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NSB NEW LONDON
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LETTER AND U S NAVY RESPONSE TO U S EPA REGION I COMMENTS REGARDING
DRAFT ENGINEERING EVALUATION/COST ANALYSIS FOR INNER AND OUTER PIER 1
NSB NEW LONDON CT
10/13/2008
TETRA TECH NUS



TETRA TECH

PITT-10-9-022

October 13, 2009

Project Number 112G00811

NAVFAC MID-ATLANTIC, Northeast IPT
Attn: Mr. Jim Gravette (Code OPTE3-1)
Bldg Z-144
9742 Maryland Avenue
Norfolk, Virginia 23511-3095

Reference: CLEAN Contract No. N62467-04-D-0055
Contract Task Order 424

Subject: Final Engineering Evaluation/Cost Analysis
for Inner and Outer Pier 1
Naval Submarine Base-New London, Groton, Connecticut

Dear Mr. Gravette:

Please find enclosed two hard copies and two electronic copies (CDs) of the subject document for your records. Hard copies and/or electronic copies of the document were also distributed to Ms. Kymberlee Keckler at EPA, Mr. Mark Lewis at CTDEP, Mr. Ken Finkelstein at NOAA, Mr. Ken Munney at USF&W, Mr. Richard Conant at NSB-NLON and other members of the project team for their records per the distribution list provided below.

This final Evaluation/Cost Analysis (EE/CA) for Inner and Outer Pier 1 was prepared in accordance with the attached response-to-comment documents for comments received from EPA on the August 7, 2009 draft EE/CA. The CTDEP's concurrence letter for the draft EE/CA is also attached to this letter. NOAA and USF&W did not comment on the draft EE/CA.

The public notice for this final EE/CA will be published in The New London Day Newspaper on October 17, 2009. The public comment period will begin on October 17, 2009 and end November 16, 2009. If you have any questions regarding the document or the forthcoming public notice, please contact me at (412) 921-8984.

Sincerely,

Corey A. Rich, P.E.
Base Coordinator/Project Manager

CAR/alk

Enclosure(s)



TETRA TECH

Mr. Jim Gravette
NAVFAC MID-ATLANTIC, Northeast IPT
October 13, 2009 - Page 2

c: Ms. Kymberlee Keckler, EPA (4 copies/4 CDs)
Mr. Mark Lewis, CTDEP (1 copy/1 CD)
Mr. Ken Finkelstein, NOAA (1 CD)
Mr. Ken Munney, USF&W (1 CD)
Mr. Richard Conant, NSB-NLON (3 copies/3 CDs)
Mr. Val Jurka, NAVFAC Atlantic (1 CD)
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**RESPONSES TO EPA'S SEPTEMBER 2, 2009 COMMENTS ON THE
DRAFT EE/CA FOR INNER AND OUTER PIER 1
NAVAL SUBMARINE BASE – NEW LONDON, GROTON, CONNECTICUT**

Initial Issue to EPA: September 10, 2009 – Revised Issue: September 23, 2009

General Comment 1:

The EE/CA should acknowledge that an area of contaminated sediment located near the southern end of the former Pier 1 will not be addressed by this removal action but rather will be addressed in the Feasibility Study.

Response:

Agree. The 2nd sentence of the 2nd paragraph of page ES-2 and the last paragraph of Section 3.4.2 on page 3-3 already acknowledge the presence of this separate area of sediment contamination at the southern end of former Pier 1 and clearly indicate that this area will be dealt with as part of the Lower Subbase FS.

General Comment 2:

EPA has also reviewed the Applicable or Relevant and Appropriate Requirements (ARARs) tables provided in Chapter 3. Please replace the ARARs tables in the EE/CA with the ones provided in Attachment B.

Response:

Agree. The existing ARARs tables will be replaced with an edited version of those provided by EPA in Attachment B. See attached proposed revised ARARs Tables 3-1 through 3-3. Almost all of the proposed revisions to the EPA-provided tables result from the addition of alternative-specific relevance and compliance information in agreement with a decision reached during a conference call conducted between the Navy, Tetra Tech NUS, and EPA on September 3, 2009 (see first part of response to Specific Comment A.26). All other revisions are editorial in nature, except for the deletion in Table 3-3 of the Water Quality Standards promulgated under Connecticut General Statutes (CGS) §22a-426 that were identified as "Not Applicable".

General Comment 3

Most of the page-specific comments made for Chapter 5 apply to most of the alternatives. EPA did not repeat them in this letter, but expect the Navy to make the appropriate changes throughout the EE/CA. Likewise, comments on OP-3 are the same as OP-2, except that OP-3 partially satisfies the criterion for the reduction in toxicity, mobility, and volume through treatment.

Response:

Agree. It is understood that with many similarities between several of the alternatives, comments made on one of these alternatives may very well apply as well to several others.

General Comment 4

There are several community relations requirements that should be performed. The NCP [40 CFR §300.415(m)(4)(i)] requires that a Community Relations Plan (CRP) be prepared before completion of the EE/CA. While EPA recognizes that a CRP has already been prepared for the Naval Submarine Base, it may be a good opportunity to ensure that it is current. Please plan to publish a notice of availability and a brief description of the EE/CA in a major newspaper of general circulation [40 CFR §300.415(m)(4)(ii)]. During the public comment period, the Navy may wish to consider hosting a RAB meeting before the dredging commences [40 CFR §300.415(m)(4)(iii)].

Response:

Agree. The Navy plans to publish a notice of availability and a brief description of the EE/CA in a major newspaper of general circulation. In addition, the Navy also plans to revise the existing Community Relations Plan before the Naval Submarine Base is delisted from the National Priorities List.

ATTACHMENT A

Specific Comment A.1 - page ix:

“USC” should be defined as “United States Code.”

Response:

Agree. The definition of this acronym will be corrected.

Specific Comment A.2 - page ES-2, 2nd paragraph:

Please clarify the last sentence to indicate that the areal extent of contamination is approximately 27,300 square feet with a known contaminant depth extending to six feet resulting in an *in situ* contaminated sediment volume of at least 6,100 cubic yards. (EPA notes that the excavation depth will be seven feet and the RAWP has also included ten percent additional volume for sidewall sloughing.)

Response:

Disagree with clarification. As further discussed in the 2nd paragraph of Section 3.4.2 (page 3-3) and as computed in Appendix B.2 (Section 4.1, page 3 of 7), the currently estimated areal extent of contamination is 27,300 square feet (sf) only at a depth of 4 to 6 feet. Areal extent of contamination is estimated at 20,800 sf at a depth of 2 to 4 feet, and only 5,600 sf at a depth of 0 to 2 feet. Therefore, the actual estimated in-situ volume of **contaminated** sediment is 3,941 cubic yards (cy). However, because the removal of deeper contaminated sediment would require the removal of overlying clean sediment because of the necessity to cut back the walls of the removal area for slope stability, and because of overdredging, dredging of sediment to a depth of 6 feet would actually require the removal of an estimated 6,673 cy. It is understood that, as part of the review process of the Removal Action Work Plan (RAWP), the New London Team has agreed to a dredging depth of 6 feet with an allowable overdredge of up to 1 foot resulting in a slightly greater in-situ volume of removed sediment (7,077 cy). However, this greater depth and larger volume do not necessarily have to be reflected in the EE/CA which is supposed to precede the RAWP and has been prepared independently from it.

Specific Comment A.3 - page ES-4:

The last paragraph refers to a dredging depth of six feet with ten percent overdredging. However, the agreed to dredging depth is seven feet and the RAWP has included an additional volume of ten percent to include dredging of sloughed sidewall sediment. This results in an overdredge allowance of approximately 18.3% ($1/6 \times 1.1$). However Navy chooses to handle this, the EE/CA should be clear that known contamination extends to a six-foot depth and that an additional one foot of over-excavation is incorporated to remove residual contamination that is likely present deeper than six feet in depth.

Response:

Disagree with clarification. See response to Specific Comment A.2. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, while the conceptual computations of the volume of dredged sediment should be consistent between the two documents, including the use of the estimated surfaces of contaminated sediment and the factoring

of wall cut backs and overdredging, the fact that the New London Team has agreed to a dredging depth of 6 feet with an allowable overdredge of up to 1 foot as a result of the review process of the RAWP does not necessarily have to be reflected in the EE/CA.

Specific Comment A.3 - page ES-5:

a) The second and penultimate sentences in the second paragraph refer to the removal of all contaminated sediment. Although EPA recognizes that detailed discussion is not appropriate in an Executive Summary, please delete 'all' from the text. A contaminated area near the southern end of the former Pier 1 will not be removed during this removal action.

