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LETTER AND COMMENTS FROM RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL
MANAGEMENT REGARDING DRAFT FEASIBILITY STUDY SITE 19 FORMER DERECKTOR
SHIPYARD MARINE SEDIMENT NS NEWPORT RI

6/24/2013

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT



RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Newport Site 19
015

24 June 2013

Mr. Dominic O'Connor, P.E.
NAVFAC MIDLANT (Code OPTE3)
Environmental Restoration
Building Z-144, Room 109
9742 Maryland Avenue
Norfolk, VA 23511-3095

Re: Draft Feasibility Study (FS)
Site 19 - Former Derecktor Shipyard Marine Sediment
Naval Station Newport, RI

Dear Mr. O'Connor,

The Office of Waste Management at the Rhode Island Department of Environmental Management (RIDEM) has conducted a review of the *Draft Feasibility Study (FS)* dated March 2013 for Site 19 - Former Derecktor Shipyard Marine Sediment, Naval Station Newport, located in Newport and Middletown, RI. As a result of this review, this Office has generated the attached comments on the *Draft FS*. Also included are this Office's comments on the April 29, 2013 memo regarding Alternatives 6 and 7, which RIDEM had requested the Navy to evaluate. Please note that some of these comments also apply to the Draft FS.

If you have any questions in regards to this letter, please contact me at (401) 222-2797, extension 7020 or by e-mail at pamela.crump@dem.ri.gov.

Sincerely,

Pamela E. Crump, Sanitary Engineer
Office of Waste Management

cc: Matthew DeStefano, RIDEM
Richard Gottlieb, RIDEM
Gary Jablonski, RIDEM
Lisa McIntosh, W&C
Darlene Ward, NSN
Kymberlee Keckler, EPA Region I
Steve Parker, Tetra Tech
Ken Munney, USF&WS
Ken Finkelstein, NOAA

**RIDEM's Comments (6/24/13) on the
Draft Feasibility Study (4/1/13)
Site 19 - Former Derecktor Shipyard Marine Sediment
Naval Station Newport, RI**

Specific Comments:

- 1. p. ES-2, Executive Summary, Background; 1st sentence.**

"On-shore investigations were conducted from 1995 to 1998 and found little residual contamination on the land portions of the site and only trace chemicals in the groundwater at the site."

Based on the recent FS submitted for Onshore Derecktor, the existing contamination is significant enough to conduct remedial actions for both soil and groundwater. Please revise this statement to indicate that contamination still exists on the land portion of the site which will need to be addressed through future remedial actions.

- 2. p. ES-2, Executive Summary, Background; 2nd paragraph, last sentence.**

"The PRGs were finalized with agency review and input in November 1998."

Please revise this report to note that RIDEM never concurred with the PRGs developed in 1998 due to many issues as explained in RIDEM's letter to the Navy on January 2, 2009.

- 3. p. ES-3, Executive Summary, Conclusions of Investigations Supporting FS Development; 4th paragraph, last sentence.**

"This study also found that the sediments were stable within a depositional environment."

Please note that based on comments issued for the 2011 SSI, EPA and RIDEM did not agree with this conclusion.

- 4. p. ES-4, Executive Summary, Feasibility Study Process, RAOs; bullets.**

Please reword the RAOs to remove the phrase *"that cause its PRG to be exceeded"*.

- 5. p. ES-5, Executive Summary, Feasibility Study Process, Alternatives; bullets.**

Please note that RIDEM requested that the Navy include two additional alternatives (6 & 7) that included dredging without backfill. RIDEM had hoped that these alternatives would be evaluated as part of this FS; however, the Navy only briefly discussed these alternatives in a memo sent following the issuance of the Draft FS. RIDEM requests that the Navy revise the FS to include Alternative 6, at a minimum, because Alternatives 4 & 5, as currently presented in this FS, will require long-term monitoring (LTM) and land use controls (LUCs) which will limit this natural resource for the State of RI. See comment #10 below.

- 6. p. ES-5, Executive Summary, Summary of Alternatives, Alternative 2.**

This alternative will address deeper sediments through implementation of ICs to partially restrict traffic by large ships. Please note that the Navy indicated that the existing aircraft carrier located at

Pier 1 will be transferred to another location as some point in the near future (as discussed on p. 1-7), and the Navy also mentioned that another large ship may potentially be brought into Newport to be docked at Pier 1. Therefore, restriction of large ships at this site does not seem practical.

7. p. ES-5, Executive Summary, Summary of Alternatives, Alternative 2; 3rd sentence.

RIDEM does not agree that “ongoing deposition” was proven to be occurring at this Site. Please remove “*ongoing deposition*” or revise to “*possible ongoing deposition*”.

8. p. ES-6, Executive Summary, Summary of Alternatives, Alternative 3.

