix E The Present Worth Analysis sheets are missing for Alternative 4 and should be included.

Response: *The reviewer should note that the present worth of alternative 4 does not appreciate with time, since the costs are expended in a single event, and long term costs are not incurred. Therefore, the present worth does not change. However, the sheets can be included for clarity.*

121. Appendix E

While the volumes are correct in the cost spreadsheets, the calculation worksheets should be corrected to indicate "+50%" (not "+20%") and a volume of 50,340 cubic yards (for Page 1 of 3). The factor of 1.2 on each page should be corrected to 1.5.

Response: The Navy concurs, and this revision will be made.

ATTACHMENT B

Responses to Comments from the Rhode Island Department of Environmental Management: Draft Feasibility Study Derecktor Shipyard Comments Dated November 16, 1998

**1. Section 1.0, Introduction:
Page 1-2, Paragraph 2.**

"The FS was developed to address both on-shore and off-shore contaminant issues at the site."

There are a number of outstanding issues concerning the remedial investigation conducted at the site. The Navy has agreed to address these issues as funds become available. Accordingly, as the SASE for the site has not been completed it is not possible to propose an FS for onshore component. Therefore the above should be modified as follows:

The FS was developed to address off-shore contaminant issues at the site.

Response: It is the Navy's belief that investigation work on the on shore portions of the site have been completed to the degree necessary for determining a course of action for the site. As the reviewers will recall, several areas of concern were identified in the on shore portions of the site, and these are currently being addressed through specific investigations and source removal actions.

The PCB removal action is near completion as of the date of this response summary. The Navy will submit a removal action report after the removal actions are complete, and this removal action report will describe the material that was removed, where it was disposed, and the confirmation testing that was performed following the removal.

The investigations performed in the on shore areas did not reveal any contaminants that might be actionable under CERCLA, and therefore it is reasonable to provide closure on the CERCLA aspects of this portion of the site accordingly.

**2. Section 1.4.1, Marine Sediment:
Page 1-20, Paragraph 3.**

This section of the report notes that the PCB congeners found at the site are similar to those found throughout the bay. A number of PCB transformers were known to exist at Derecktor shipyard. In addition, PCBs have were a component of a number of industrial chemicals, such as cutting oils, which may have been used at the site by Derecktor Shipyard or by the Navy. Therefore, the report should note that shipyard or Naval activities might be responsible for the PCBs found at the site.

Response: The Navy concurs that the PCBs in the sediment are likely to be present as a result of former activities at the shipyard. This presumption is stated in the SASE report and in the Site History section (Section 1.2) of the FS report.

**3. Section 1.5, Human Health Risk Assessment:
Page 1-28, Whole Section.**

This section of the report summarizes the results of the Human Health Risk Assessment. Based upon comments submitted to date by the State there are a number of outstanding issues concerning this assessment (such as the ingestion rate for the child/adult and subsistence fisherman). The regulatory agencies agreed to proceed with the PRG development and FS while these issues are resolved. The Office recommends that resolution be achieved for these issues prior to the submission of the final PRG document or the FS.

Response: The Navy has attempted to hold discussions with the RIDEM on these issues specifically. However, the RIDEM has only been able to provide written comments on the subject to which the Navy has provided responses. The Navy requests that the RIDEM propose a meeting at which these issues can be discussed and resolved.

**4. Section 2.2.3.4, Proposed Remediation Areas:
Page 2-18, Paragraph 2.**

"Note that areas 18 and 30 contain contaminants in sediments that exceed only one PRG (benzo(a)pyrene)."

Preliminary Remediation Goals represent clean up standards for a select group of site contaminants. They do not represent the only contaminants of concern at a site, but rather the primary drivers for site remediation. Accordingly, it is inappropriate to state that certain stations contain only one PRGs, as this would imply there is only one contaminant of concern at the site, which is not the case. Therefore, references to PRGs in this manner for this and other sections of the report should be removed or modified to state that other contaminants of concern may be present in addition to the PRGs.

Response: The process of the derivation of the PRGs accounts for multiple contaminants in the sediment. This process, as presented in Appendix B (provided under separate cover), and described at several previous meetings selects a "limiting" PRG that "drives" risk for that station.