Response:

Agree. The word "all" will be deleted from the 2nd and next-to-last sentences of the 2nd paragraph of page ES-5. The expression "all sediment with elevated concentrations of COCs" in both sentences will be changed to "sediment with concentrations of COCs greater than the PRGs".

b) Please clarify the penultimate sentence in the last paragraph to refer to the same *type of* resources.

Response:

The next-last-sentence of the last paragraph of page ES-5 refers to "the same resources", not to "the same *type of* resources" as stated in the comment. This reference means that all alternatives that include dewatering, stabilizing, and loading of dredged sediment, and storing of equipment and material would use the same technologies and similar equipment and set-ups.

Specific Comment A.4 – Section 2.1, page 2-1:

Please clarify whether there was any activity that would have caused releases into the sediments after 1980 so that EPA can assess the status of RCRA.

Response:

As shown on the RCRA survey completed by the Navy and submitted to and approved by EPA on 09/03/09, no activity that could have caused releases into the sediment occurred after 1980. In addition, the former Inner Pier 1 Marine Railway has been inactive since the 1960s.

Specific Comment A.5 – Section 2.2, page 2-1:

a) Please edit the second sentence to recognize that the concrete portion of the pier is not 175 feet long; it is approximately 100 feet long.

Response:

Agree. The 2nd sentence of Section 2-2 on page 2-1 will be edited to state that the solid concrete foundation that extends south from the CIF Building is only approximately 100 feet long instead of 175 feet long as currently indicated.

b) Please correct the fourth sentence. Pier 1 extended to the southwestern limit of Outer Pier 1. Inner Pier 1 was not flow-through because of the existing sheet piles along the eastern side of the pier.

Response:

Agree. The 4th sentence of Section 2-2 on page 2-1 will be edited to state that former Pier 1 extended to the southwestern limit of Outer Pier 1 and that Inner Pier 1 was not flow-through because of existing sheet piling.

Specific Comment A.6 – Section 2.2, 1st paragraph, page 2-2:

The first sentence is not correct. Pier 1 was open to the Thames River along its southern limit but Inner Pier 1 was not open to the river. The southern end of the sheet piles marks the beginning of Outer Pier 1. Please edit accordingly.

Response:

Agree/Disagree. Inner Pier 1 was open to the Thames River, albeit not directly but through Outer Pier 1. The 1st sentence of the 1st paragraph of Section 2-2 on page 2-2 will be edited to state that, with the demolition of Pier 1, Inner Pier 1 is now open to the Thames River.

Specific Comment A.7 – Section 2.3.3, page 2-4:

Please edit the last paragraph to state “According to the Validation Study Outer Pier 1 contained”

Response:

Agree. “According to the Validation Study Outer Pier 1 contained” will be added to the beginning of the last paragraph of Section 2.3.3. on page 2-4.

Specific Comment A.8 – Section 2.5.1, page 2-6:

In the discussion of potential human exposure, please state whether there is any anchoring of boats (Navy or civilian) permitted in the area. Explain the site conditions and base restrictions. There could be exposure to sediments from anchoring in the area, if that activity is permitted. Do the levels of contaminants pose a risk to workers conducting dredging activities in the area (*i.e.*, the max 19,191 µg/kg PCBs or the 2,833 mg/kg lead levels)?

Response:

Although Inner and Outer Pier 1 have been used as mooring sites and will likely be used for this purpose in the future, none of the current or planned future activities at these sites result in exposure of human receptors to contaminated sediment. Potential exposure of workers to contaminated sediment during remediation activities will be addressed through OSHA regulations and the RAC's Health and Safety Plan. Appropriate measures (e.g., personal protective equipment) will be taken to protect workers from exposure to the contaminated sediment. Additional language will be included in Section 2.5.1 to further emphasize this.

Specific Comment A.9 – Section 2.5.2, page 2-6:

Please clarify whether the contamination present poses an ecological risk. Since no human health risk was identified, there should be an ecological risk identified to form the basis for this proposed CERCLA removal action. Summarize the data and assessments.

Response:

Agree. A concluding paragraph will be added to Section 2.5.2 to indicate that current contamination of the Inner and Outer Pier 1 sediment results in unacceptable ecological risks which must be addressed. A summary of the analytical data is provided in Appendix A and ERM-Q calculations are shown in Appendix B.1.

Specific Comment A.10 – Figure 2-2:

a) Change the reference from *Interlocking sheet pile* to *Former interlocking sheet pile*.

Response:

Agree. This change will be made.

b) The reference to the concrete pier foundation points to the wrong location. Please correct.

Response:

Agree. The reference to the concrete pier foundation will be moved west across Inner Pier 1.

Specific Comment A.11 – Section 3.3, page 3-2:

Please explain that when the PRGs are met in the area, no further action will be needed in the Lower Subase ROD.

Response:

Agree. A sentence will be added to the end of the 2nd paragraph of Section 3.3 to indicate that once these PRGs are met, no further action will need to be specified for the Inner and Outer Pier 1 sediment in the Lower Subase ROD.

Specific Comment A.12 – Section 3.4.2, page 3-2:

The sediment volume calculation in the first full paragraph is not consistent with the RAWP and not consistent with the required excavation depth. Contaminated sediment exists to a sampling depth interval of at least six feet throughout the northern portion of the Outer Pier 1 Area (target excavation area). Consequently, the team agreed to overexcavate an additional foot of sediment to remove all sediment exceeding the PRGs. Therefore, seven feet of sediment will be excavated throughout the target area, resulting in a volume of 7,077 cubic yards. In addition, the RAWP estimated an additional volume of 10% to account for sidewall sloughing around the perimeter of the excavation. Because neither the EE/CA nor the RAWP are final, they should be made consistent. Please edit accordingly.

Response:

Disagree with clarification. See response to Specific Comments A.2 and A.3. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, while the conceptual computations of the volume of dredged sediment should be consistent between the two documents, including the use of the estimated surfaces of contaminated sediment and the factoring of wall cut backs and overdredging, the fact that the New London Team has agreed to a dredging depth of 6 feet with an allowable overdredge of up to 1 foot as a result of the review process of the RAWP does not necessarily have to be reflected in the EE/CA.

Specific Comment A.13 – page 3-5, 2nd (last) paragraph:

In the fourth sentence, remove “Administrative” after “United States.”

Response:

Agree. The definition of the acronym “USG” will be corrected.

Specific Comment A.14 – Section 3.7.2, page 3-6:

Delete the second sentence in the first paragraph. Delete the second paragraph. Replace Tables 3-1, 3-2, and 3-3 with those provided in Attachment B.

Response:

Agree. See response to General Comment 2. The 2nd sentence of the 1st paragraph and the entire 2nd paragraph of Section 3.7.2 on page 3-6 will be deleted. In addition, the existing ARARs tables will be replaced with an edited version of those provided by EPA in Attachment B. See attached proposed revised ARARs Tables 3-1 through 3-3.

Specific Comment A.15 – Section 4.2.2, page 4-3:

The text at the bottom refers to SOPA Instructions 5090.18E (Navy, 2009). Please add this document to the references section.

Response:

Agree. SOPA Instruction 5090.25 (Navy, 2009) will be added to the reference section. This is the latest version of the instruction.

Specific Comment A.16 – Table 4-1:

a) For Ex Situ Treatment, the statements for stabilization and sediment washing that these technologies are not proven for full-scale treatment is not correct. Sediment washing is widely used in Europe. Stabilization of contaminated sediment has been proven in applications in the United States, including other naval facilities. There are some complications as stated owing to the mixture of COCs in the sediment, but the rationale for not using these technologies needs to be revised. The limited space available at the site is a disadvantage for any *ex situ* treatment process.

Response:

Disagree with clarification. Table 4-1 only provides a summary of the technology screening conducted in more detail in Section 4.2 in general and in particular in Section 4.2.8 (pages 4-16 to 4-21) for ex-situ treatment technologies. This more detailed screening explains that while stabilization and sediment washing could be viable, they are not optimum as primary technologies, but could still be used as part of the disposal process. As for the mentioned widespread use of sediment washing in Europe, international practices are not generally used to support the effectiveness and implementability of technologies in the U.S. because of very different environmental circumstances and regulations.

b) Regarding dewatering, it is not apparent why all drainage water would require treatment when dewatering beds are used, but only a fraction of drainage water would require treatment when other dewatering methods are used. This is not consistent and no satisfactory rationale for this difference is presented.