Please describe the “engineered barrier” in more detail in this paragraph.

9. p. ES-6, Executive Summary, Summary of Alternatives, Alternative 4.

In addition to the cap under the pier, please include long-term monitoring of the open water areas where a cover will be placed over deeper sediment exceeding PRGs.

10. p. ES-6, Executive Summary, Summary of Alternatives, Alternative 5.

“...LUCs and LTM would not be necessary.”

As currently presented in this FS, the volume-weighted average concentration (VWAC) is below the PRG for each constituent for Alternative 5; however, the VWACs for benzo(a)pyrene and lead are just slightly under their PRG; therefore, compliance with the PRGs on a volume-weighted average basis cannot be achieved with reasonable certainty. The surface-weighted average concentration (SWAC) for benzo(a)pyrene (707 ug/kg) exceeds the PRG (539 ug/kg) significantly. Also, it is unknown whether the areas proposed to be dredged and backfilled contain contamination at a greater depth. The backfill may be serving as a cap over contaminated sediments which would require LTM and LUCs. Further, this alternative leaves in place contamination at several locations which is 2-5 times the PRG. Based on these reasons, LUCs, LTM and 5-years reviews should be required for Alternative 5, unless further revisions to this alternative are made to include additional dredging in several hotspot areas and confirmatory sampling to indicate if contamination exists below the proposed backfilled areas.

11. p. 1-1, Section 1.0, Introduction; 3rd paragraph; 3rd sentence.

Please see specific comment #2.

12. p. 1-5, Section 1.2, Site History; last paragraph, 2nd sentence.

Please see specific comment #2.

13. p. 1-25, Section 1.4.4, Identification of COCs and Development of PRGs – 1998; 2nd paragraph.

“The PRG development document was finalized in November of 1998; USEPA accepted this document in a letter dated December 21, 1998. RIDEM provided follow-up comments to the final document, which were resolved without revision to the document on May 11, 1999.”

Please see specific comment #2. The issues discussed in RIDEM’s comments were not resolved.

14. p. 2-6, Section 2.2.2, Development of PRGs; 1st paragraph.

Please explain in greater detail in this section how the recommended PRGs (RPRGs) were calculated. Please state that the baseline PRGs (BPRGs) were multiplied by a factor of 10 to obtain the RPRGs and explain the reason that this was done.

15. p. 2-6, Section 2.2.2, Development of PRGs; 2nd paragraph.

Please see specific comments #2 and #13.

16. p. 2-9, Section 2.3, Formulation of Sediment Remedial Action Objectives; 2 bullets

Please reword the RAOs to remove the phrase *"that cause its PRG to be exceeded"*.

17. p. 3-10, Section 3.3.3.1, Thin Layer Cover.

This section discusses that the thin layer cover would "enhance the process of natural depositional recovery". Please note that the results of the SSI do not show that natural deposition is occurring at this site. Based on the bathymetric surveys (as discussed on p. 1-13), the depths remain fairly consistent and are in agreement with conditions dating back to the 1950's.

18. p. 3-11, Section 3.3.3.2, Subaqueous Cover System; 1st paragraph, 2nd sentence.

Please specify the thickness of the cap to differentiate between this alternative and the thin layer cover alternative.

19. p. 3-26, Section 3.5, Rationale for Development of Alternatives, Alternative 5.

"This alternative would not require ICs, LTM and 5-year reviews."

Please see comment #10 above.

20. p. 4-1, Section 4.0, Alternative 4; 3rd bullet.

In addition to LUCs to limit access under Pier 2, LUCs will also be required for the open water areas covered by one foot of clean fill. Contamination in the 1-2 ft zone in some areas is significant; therefore, LUCs similar to Alternatives 2 and 3 will be necessary to prevent deep draft vessels or fishing vessels from disturbing the 1-foot cover over contamination in the 1-2 foot zone that would remain in place with this alternative.

21. p. 4-2, Section 4.0, Alternative 4; 1st bullet.

Similar to the comment above, LTM will also be required for the open water areas covered by one foot of clean fill in addition to the areas under Pier 2. Contamination in the 1-2 ft zone in some areas is significant; therefore, LTM will be necessary to ensure that concentrations exceeding PRGs do not become exposed at the sediment surface.

22. p. 4-2, Section 4.0, Alternative 5; 2nd bullet.

Please see comment #10 above.

23. p. 4-3, Section 4.1.1, Alternative 1; table.

Please change the units for the lead PRG to mg/kg instead of µg/kg. Also, the PRG of 1,284 µg/kg for benzo(a)pyrene is slightly different from the PRG of 1,283 µg/kg provided in Appendix D-7. Please review all Section 4 PRG tables for consistency with Appendix D-7. (Please note that other PRG tables in other sections also have incorrect units for lead.)