The Navy concurs that the text of the FS can be revised to state that other contaminants of concern may be present at these stations in addition to the contaminants for which PRGs are developed. However, it is very unlikely that these other contaminants are present at concentrations that would be considered actionable without the PRG exceedance.

**5. Section 3.3.6.2, Treatment/Disposal of Residue Water:
Page 3-27, Whole Section.**

This section of the report notes that treatment of residue water may be required. The report should note whether the treatment plant at Tank Farm # 5 could be employed for this task.

Response: The treatment plant at Tank Farm #5 is not designed for the task at hand. The process requirements should be thoroughly evaluated prior to rendering such an opinion. As a part of the Pre-design investigation, treatment requirements would be determined, and the capability as well as the applicability of the permits for the system at Tank Farm 5 would be evaluated. Regardless, the report will be

revised to state that local options for treatment of residual water using existing plants will be evaluated as a part of the PDI.

**6. Section 3.3.7.1, On-Base Treatment:
Page 3-20, Whole Section.**

This section of the report has limited on base treatment operations to solidification, chemical/physical fixation, such as the addition of Portland cement, to immobilize the contaminants. A variety of treatment operations exists which may be used to reduce or eliminate contaminants found in the sediments. As an illustration, phytoremediation has been used to remove both organic and inorganic contaminants. Likewise, a variety of soil washing operations may be employed to eliminate these contaminants. As the major cost component for the proposed dredging operations is disposal of the contaminated sediment any process which avoids this disposal cost should be evaluated. Therefore, this Office recommends that different processing operations be evaluated as a means of reducing or eliminating disposal cost. Finally, the Office will evaluate any innovative proposals, such as the use of the tank farms as a lay down area for soil washing, for the remediation of these sediments.

Response: Technologies that are available for treatment of the contaminated sediment have been evaluated as described in the report. Soil washing was not considered due to the nature of the sediment - soil washing works on coarse grained material, and the sediment containing such a high content of fine components is not conducive to a successful operation. Phytoremediation requires a large area (such as the tank farms) but also requires leachate collection, odor control, dust control, etc, which make it more expensive than it appears at the outset. In addition, phytoremediation, similar to bioremediation, works best on reducing the contaminant concentrations of specific contaminants, and is less successful in remediation of mixed contaminant waste. Additional text will be added explaining why soil washing and phytoremediation are not adequate for the goals of the cleanup.

**7. Section 4.2.2, Alternative 2, Limited Action:
Page 4-6, Paragraph 1.**

This section of the report notes that the area would be closed to the collection of lobster. Lobsters are migratory and as such closure, as proposed in the report, will not eliminate this exposure pathway. Therefore, permanent closure of the affected area should not be considered as a viable alternative to address problems at the site and should be removed from the remedial alternatives.

Response: As previously discussed at meetings with the Ecorisk Advisory board, it is believed that there are two groups of lobsters, one group is sedentary, and have a small range, and another group which is more migratory. By restricting the collection of the lobsters from this area, the risk of ingestion of lobster with contaminants originating from Coddington Cove would be reduced. The Navy concurs that this action would not completely eliminate the pathway, and the report will be revised as such.

The RIDEM would have to agree that effects are based on exposure frequency, and as discussed in the response to comment no. 3 above, a forthright discussion of human health risk relating to ingestion of shellfish at the site would be helpful to resolve this and similar issues.

merits sediment removal, considering possible allocation of funds to other projects that are a higher priority.

The Navy will revise the statement to say " This alternative is considered worthy of consideration because while risk to the ecological receptors is identified, it may not warrant a full scale removal of sediment."

**10. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report includes a cost breakdown for the project. Please indicate why a pick up truck rental would be required for activities anticipated to take place in the immediate vicinity of Pier 1.

Response: The breakdown of costs as presented in Appendix D are generic, and include all expected efforts by the designers, planners, construction foremen and crews to facilitate construction and operation of treatment facilities as well as actual removal and disposal of sediment. Typically, contractors use rented vehicles on the job, and this cost has to be anticipated and projected as does all the other costs.

**11. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report states that it would cost \$ 1400 for each sediment sample confirmatory test. Confirmatory samples will be limited to the PRGs (less than eight analytes). Therefore it is not clear how the analysis of less than eight compounds will cost \$ 1400. Please provide a detailed cost breakdown for this element of the project.