Response:

What was actually meant is that all on-shore dewatering technologies (dewatering beds or mechanical dewatering) would potentially require treatment of all drainage water whereas on-barge dewatering technologies would not, and Table 4-1 will be edited to reflect this. The rationale for this difference is that, similarly to the water that sloughs off the excavator bucket back into the river (and which obviously doesn't require collection and treatment), free draining water from on-barge dewatering operations can be construed as not having actually been removed from its original environment whereas drainage water from on-shore dewatering operations definitely cannot be viewed as such.

c) Regarding transportation, it is not apparent that barge transportation would be the most practical to convey sediment to a disposal facility. However, it would be practical, given the site setting, for conveying sediment to a secondary handling facility. Please edit.

Response:

Agree. The word "most" was used inappropriately in the sense of "very" instead of as a comparative to other means of transportation. This word will be deleted.

Specific Comment A.17 – page 5-4, 3rd paragraph (Section 5.2.1.2):

The only ARARs for the No Action alternative are the chemical-specific ARARs. The alternative does not achieve them.

Response:

Agree. The beginning of the referenced paragraph will be revised to indicate that only the chemical-specific ARARs shown on Table 3-1 are applicable to this alternative.

Specific Comment A.18 – Section 5.2.2.1, page 5-5:

Please correct the area and sediment volume estimates provided in the second paragraph. The correct area is 18,500 square feet and the correct volume is 2,739 cubic yards.

Response:

Agree. This correction will be made.

Specific Comment A.19 – page 5-6, 1st paragraph (Section 5.2.2.1):

Although no backfill is anticipated, some aquatic habitat mitigation may be required for converting a sediment bottom to a hard bedrock bottom under applicable federal and state tidal wetland/waterway ARARs. This applies to all of the Inner Pier alternatives that remove the sediment to bedrock.

Response:

Disagree with clarifications. As agreed with the appropriate resource agencies (NOAA), Inner Pier 1 is not currently, and never has been, classified as a tidal wetland or special aquatic habitat but is instead an active Navy mooring facility. As such, aquatic habitat mitigation is not required as part of the planned sediment removal action any more than it is required as part the maintenance dredging which is regularly performed along the base waterfront.

Specific Comment A.20 – page 5-6, 4th paragraph (Section 5.2.2.1):

Regarding the last sentence (and any discussion of passive dewatering from a barge under any of the other alternatives), passive dewatering without sufficient water treatment will not meet applicable standards for any sediment that exceeds hazardous waste thresholds. Therefore any such sediment need to be identified before excavation, segregated, and dewatered in some manner where the water can be tested for hazardous waste characteristics (if it exceeds standards, it must be properly treated before discharge).

Response:

Disagree with clarifications. Adequate sediment characterization already exists and additional sampling will be performed prior to the proposed removal action. No hazardous sediment has been identified as none of the Outer Pier 1 samples on which TCLP were performed exceeded concentrations indicating RCRA-hazardous characteristics and none of detected sediment PCB concentrations exceeded 50 mg/kg. Based on this data, it seems unlikely that any such sediment will be identified during the removal action.

Specific Comment A.21 – page 5-6, 5th paragraph (Section 5.2.2.1):

Regarding the discussion of passive dewatering on a barge for this (and any other alternative), there needs to be water quality monitoring around the barge to ensure water quality standards are met.

Response:

Disagree with clarifications. See response to Specific Comment A.16.b. Similar to the water that sloughs off the excavator bucket back into the river and which does not require collection and treatment, water freely draining from dredged sediment stockpiled on a barge can be construed as not having actually been removed from its original environment and, therefore, does not require collection and treatment. Only water that does not freely drain (such as water ponding on stockpiled sediment) should require collection, characterization, and, if required, treatment. In addition, perimeter water turbidity monitoring (which is an accurate reflection of water quality given the tendency of COCs to adsorb to sediment particles) will be performed throughout the removal action. Turbidity monitoring is the normal type of monitoring conducted for this type of environmental dredging project.

Specific Comment A.22 – Section 5.2.2.1, page 5-6:

a) The paragraph at the top of the page refers to a 100-foot long turbidity curtain. A curtain at least 170 feet long will be required now that the wooden pier section has been removed.

Response:

Agree. The indicated length of the turbidity curtain will be increased to 170 feet in the text and cost estimates.

b) Please revise the last sentence in the first paragraph to state that the curtain would remain in place until the removal action has been completed except for periodic opening to allow access for project barges.

Response:

Agree. The last sentence of the 1st paragraph of page 5-6 will be revised to state that the curtain would remain in place until the removal action has been completed except for periodic opening to allow access for project barges.

c) For clarity, the second paragraph should refer to a detailed work plan rather than a detailed design because no separate design phase will occur.

Response:

Agree. The 2nd paragraph of page 5-6 and any other parts of the EE/CA which refers to a detailed design will be revised to refer instead to the RAWP.

Specific Comment A.23 – page 5-7, 2nd paragraph (Section 5.2.2.1):

Regarding the first sentence, waste characterization needs to be done at the time of dredging, rather than when the material is already dewatered.

Response:

Disagree with clarifications. See response to Specific Comment A.20. Adequate sediment characterization already exists and additional sampling will be performed prior to the proposed removal action.

Specific Comment A.24 – Section 5.2.2.1, page 5-7:

a) The second paragraph refers to the on-shore sediment staging area depicted in Figure 5-2. The RAWP proposes to transport barged sediment to a secondary handling facility where sediment will be treated, as necessary, then off-loaded to trucks for transport to an off-site disposal facility. The EE/CA text should mention this sediment handling option.

Response:

Disagree with clarifications. See responses to Specific Comments A.2, A.3, and A.12. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, while the conceptual approach toward sediment dredging, dewatering, and disposal should be consistent between the two documents, such details as the proposed location of the dewatered sediment staging area do not need to be identical.

b) Regarding the second paragraph if the sediment will be characterized before the addition of the fly ash, the fly ash needs to be characterized separately to confirm all materials for disposal satisfy the disposal facilities requirements. Please clarify the intent throughout the EE/CA.

Response:

Agree/Disagree. The fly ash does need to be characterized, but this information can be obtained from the supplier and, with the exception of a nominal number of verification samples, an independent analytical effort should not be required for this purpose. Language to this effect will be added.

c) The discussion in the third paragraph should acknowledge that additional drainage water will be generated when the sediment is stockpiled on land and that a drainage collection system or other means would be used to either discharge this water to the river or collect it for off-site disposal.

Response:

Agree. Although it is unlikely that significant amount of drainage water would be generated during on shore staging of the dewatered sediment, the 3rd paragraph of page 5-7 will be revised to indicate that any such additional drainage water would be collected, characterized, and, if required, either disposed offsite or treated on-site prior to discharge to the Thames River.

d) The discussion in the second paragraph under Monitoring is not consistent with the RAWP on a couple issues. The EE/CA states that baseline turbidity and dissolved oxygen monitoring will occur both inside and outside the Inner Pier 1 Area. The RAWP only includes turbidity monitoring (not dissolved oxygen monitoring) and background monitoring is only planned for inside the Inner Area before construction. Regarding construction monitoring, the RAWP requires continuous monitoring outside the curtain whereas this EE/CA only requires periodic monitoring. Please edit the EE/CA to be consistent with the RAWP.

Response:

Agree. The 2nd paragraph of the description of the Monitoring element of Alternative IP-2 on pages 5-7 and 5-8 will be revised to address the broad inconsistencies between the EE/CA and the RAWP. The mention of DO monitoring will be deleted, background turbidity monitoring inside Inner Pier 1 will be indicated as only being performed prior to the removal action, and turbidity monitoring outside of the silt curtain will be indicated as being continuous throughout the duration of the removal action.

Specific Comment A.25 – Section 5.2.2.1, page 5-8:

a) In the partial paragraph at the top of the page, the description of the Inner Pier 1 Area is not correct because the wooden portion of the pier and the associated sheet piles have been removed so the Inner Pier 1 Area is now open to the river.

Response:

Agree. The 2nd paragraph of the description of the Monitoring element of Alternative IP-2 on pages 5-7 and 5-8 will be revised to accurately reflect the removal of Pier 1.

b) The last sentence in the partial paragraph at the top of the page is not consistent with the RAWP. Two buoy-mounted meters will be located outside the curtain and one hand-held meter will be used inside the curtain to check turbidity before opening the curtain. Please edit the EE/CA to be consistent with the RAWP.

Response:

Agree. See response to Specific Comment A.24.d. The description of the turbidity monitoring system provided in the last sentence of the partial paragraph at the top of page 5-8 will be revised for consistency with the RAWP.

c) The text in the first full paragraph needs to be consistent with the RAWP requirements. Post-removal confirmatory monitoring is required by the RAWP in the form of a bathymetric survey. Also, EPA requires pre- and post-removal surveys (or another appropriate method) to confirm that sediment has been removed from the Inner Area as planned.

Response:

Agree. For consistency with the RAWP, the description of pre- and post-construction monitoring will be revised to indicate that a pre- and post-removal action bathymetric survey would be performed for Inner Pier 1. However, for consistency with the RAWP (see last sentence of 1st full paragraph of page 14), the description of post-construction monitoring will also continue to state that no confirmatory sediment samples will be collected because remediation of Inner Pier 1 includes removal of all sediment down to bedrock.

d) Regarding the last paragraph under Monitoring, note that the RAWP anticipates sediment waste characterization samples for every 500 cubic yards and that the analytical parameters identified in the RAWP SAP differ from those identified in this EE/CA text. Please make the documents consistent.

Response:

Disagree with clarifications. See responses to Specific Comments A.2, A.3, A.12, and A.24. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, such details as the proposed frequency of dewatered sediment sampling do not need to be identical. The frequency proposed in the EE/CA of one sample per 250 cy is quite typical of this type of project and is in fact more conservative than that proposed in the RAWP. Regarding the analyses to be performed, the EE/CA lists total and leachable PCBs, metals, PAHs, and pesticides which have been identified as sediment COCs and which is consistent with, albeit not identical to, the analyses proposed by the RAWP.

Specific Comment A.26 – page 5-8, 4th paragraph (Section 5.2.2.2):

Regarding the third sentence, there should be ARARs tables for each alternative. This alternative would only meet ARARs if the passive dewatering can meet federal and state water quality standards and there is passive dewatering of any sediment that exceeds hazardous wastes thresholds.

Response:

Agree. Regarding the 1st sentence of this comment and as a result of a conference call conducted between the Navy, Tetra Tech NUS, and EPA on September 3, 2009, it was agreed that alternative-specific ARARs are not required for this EE/CA. Instead, ARARs Tables 3-1 to 3-3 provided by EPA and the text of each ARAR evaluation will be expanded to provide an indication of which ARARs are relevant to which alternatives and how these alternatives would meet or not meet specific ARARs. See attached proposed revised Tables 3-1 to 3-3. Regarding the 2nd sentence of this comment and as per response to Specific Comment A.20, no hazardous sediment has been identified and it is thus likely that Alternative IP-2 would meet ARARs.

Regarding the fourth sentence, this alternative (and any alternative that does not include active treatment) does not meet the criteria for "reduction in toxicity, mobility and volume."

Response:

Agree. As stated in the referenced sentence, reduction of toxicity, mobility, and volume would be achieved through removal and off-site disposal rather than through treatment.

Specific Comment A.27 – Section 5.2.3, page 5-10:

The comments made for Alternative IP-2 (Section 5.2.2) are also applicable for Alternative IP-3.

Response:

Agree. Comment acknowledged.

Specific Comment A.28 – page 5-14, 5th paragraph (Section 5.2.4.1):

The question whether water treatment is required depends on whether active treatment is required to meet federal and state water quality ARARs. As previously discussed, water treatment would be required for dewatering any sediments that exceed hazardous waste thresholds.

Response:

Disagree with clarifications. The New London Team has elected to collect any non-freely draining water and hold it for characterization prior to disposal. For Alternatives IP-2, IP-3, OP-2, and OP-4, the deciding factor regarding treatment of that water would be whether it meets the quality standards of the selected off-site facility. For Alternatives IP-4, IP-5, IP-6, OP-3, and OP-5, the deciding factor regarding treatment of that water would be whether it meets federal and state ARARs for discharge to the Thames River.

Specific Comment A.29 – page 5-15, 4th paragraph (Section 5.2.4.2):

The alternative only partially meets the criteria for "reduction in toxicity, mobility, and volume" since treatment is limited to treating the dewatering water.

Response:

Agree. As stated in the 3rd sentence of the referenced paragraph, reduction of toxicity, mobility, and volume would be achieved through removal and off-site disposal rather than through treatment.

Specific Comment A.30 – Section 5.2.5.2, page 5-19:

The time for completion of IP-5 is estimated to be two months, whereas the time to complete all other Inner area alternatives is estimated to be one month. Please correct as appropriate for consistency.

Response:

Agree. This correction will be made.

Specific Comment A.31 – Section 5.2.6, page 5-19:

With the removal of the wooden pier and the associated sheet piles that isolated the Inner Area from the river, the inclusion of this alternative is less relevant. If Navy decides to present it, however, it would be more practical and economical if implemented with land-based excavation equipment similar to that used for alternatives IP-2 and IP-4 rather than equipment operating on the river bottom because of the significant safety issues associated with working at the bottom of the dewatered area. Other considerations include:

Response:

Agree/Disagree. The Navy agrees that with the removal of Pier 1, Alternative IP-6 became even less relevant and difficult to implement than it originally would have been. However, the Navy has elected to keep this alternative to evaluate a full range of options for the remediation of Inner Pier 1. However, while the Navy also agrees that the use for this alternative of land-based excavation equipment similar to that proposed for Alternatives IP-2 and IP-4 would avoid the significant safety issues associated with working at the bottom of a dewatered area, they do not agree that using such an approach would be more practical and economical because (as noted in the evaluation of Alternatives IP-2 and IP-4) the use of land-based excavation equipment would be severely hampered by the lack of available space in the Inner Pier 1 area and that this situation has been considerably aggravated by the removal of Pier 1.

a) Almost all the water removed from Inner Pier 1 would not require treatment because it has already been confirmed that the surface water is not a medium of concern. If water must be treated for this alternative, it must also be treated for all other alternatives. As the EE/CA's basis of design calculations note, the only water potentially requiring treatment would be the water removed when the water level has decreased to near the top of the sediment plus any water that infiltrated into the Inner Area during sediment removal operations. Because the sediment removal action for this alternative could be completed in approximately half the time suggested in the text (based on land-based excavation), the volume of water removed during construction would be much less than calculated in the EE/CA.

Response:

Agree/Disagree. The Navy agrees that most of the water drained from Inner Pier 1 would not require treatment as clearly indicated in the next-to-last sentence of the last paragraph of page 5-19 and also in the assumptions (2nd bullet) presented in Section 1.0 of Appendix B.3 that clearly state that only the last foot of water and the water that might seep into Inner Pier 1 during the removal action would require treatment. However, the Navy disagrees with the second part of this comment that suggests that the use of land-based excavation equipment would allow completion of the removal action in approximately half the estimated time (i.e., 12 days instead of 24). This is because the land-based equipment would be prevented to operate at full effectiveness as a result of the previously mentioned severe lack of space in the Inner Pier 1 area.

b) The production rate for working in the dry using land-based excavators (as opposed to working in the wet) would be significantly greater than assumed for working on the river bottom.

Response:

Disagree. See above response to Specific Comment A.31.a. The Navy does not believe that land-based excavation equipment could effectively operate in the restricted space of Inner Pier 1. Therefore, the production rate of such an option would not be significantly greater than that of the presented approach of working in a wet but less-encumbered environment.

c) The comments made for Alternative IP-2 are also applicable for Alternative IP-6.

Response:

Agree. Comment acknowledged.

Specific Comment A.32 – Section 5.3.1.1, page 5-24:

The comments for the No Action alternative for the Inner Pier also apply to the Outer Pier No Action alternative.

Response:

Agree. Comment acknowledged.

Specific Comment A.33 – Section 5.3.1.2, page 5-25:

Please replace “Inner Pier 1” with “Outer Pier 1.”

Response:

Agree. This correction will be made.

Specific Comment A.33 – Section 5.3.2, page 5-25:

Please change the first sentence to “... Outer Pier 1 with subsurface contamination if the contamination extends to within two feet of the surface of the sediment” Make the same edit in the first sentence of Section 5.3.2.1.

Response:

Disagree. The Navy believes that current expression used in the referenced sentence “...Outer Pier 1 with contamination at depths of 2 feet or less from the surface of the sediment...” is preferable and more accurate than that suggested by EPA.

Specific Comment A.34 – Section 5.3.2.1, page 5-26:

Capping needs to meet ARARs and EPA Guidance for the material that will be left in place (either the Solid or Hazardous Waste regulations, as well as EPA contaminated sediment guidance).