Response: The breakdown of costs as presented in Appendix D is generic, and actual costs may differ. The Navy concurs that analysis of samples for only the compounds for which PRGs are selected would be lower, however, it is prudent at this time to anticipate that the analytical effort could be expanded to accommodate requests by oversight parties that may request additional analyses. In addition, the reviewer should note that the cost includes collection of the sample (by vibracore) as well as analysis.

**12. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report indicates that water quality testing will cost \$ 3600 per day. Please provide the assumptions and a detailed cost breakdown, i.e. sample frequency (three per day?), analyte list (PCBs, PAHs, metals and TSS?), etc. used in this cost estimate.

Response: The estimate is based on three samples per day analyzed for target contaminants as well as whatever parameters are required for discharge of water. The design of the system would include an exact determination of the number, frequency, and parameters for analysis required. Exact amounts are not necessary for this item, as the estimate is carried through the other dredging options for cost comparison between alternatives.

**13. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report states that it will cost \$ 4500 per day for the treatment of dredge water. Please provide the assumption and cost used to generate this value (gallons processed per day, size of treatment system, rental cost for treatment system, etc).

Response: The treatment of dredge water is estimated based on a per day rate, since the system will have to operate to maintain production rates of dredged sediment. The cost is based on a crew and equipment needed to treat that water. Estimates are provided for a mobile package treatment plant, and are provided through verbal communications with vendors supplying these services and equipment. These costs are not broken down further for the purposes of the FS.

**14. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report states that mobilization/ demobilization costs for the dredge equipment will be \$ 167,600. Please provide the vendor information in support of this cost as well as the dredging cost for the other alternatives.

Response: The items of the estimate are stated under Capital cost Assumptions. These assumptions will be expanded to associate costs to each item to the extent appropriate for this estimate.

**15. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report indicates that it will cost \$ 1,649,810 to dredge the affected area. It is this Office's understanding that this cost is greater then the entire cost for dredging at Allens Harbor. Please provide the vendor information for this cost.

Response: The cost estimate is based on barge-based dredging operations using suction equipment and loading on and off Pier 1. The estimate is based on production rate (stated in the estimate), expected on a per day unit effort (also stated in the estimate). Labor and equipment costs were provided by a local vendor. If actual costs incurred at Allen Harbor are found at completion to be significantly lower than this estimate, and it is determined that the equipment is the same as that presented in the description of the alternative and described in Appendix D, then the estimate should be revised accordingly.

**16. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report indicates that disposal in a RCRA subtitle D landfill will cost 85 dollars per ton. Please indicate whether this value includes shipping and handling. In addition, please provide the vendor information referenced in the report (i.e. disposal cost provided by landfills used in this estimate, i.e. Central, BFI, etc.).

Response: The disposal estimate stated in item 9 includes transportation costs. The vendor (General Chemical Corp) provided this estimate based on disposal at BFI Fall River and other sites. However, actual disposal sites would be determined at the time of action.

**17. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report indicates that it will cost 700 dollars for sediment analysis prior to disposal. Please provide a detailed cost estimate for this element of the project, (analytes, whether cost include collection and handling, etc.).

Response: The estimate includes collection and analysis for TCLP analytes as would be expected for landfill disposal. Again, the actual frequency of samples and analytical parameters would be determined by the disposal facility and the state & federal requirements that facility must meet.

**18. Alternative 3A:Limited Removal and Off-Base Disposal;
Appendix D.**

This section of the report proposes the use of a complex dewatering system hydrocyclone, plate and frame filter press, pH adjustment, etc. Normally, a simple gravity dewatering system is employed, sediments are stockpiled and the water is removed from the sediment by gravity and is collected in berms which surround the stock pile. It is assumed that the costly, complex approach proposed in this plan for weight reduction which would manifest itself in cost savings for dredge spoil disposal. Please confirm and provide the engineering economic analysis in support of the proposal.

Response: The proposed process is anticipated to be necessary to adequately dewater sediment and prepare the water for treatment and disposal. The fine grained nature of the sediment indicates the dewatering process described is necessary. The approach suggested by the comment above would require large settling lagoons constructed for long term storage of the dredged material.

Actual analysis of the cost-effectiveness of the two processes could be performed as a part of the pre-design investigation in order to select an appropriate process. The purpose of this estimate is to anticipate the possible costs of the alternative. The estimate provides that information as necessary.