Response:

Agree. The last sentence of the 5th paragraph of the description of the Capping with Pre-Dredging component of Alternative OP-2 at the bottom of page 5-26 and top of page 5-27 states that: “Capping would be performed in accordance with U.S. EPA’s Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (U.S. EPA, 2005).” Text will also be added to this sentence to indicate that the cap would be designed and installed in accordance with the Navy’s Implementation Guide for Assessing and Managing Contaminated Sediment at Navy Facilities (Navy, 2005)

Specific Comment A.35 – Section 5.3.2.1, page 5-27:

For clarity, the first full paragraph should refer to a detailed work plan rather than a detailed design because a separate design phase will not occur.

Response:

Agree. See response to Specific Comment A.22.c. The referenced paragraph will be revised to refer to the RAWP rather than to a detailed design.

Specific Comment A.36 – page 5-27, 5th paragraph (Section 5.3.2.1):

Regarding the last sentence, see previous comments about passive dewatering for the Inner Pier alternatives (IP-2 and 3).

Response:

Agree. Comment acknowledged.

Specific Comment A.37 – Section 5.3.2.1, page 5-28:

a) The first paragraph refers to an on-shore the sediment staging area depicted in Figure 5-2. The RAWP proposes to transport barged sediment to a secondary handling facility where sediment would be treated, as necessary, then off-loaded to trucks for transport to an off-site disposal facility.

Response:

Disagree with clarifications. See response to Specific Comment A.24.a. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, while the conceptual approach toward sediment dredging, dewatering, and disposal should be consistent between the two documents, such details as the proposed location of the dewatered sediment staging area do not need to be identical.

b) Regarding the first paragraph, if the sediment will be characterized before the addition of the fly ash, the fly ash needs to be characterized separately to confirm all materials for disposal satisfy the disposal facilities requirements. Please clarify the text throughout the EE/CA.

Response:

Agree/Disagree. See response to Specific Comment A.24.b. The fly ash does need to be characterized, but this information can be obtained from the supplier and, with the exception of a nominal number of verification samples, an independent analytical effort should not be required for this purpose.

c) The discussion in the second paragraph should acknowledge that additional drainage water will be generated when the sediment is stockpiled on land and that a drainage collection system or other means would be employed to either discharge this water to the river or collect it for off-site disposal.

Response:

Agree. See response to Specific Comment A.24.c. Although it is unlikely that significant amount of drainage water would be generated during on shore staging of the dewatered sediment, the 2nd paragraph of page 5-28 will be revised to indicate that any such additional drainage water would be collected, characterized, and, if required, either disposed offsite or treated on-site prior to discharge to the Thames River.

Specific Comment A.38 – page 5-29, 1st paragraph (Section 5.3.2.1):

Since the capped facility will be in state waters, please discuss how LUCs will be established. Also, please discuss what steps will be taken if the shoreline area is transferred from Navy control and the Base Instruction is no longer applicable. Finally, add a statement that the LUCs established will be incorporated into the ROD for the Lower Subbase OU.

Response:

Although the capped area proposed as part of Alternatives OP-2 and OP-3 would be in State waters, it would be located immediately south of the boundary between Inner and Outer Pier 1 in a restricted area which is completely controlled by the Navy. As such, LUCs for this cap would be

incorporated in NSB-NLON's SOPA Instructions 5090.25 as indicated in the referenced paragraph. Details of these LUCs, such as steps that would be taken if the shoreline area is transferred from Navy control, would be provided in the LUC RD. The Navy also agrees that the 1st paragraph of page 5-29 which describes the LUCs will be expanded to indicate that the LUCs would be incorporated into the Lower Subbase ROD.

Specific Comment A.39 – page 5-29, 2nd paragraph (Section 5.3.2.1):

Note that the long-term monitoring requirement for the cap would also have to be incorporated into the ROD for the Lower Subbase OU.

Response:

Agree. A statement will be added to the referenced paragraph to indicate that the provisions for long-term monitoring of the cap would be incorporated in the Lower Subbase ROD.

Specific Comment A.40 – Section 5.3.2.1, page 5-29:

a) The discussion in the second paragraph under Monitoring is not consistent with the RAWP. The EE/CA states that baseline turbidity and dissolved oxygen monitoring will occur both inside and outside the Inner Pier 1 Area. The RAWP only includes turbidity monitoring (not dissolve oxygen monitoring) and background monitoring is only planned for inside the Inner Area before construction. Regarding construction monitoring, the RAWP requires continuous monitoring outside the curtain whereas this EE/CA only requires periodic monitoring. Please edit the EE/CA to be consistent with the RAWP.

Response:

Agree. See responses to Specific Comments A.24.d and A.25.b. The 2nd paragraph of the description of the Monitoring element of Alternative OP-2 on page 5-29 will be revised to address the broad inconsistencies with the turbidity monitoring described in the RAWP.

b) In the second paragraph under Monitoring the last sentence is not consistent with the RAWP. Two buoy-mounted meters will be located outside the curtain and one hand-held meter will be used inside the curtain to check turbidity before opening the curtain. Please edit the EE/CA to be consistent with the RAWP.

Response:

Agree. See responses to Specific Comments A.25.b and A.40.a. The description of the turbidity monitoring system provided in the referenced paragraph will be revised for consistency with the RAWP.

Specific Comment A.41 – Section 5.3.2.1, page 5-30:

Regarding the first full paragraph, note that the RAWP anticipates sediment waste characterization samples for every 500 cubic yards and that the analytical parameters identified in the RAWP SAP differ from those identified in this EE/CA. Please edit the documents for consistency.

Response:

Disagree with clarifications. See response to Specific Comments A.25.d. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, such details as the proposed frequency of dewatered sediment sampling do not need to be identical. The frequency proposed in the EE/CA of one sample per 250 cy is quite typical of this type of project and is in fact more conservative than that proposed in the RAWP. Regarding the analyses to be performed, the EE/CA lists total and leachable PCBs, metals, PAHs, and pesticides which have been identified as sediment COCs and which is consistent with, albeit not identical to, the analyses proposed by the RAWP.

Specific Comment A.42 – page 5-30, 3rd paragraph (Section 5.3.2.1):

Long-term monitoring of the cap needs to include bathymetric measurements to ensure the cap thickness is maintained, as well as a least yearly compliance monitoring that the LUCs are in place, are being enforced, and remain effective.

Response:

Agree. The referenced paragraph will be revised to indicate that long-term monitoring of the cap would include regular bathymetric measurements to ensure the cap thickness is maintained, and yearly site inspections to verify that the LUCs are in place, are being enforced, and remain effective.

Specific Comment A.43 – page 5-31, 1st paragraph (Section 5.3.2.2):

The criteria for the “reduction in toxicity, mobility, and volume” is not met by this alternative because it includes no treatment.

Response:

Agree. As clearly stated in the 1st full sentence of the referenced paragraph, reduction of toxicity, mobility, and volume would be achieved through removal and off-site disposal rather than through treatment.

Specific Comment A.44 – page 5-31, 3rd paragraph (Section 5.3.2.2):

Please discuss whether the cap would interfere with navigation and future navigational dredging in the area.

Response:

Agree. This concern is addressed in the last sentence of the 1st (partial) paragraph of page 5-31. Because only shallow draft vessels utilize Inner and Outer Pier 1, interference with navigation is not anticipated to be significant.

Specific Comment A.45 – Section 5.3.4, page 5-35:

a) The discussion of the depth of sediment excavation for this alternative is not consistent with the RAWP and not consistent with the required excavation depth. Contaminated sediment exists to at least six feet throughout the northern portion of the Outer Pier 1 Area (target excavation area). Consequently, the team agreed to overexcavate an additional foot of sediment to remove all sediment exceeding the PRGs. Therefore, seven feet of sediment will be excavated throughout the target area, resulting in 7,077 cubic yards. In addition, the RAWP estimated an additional volume of 10% to account for sidewall sloughing around the perimeter of the excavation. Please make the EE/CA and the RAWP relatively consistent.

Response:

Disagree with clarification. See response to Specific Comments A.2, A.3, and A.12. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, while the conceptual computations of the volume of dredged sediment should be consistent between the two documents, including the use of the estimated surfaces of contaminated sediment and the factoring of wall cut backs and overdredging, the fact that overdredging by up to 1 foot has been agreed upon by the New London Team as a result of the review process of the RAWP does not necessarily have to be reflected in the EE/CA.

b) The description of this alternative should acknowledge that some contaminated sediment located near the southern end of the former wooden Pier 1 will not be removed and will be addressed in subsequent remedial actions.

Response:

Disagree. See response to General Comment 1. This kind of statement or acknowledgement properly belongs in the description of the removal action area presented in Section 3.4.2 and the last paragraph of that section does acknowledge the presence of this separate area of sediment contamination at the southern end of former Pier 1 and clearly indicate that this area will be dealt with as part of the Lower Subbase4 FS.

c) The majority of the comments made for Alternative OP-2 also are applicable for Alternative OP-4, so please incorporate them into Alternative OP-4 as appropriate.

Response:

Agree. Comment acknowledged.

Specific Comment A.46 – Section 5.3.4, page 5-35:

Please clarify what the relationship between the six foot dredge depth and the depth of contaminated sediment exceeding PRGs. If contaminated sediment is left in place, the remedy the remedy may not be protective and there needs to be some additional action taken or a deferral of the final action to address any remaining risk to the Lower Subbase ROD.

Response:

The dredging depth of 6 feet is mentioned because it is the current estimated depth of sediment contamination for Outer Pier 1. In addition, as stated earlier in the EE/CA (e.g., 2nd paragraph of Section 3.4.2, an overdredge factor of 10 percent has been factored in, meaning that actual dredging depth would be approximately 6.6 feet. It is understood that, as part of the review process of the RAWP, the New London Team has agreed to a dredging depth of 6 feet with an allowable overdredge of up to 1 foot, but as stated in the responses to several similar comments (e.g., Specific Comments A.2, A.3, A.12, and A.45.a) the EE/CA is in fact supposed to precede the RAWP and be independent from it.

See previous comments about the protectiveness and ARARs compliance of passive dewatering.

Response:

Comment acknowledged. See responses to referenced comments (e.g., response to Specific Comment A.20).

Specific Comment A.47 – Section 5.3.4.1, page 5-37:

The discussion under Monitoring includes sidewall sampling of the excavation perimeter. However, sidewall sampling is not included in the RAWP. Please make the documents consistent.

Response:

Agree. Existing sediment characterization data provides adequate definition of the lateral extent of contamination. In addition, overdredging would increase the lateral extent of removal action as would the cutting back of sidewalls that is required for slope stability. Therefore, no confirmation sampling of sidewalls of the dredging area would be required and the description of the Monitoring component will be revised accordingly.

Specific Comment A.48 – Section 5.3.4.2, page 5-37:

The effectiveness discussion should acknowledge that some contaminated sediment located near the southern end of the former wooden Pier 1 will not be removed and will be addressed in subsequent remedial actions.

Response:

Disagree. See responses to General Comment 1 and Specific Comment A.45.b. This kind of statement or acknowledgement belongs in the description of the removal action area presented in Section 3.4.2 and the last paragraph of that section does acknowledge the presence of this separate area of sediment contamination at the southern end of former Pier 1 and clearly indicates that this area will be dealt with as part of the Lower Subbase FS.

Specific Comment A.49 – Tables, Section 5.0:

a) The following formatting errors occur in all the tables: 1) The layout under Effectiveness needs to exclude *Technical Feasibility*, which belongs under Implementability. 2) The layout under Short-term Effectiveness needs to exclude *Ability to construct and operate the technology* and *Reliability of technology*. These factors belong under Technical Feasibility.

Response:

Agree. The requested formatting corrections will be made.

b) Please change the response throughout all the tables to the following consideration: *Are there adverse environmental impacts expected with the construction and implementation of the remedy?* Although the Navy has indicated that there are no adverse impacts, benthic habitat will be damaged because sediment will be removed. EPA expects that the habitat will naturally return, although it will take longer in the Inner Area.

Response:

Agree. The response to the question "*Are there adverse environmental impacts expected with the construction and implementation of the remedy?*" will be corrected from "no" to "yes" to reflect that the proposed removal actions would significantly impact the sediment ecological population in the short-term, but provide significant benefit in the long-term. Language to this effect will also be added to the evaluation of the short-term effectiveness of all the alternatives, except the No Action alternatives.

Specific Comment A.50 – Table 5-1, page 1:

Will Alternative IP-2's passive dewater component meet federal and state water quality ARARs? and hazardous waste standards (if hazardous waste thresholds are exceeded by any of the sediment)?

Response:

See response to Specific Comment A.20. The passive dewatering component of Alternative IP-2 (and Alternatives IP-3 through IP-5 and OP-2 through OP-5) is expected to meet federal and state water quality ARARs.

This alternative does not meet the criterion for Reduction of Toxicity, Mobility, and Volume through Treatment.

Response:

Agree. As agreed to in the responses to several similar comments (e.g., responses to Specific Comments A.26 and A.43) and as indicated on the Section 5.0 tables and in the screening of the

Effectiveness criterion for each alternative, none of the proposed alternatives would reduce toxicity, mobility, and volume of COCs through treatment, except for the very small amount of COCs that would be removed through treatment of the waste dewatering fluid as part of Alternatives IP-4, IP-5, IP-6, OP-3, and OP-5.

Specific Comment A.51 – Table 5-2, page 1:

See comments for Table 5-1.

Response:

Agree. Comment acknowledged.

Specific Comment A.52 – Tables 5-3 to 5-5:

This alternative only partially meets the criterion for Reduction of Toxicity, Mobility, and Volume through Treatment because of the water treatment component.

Response:

Agree. See response to Specific Comment A.50.

Specific Comment A.53 – Table 5-6, page 1:

See comments for Table 5-1.

Response:

Agree. Comment acknowledged.

Specific Comment A.54 – Table 5-6, page 2:

In Implementability, discuss potential issues with the cap's interference with navigation and the need to establish LUCs on state-owned subtidal lands.

Response:

Disagree. See response to Specific Comment A.44. There are no major concerns about interference of the cap proposed under Alternatives OP-2 and OP-3 with navigation in the Outer Pier 1 area. The Navy only expects to use boats with shallow drafts (2 to 10 feet) in this area. In addition, Section 5.0 tables are only provided as a summary of major issues common to all alternatives. Therefore, such a relatively minor alternative-specific issue does not need to be addressed on these tables.

Specific Comment A.55 – Table 5-6, page 1:

This alternative only partially meets the criterion for Reduction of Toxicity, Mobility, and Volume through Treatment because of the water treatment component.

Response:

Agree. See response to Specific Comment A.50.

Specific Comment A.56 – Table 5-7, page 2:

In Implementability, please discuss potential issues with the cap's interference with navigation and the need to establish LUCs on state-owned subtidal lands.

Response:

Disagree. See response to Specific Comment A.54.

Specific Comment A.57 – Table 5-8, page 1:

See comments for Table 5-1. Also, the alternative only meets the Protectiveness criterion if all contaminated sediment exceeding PRGs is removed. If any contaminated sediment is left in place additional measures will likely be needed.

Response:

Agree. Comments on Table 5-1 acknowledged. It is anticipated that Alternative OP-4 (and Alternative OP-5) would result in the removal from Outer Pier 1 of all sediment with concentrations of COCs greater than the PRGs. As such, this alternative would be fully protective of human health and the environment. If any sediment with concentrations of COCs greater than PRGs would be left in place, this would be detected by the post-dredging confirmation sampling which is included in the Monitoring component of Alternative OP-4, and corrective action would be taken in the form of additional dredging.

Specific Comment A.58 – Table 5-9, page 1:

This alternative only meets the Protectiveness criterion if all contaminated sediment exceeding PRGs is removed. It only partially meets the criterion for Reduction of Toxicity, Mobility, and Volume through Treatment because of the water treatment component.

Response:

Agree. See response to Specific Comment A.58 for compliance of Alternative OP-5 with the Protectiveness criterion. See response to Specific Comment A.50 for compliance with the Reduction of Toxicity, Mobility, and Volume Through Treatment criterion.

Specific Comment A.59 – Figures, Section 5.0:

Please edit the figures to indicate that the eastern side of Pier 1 within the Inner Area was not flow through. This portion of the pier formerly had sheet piles that prevented flow through.

Response:

Agree. The appropriate Section 5.0 figures will be revised to show that the eastern side of Pier 1 within the Inner Area was not flow through.

Specific Comment A.60 – Figure 5-4:

Please supplement the title to refer to Alternatives OP-2 and OP-3.

Response:

Agree. A reference to Alternatives OP-2 and OP-3 will be added to the title of Figure 5-4.

Specific Comment A.61 – Figure 5-5:

Please supplement the title to refer to Alternatives OP-4 and OP-5.

Response:

Agree. A reference to Alternatives OP-4 and OP-5 will be added to the title of Figure 5-5.

Specific Comment A.62 – Section 6.0:

Incorporate all of the previous comments about each alternative into this section.

Response:

Agree. Comment acknowledged.

Specific Comment A.63 – Section 6, page 6-1:

Please acknowledge that some the contaminated sediment located near the southern end of the former wooden Pier 1 will not be removed and will be addressed in subsequent remedial actions.

Response:

Disagree. See responses to General Comment 1 and Specific Comments A.45.b and A.48. This kind of statement or acknowledgement properly belongs in the description of the removal action area presented in Section 3.4.2 and the last paragraph of that section does acknowledge the presence of this separate area of sediment contamination at the southern end of former Pier 1 and clearly indicate that this area will be dealt with as part of the Lower Subbase4 FS.

Specific Comment A.64 – Appendix A:

Please identify the data validation qualifiers used in this data set.

Response:

Agree. Footnotes will be added to identify validation qualifiers shown in the data set.

Specific Comment A.65 – Appendix B.2:

a) p. 1 of 7, §2.0: The second last bullet assumes that twice as much water will be collected in the bucket when excavating in the Inner Area as compared to the Outer Area. Please explain the logic for this assumption. Because the sediment is deeper in the Outer Area, one would assume that the bucket could be filled with sediment when excavating the Outer Area but would not be filled when excavating the shallow sediment overlying bedrock in the Inner Area. In the later case more water would be expected to collect in the bucket during excavation in the Inner Area.

Response:

Agree/Disagree. The estimation of the volume of water entrained by the dredging (or excavation) process is very speculative and subject to a wide range of variations. Actually, the 7th bullet of Section 2.0 of Appendix B.2 assumes that half as much water would be entrained (0.5 cf of water per cf of sediment as compared to 1 cf of water per cf of sediment) for the dredging of Inner Pier 1. This assumption that the volume of entrained water would be less (and not more as stated in the comment) for the dredging of Inner Pier 1 as compared with that of Outer Pier 1 is based on the fact that the depth of dredged sediment are similar (4 feet for Inner Pier 1, 6 feet for Outer Pier 1), but the depth of water overlying the sediment and through which the bucket must travel is significantly greater for Outer Pier 1 (15 to 35 feet) than for Inner Pier 1 (3 to 12 feet), thus affording a much greater opportunity to displace collected sediment with water. In any case, exact determination of the volume of entrained water is not a critical factor in the conceptual design of the alternative because dewatering operations will result in the removal of that water. An over-estimation or under-estimation of the volume of entrained water would only result in an over-estimation or under-estimation of the corresponding volume of dewatering fluid and of the associated treatment and/or disposal costs which are not a significant component of the overall project costs.

b) p. 5 of 7, §4.3.1: The sediment volume calculation in this section is not consistent with the RAWP and not consistent with the required excavation depth that the team agreed to. Contaminated sediment exists to a sampling depth interval of at least six feet throughout the northern portion of the Outer Pier 1 Area (target excavation area). Consequently, the team agreed to overexcavate an additional foot of sediment in hope of removing all contaminated sediment exceeding the PRGs. Therefore, seven feet of sediment will be excavated throughout the target area. This results in a volume of 7,077 cy. In addition, the RAWP estimated an additional volume of 10% to account for sidewall sloughing around the perimeter of the excavation. Because neither the EE/CA nor the RAWP are final, they should be made consistent on this issue. Please edit the documents accordingly.

Response:

Disagree with clarification. See response to Specific Comments A.2, A.3, A.12, and A.45.a. The EE/CA is supposed to precede the RAWP and has been prepared independently from it. Therefore, while the conceptual computations of the volume of dredged sediment should be consistent between the two documents, including the use of the estimated surfaces of contaminated sediment and the factoring of wall cut backs and overdredging, the fact that overdredging by up to 1 foot has been agreed upon by the New London Team as a result of the review process of the RAWP does not necessarily have to be reflected in the EE/CA.

c) For clarity, please edit the figures to indicate that the eastern side of Pier 1 within the Inner Area was not flow through – this portion of the pier formerly had sheet piles that prevented flow through.

Response:

Agree. The Figures 1 to 7 attached to Appendix B.2 will be revised to show that the eastern side of Pier 1 within the Inner Area was not flow through.

d) Please edit the Legend of Figure 4 to correct the description of the gray dashed line depicting the outline of the former pier; it is not a divider line for the Inner and Outer Areas.

Response:

Agree. The legend of Figure 4 attached to Appendix B.2 will be corrected to indicate that the gray dashed line depicts the outline of former Pier 1 and is not the divider line between Inner and Outer Pier 1.

Specific Comment A.66 – Appendix B.3:

a) p. 1 of 5, §1.0: The second last bullet assumes that the duration of IP-6 would be 24 days apparently based on an excavation rate of 120 cubic yards/day, the same rate as other Inner Area alternatives. This assumption is acceptable if excavation is conducted by placing equipment at the bottom of the river. However, as noted previously, a more practical assumption is to excavate with land-based excavators as per Alternative IP-2 in which case the excavation could be expected to be approximately double the assumed rate and therefore the duration would be half as long. This would also result in a reduction in the water volume treated and a lower overall cost for several reasons.

Response:

Disagree with clarification. See responses to Specific Comment A.31, A.31.a, and A.31.b. The Navy does not believe that use of land-based excavation equipment similar to that proposed for Alternatives IP-2 and IP-4 would be more practical and economical for the implementation of Alternative IP-6 because (as noted in the evaluation of Alternatives IP-2 and IP-4) the use of land-based excavation equipment would be severely hampered by the lack of available space in the Inner Pier 1 area and that this situation has been considerably aggravated by the removal of Pier 1. Therefore, the Navy stands by their original production rate estimate of 120 cy/day.

b) p. 5 of 5, §2.4: The GAC usage for Alternatives IP-4 & IP-5 should be 4,000 pounds based four changeovers at 1,000 pounds each. Please correct.

Response:

Agree. The estimated GAC usage for Alternatives IP-4 and IP-5 will be revised to 4,000 pounds.

Specific Comment A.67 – Appendix C:

Please correct the following minor errors:

Alternative IP-3: There is a typo at line 5.3. The dewatering fluid volume should be 27,650 gallons, the same as IP-2.

Response:

Agree. This correction will be made.

Alternative IP-4: a) There is an inconsistency at line 4.14 between this alternative and IP-2 and IP-5. IP-2 and IP-5 require twelve sediment samples versus nine for IP-3. b) At line 5.2, the filter size is actually 18 square feet per Appendix B.3.

Response:

Agree. Line 4.14 of the Alternative IP-4 cost estimate spreadsheet will be corrected to 12 samples to address item a) and Line 5.2 of the same spreadsheet will be revised to indicate the surface area of the bag filter as 18 square feet to address item b).

Alternative IP-5: At line 5.2, the filter size is actually 18 square feet per Appendix B.3.

Response:

Agree. Line 5.2 of the Alternative IP-5 cost estimate spreadsheet will be revised to indicate the surface area of the bag filter as 18 square feet.

Alternative IP-6: a) At line 5.6, note that two turbidity monitoring buoys would be required per the RAWP. b) Rather than placing excavation equipment at the river bottom, the cost of this alternative could be reduced by using land-based excavation (similar to IP-2) which would double the production rate, reduce the project duration, and significantly reduce the dewatering cost.

Response:

Agree/Disagree. Line 5.6 of the Alternative IP-6 cost estimate spreadsheet will be revised to indicate that two turbidity monitoring buoys would be required instead of one to address item a). Regarding item b) and as per responses to Specific Comment A.31, A.31.a, and A.31.b the Navy does not believe that the use of land-based excavation similar to that used for IP-2 would double the production rate, reduce the project duration, and significantly reduce the dewatering cost. The reason for this is that the severe lack of the space in the Inner Pier 1 area (made even more severe by the demolition of Pier 1) would prevent full beneficial use of the land-based excavation equipment.

Alternative OP-2: At line 6.2, the dewatering fluid volume for disposal is 8,400 gallons per Appendix B.2.

Response:

Agree. Line 6.2 of the Alternative OP-2 cost estimate spreadsheet will be revised to indicate that 8,400 gallons of dewatering fluids will require disposal

Alternative OP-3: At line 6.5, the GAC usage is 1,100 pounds per Appendix B.3.

Response:

Agree. Line 6.5 of the Alternative OP-3 cost estimate spreadsheet will be revised to indicate that that estimated GAC usage is 1,100 pounds

Alternative OP-4: At lines 4.13 and 4.14, there is a discrepancy between this alternative and OP-5. OP-4 uses 40 days versus OP-5 which uses 35 days. For reference, it is noted that for IP-3 and IP-4 the same number of days are required for these line items suggesting the same should apply for OP-4 and OP-5.

Response:

Agree. Lines 4.13 and 4.14 of the Alternative OP-4 cost estimate spreadsheet will be revised to indicate that 35 days of front-end loader and excavator time would be required.

Alternative OP-5: At line 5.2, the filter size is actually 18 square feet per Appendix B.3.

Response:

Agree. Line 5.2 of the Alternative OP-5 cost estimate spreadsheet will be revised to indicate the surface area of the bag filter as 18 square feet.

**RESPONSES TO EPA's OCTOBER 6, 2009 REBUTTAL OF RESPONSES TO COMMENTS
ON THE DRAFT EE/CA FOR INNER AND OUTER PIER 1
NAVAL SUBMARINE BASE – NEW LONDON, GROTON, CONNECTICUT**

Issued: October 8, 2009

EPA's September 2, 2009 Specific Comment A.33 – Section 5.3.2, page 5-25:

Please change the first sentence to "... Outer Pier 1 with subsurface contamination if the contamination extends to within two feet of the surface of the sediment" Make the same edit in the first sentence of Section 5.3.2.1.

Navy's September 22, 2009 Response:

Disagree. The Navy believes that current expression used in the referenced sentence "...Outer Pier 1 with contamination at depths of 2 feet or less from the surface of the sediment..." is preferable and more accurate than that suggested by EPA.

EPA's October 6, 2009 Rebuttal:

EPA requests that the text be changed as originally requested in the comment. The text in the response suggests that contamination is located only in the upper two feet, but that contamination would be removed by excavation and there would be no need for a cap. The correct description should allow that contamination exists at depth and extends up into the upper two feet as EPA's suggested text does. Please correct.

Response:

Agree. The requested revision will be made to the 1st sentence of Sections 5.3.2 and 5.3.2.1

EPA's September 2, 2009 Specific Comment A.38 – page 5-29, 1st paragraph (Section 5.3.2.1):

Since the capped facility will be in state waters, please discuss how LUCs will be established. Also, please discuss what steps will be taken if the shoreline area is transferred from Navy control and the Base Instruction is no longer applicable. Finally, add a statement that the LUCs established will be incorporated into the ROD for the Lower Subbase OU.

Navy's September 22, 2009 Response:

Although the capped area proposed as part of Alternatives OP-2 and OP-3 would be in State waters, it would be located immediately south of the boundary between Inner and Outer Pier 1 in a restricted area which is completely controlled by the Navy. As such, LUCs for this cap would be incorporated in NSB-NLON's SOPA Instruction 5090.25 as indicated in the referenced paragraph. Details of these LUCs, such as steps that would be taken if the shoreline area is transferred from Navy control, would be provided in the LUC RD. The Navy also agrees that the 1st paragraph of page 5-29 which describes the LUCs will be expanded to indicate that the LUCs would be incorporated into the Lower Subbase ROD.

EPA's October 6, 2009 Rebuttal:

The response and the edited EE/CA text on page 5-30 state that the LUCs would be incorporated into SOPA Instruction 5090.25. However, for clarity, because SOPA 5090.25 has already been issued and does not address Pier 1, please indicate that SOPA 5090.25 will be revised to incorporate the LUCs for the Pier 1 cap.

Response:

Agree. The description of the LUCs for Alternative OP-2 in Section 5.3.2.1 will be revised to indicate that NSB-NLON SOPA Instructions 5090.25 would be revised to incorporate these LUCs.

EPA's September 2, 2009 Specific Comment A.40 – Section 5.3.2.1, page 5-29:

a) The discussion in the second paragraph under Monitoring is not consistent with the RAWP. The EE/CA states that baseline turbidity and dissolved oxygen monitoring will occur both inside and outside the Inner Pier 1 Area. The RAWP only includes turbidity monitoring (not dissolve oxygen monitoring) and background monitoring is only planned for inside the Inner Area before construction. Regarding construction monitoring, the RAWP requires continuous monitoring outside the curtain whereas this EE/CA only requires periodic monitoring. Please edit the EE/CA to be consistent with the RAWP.

Navy's September 22, 2009 Response:

Agree. See responses to Specific Comments A.24.d and A.25.b. The 2nd paragraph of the description of the Monitoring element of Alternative OP-2 on page 5-29 will be revised to address the broad inconsistencies with the turbidity monitoring described in the RAWP.

b) In the second paragraph under Monitoring the last sentence is not consistent with the RAWP. Two buoy-mounted meters will be located outside the curtain and one hand-held meter will be used inside the curtain to check turbidity before opening the curtain. Please edit the EE/CA to be consistent with the RAWP.

Navy's September 22, 2009 Response:

Agree. See responses to Specific Comments A.25.b and A.40.a. The description of the turbidity monitoring system provided in the referenced paragraph will be revised for consistency with the RAWP.

EPA's October 6, 2009 Rebuttal:

The revised EE/CA text is inconsistent with the Navy's response and contains an error on page 5-30 in the last sentence in the fourth paragraph under *Monitoring*. The text states that two buoy-mounted turbidity analyzers would be located inside the turbidity curtain. Please correct the EE/CA text to state that they will be located outside the turbidity curtain.

Response:

Agree. The last sentence of the 3rd paragraph of the description of the Monitoring component of Alternative OP-2 in Section 5.3.2.1 will be revised to indicate that the two buoy-mounted turbidity analyzers would be located outside the turbidity curtain, as it had been meant to say (but didn't by error). The remainder of the description of the turbidity monitoring is consistent with the RAWP and the Navy's September 22, 2009 response.

EPA's September 2, 2009 Specific Comment A.49 – Tables, Section 5.0:

a) The following formatting errors occur in all the tables: 1) The layout under Effectiveness needs to exclude *Technical Feasibility*, which belongs under Implementability. 2) The layout under Short-term Effectiveness needs to exclude *Ability to construct and operate the technology and Reliability of technology*. These factors belong under Technical Feasibility.

Navy's September 22, 2009 Response:

Agree. The requested formatting corrections will be made.

b) Please change the response throughout all the tables to the following consideration: *Are there adverse environmental impacts expected with the construction and implementation of the remedy?* Although the Navy has indicated that there are no adverse impacts, benthic habitat will be damaged because sediment will be removed. EPA expects that the habitat will naturally return, although it will take longer in the Inner Area.

Navy's September 22, 2009 Response:

Agree. The response to the question "*Are there adverse environmental impacts expected with the construction and implementation of the remedy?*" will be corrected from "no" to "yes" to reflect that the proposed removal actions would significantly impact the sediment ecological population in the short-term, but provide significant benefit in the long-term. Language to this effect will also be added to the evaluation of the short-term effectiveness of all the alternatives, except the No Action alternatives.

EPA's October 6, 2009 Rebuttal:

Please correct the spelling in the NOTES for each table.

Response:

Agree. The spelling of "appropriate" will be corrected in the foot notes of the Section 5.0 tables.

OTHER OCTOBER 6, 2009 EPA COMMENTS:

Section 5 Figures:

The revised figures were not resubmitted for review. EPA will review the next submittal of the EE/CA to confirm that the figures have been corrected.

Response:

Section 5 figures were revised as required and will be submitted with the Final EE/CA.

Appendix A:

Revised Appendix A was not submitted for review. EPA will review the next submittal of the EE/CA to confirm that Appendix A has been corrected.

Response:

Appendix A was revised as required and will be submitted with the Final EE/CA.

Appendix B.2:

Revised Appendix B.2 figures were not submitted for review. EPA will review the next submittal of the EE/CA to confirm that Appendix B.2 figures have been corrected.

Response:

Appendix B.2 was revised as required and will be submitted with the Final EE/CA.

Appendix B.3:

Revised Appendix B.3 was not submitted for review. EPA will review the next submittal of the EE/CA to confirm that Appendix B.3 has been corrected.

Response:

Appendix B.3 was revised as required and will be submitted with the Final EE/CA.

Appendix C:

Revised Appendix C was not submitted for review. EPA will review the next submittal of the EE/CA to confirm that Appendix C has been corrected.

Response:

Appendix C was revised as required and will be submitted with the Final EE/CA.