24. p. 4-3, Section 4.1.2, Alternative 2, Thin Layer Cover; whole section.

Please see comment #17. A “natural depositional recovery process” does not appear to be occurring at this site.

25. p. 4-4, Section 4.1.2, Alternative 2, Thin Layer Cover; table.

Please include in this table the SWAC concentrations based on a 6-inch cap. Although the design would specify a 12-inch cover, the goal of this remedy is to achieve a minimum cover of 6 inches. If the SWAC concentrations for a 6-inch cover exceed the PRGs, then please revise this alternative to a 12-inch minimum thin layer cover.

26. p. 4-4, Section 4.1.2, Alternative 2, Thin Layer Cover; 2nd paragraph, 1st sentence.

Please explain why the placement of a thin layer cover will not likely impact subtidal areas (e.g., water column depth, etc., such as discussed on p. 4-7 for the in-situ cap).

27. p. 4-5, Section 4.1.2, Alternative 2, Thin Layer Cover; 2nd paragraph.

Please note that the Navy indicated that the existing aircraft carrier located at Pier 1 will be transferred to another location at some point in the near future (as discussed on p. 1-7), and the Navy also mentioned that another large ship may be brought into Newport to be docked at Pier 1. Therefore, Pier 1 is also an area of concern regarding disturbance by vessel traffic. In addition, ICs will be required across the entire site to restrict recreational and commercial fishing activities.

28. p. 4-5, Section 4.1.2, Alternative 2, Thin Layer Cover; 3rd paragraph, last sentence.

Please see comment #17. A “natural depositional recovery process” does not appear to be occurring at this site.

29. p. 4-5, Section 4.1.2, Alternative 2, Thin Layer Cover, Long-Term Monitoring and 5-Year Reviews.

This section states that a single sediment sampling event per year and a bathymetric survey every five years may be sufficient for long-term monitoring. For costing purposes, please include estimates for additional sampling/bathymetric surveys that may be necessary due to a significant storm event. Also, the frequency of monitoring and surveys should be evaluated further in the remedial design phase.

30. p. 4-8, Section 4.1.3, Alternative 3, In-Situ Cap (Engineered Barrier), Long-Term Monitoring and 5-Year Reviews.

Please see previous comment for Alternative 2.

31. p. 4-9, Section 4.1.4, Alternative 4, Combination Dredge/Backfill; 4th bullet.

Please indicate in this bullet which “capped areas” will be monitored long-term (i.e., target areas beneath Pier 2 only).

32. p. 4-9, Section 4.1.4, Alternative 4, Combination Dredge/Backfill; table.

Please do not include the area under Pier 2 in the VWAC calculations. This area will already be addressed with an engineered barrier for this alternative. Therefore, the VWAC concentrations should be based on the remaining areas of the site where PRGs are exceeded. As currently presented, the PRG for benzo(a)pyrene, based on a volume-weighted average, does not meet the PRG identified in this FS. Given that the baseline PRGs (BPRGs) were multiplied by a factor of 10 to obtain the RPRGs, a remedy in which an exceedance of an RPRG would remain is not a protective remedy.

If the VWACs calculated without including the area under Pier 2 still indicate exceedances of any PRG, please modify this alternative to include additional dredging to ensure that the remaining VWACs do not exceed PRGs.

33. p. 4-9, Section 4.1.4, Alternative 4, Combination Dredge/Backfill, Institutional Controls.

In addition to ICs to limit access under Pier 2, LUCs will also be required for the open water areas covered by one foot of clean fill. Contamination in the 1-2 ft zone in some areas is significant; therefore, LUCs similar to Alternatives 2 and 3 will be necessary to prevent deep draft vessels, fishing vessels, etc. from disturbing the 1-foot cover over contamination in the 1-2 foot zone that would remain in place with this alternative.

34. p. 4-10, Section 4.1.4, Alternative 4, Combination Dredge/Backfill, Dredging and Disposal; 1st paragraph.

In addition to bathymetric surveys, please indicate if the Navy plans to conduct confirmatory sampling after dredging and backfilling are conducted.

35. p. 4-12, Section 4.1.4, Alternative 4, Combination Dredge/Backfill, Long-Term Monitoring and 5-Year Reviews; 1st paragraph.

Long-term monitoring (LTM) will also be required for the open water areas covered by one foot of clean fill in addition to the areas under Pier 2. Contamination in the 1-2 ft zone in some areas is significant; therefore, LTM will be necessary to ensure that concentrations exceeding PRGs do not become exposed at the sediment surface. Please include LTM of the open water areas as part of this alternative.

36. p. 4-12, Section 4.1.4, Alternative 4, Combination Dredge/Backfill, Long-Term Monitoring and 5-Year Reviews; 2nd and 3rd paragraphs.

This section states that a single sediment sampling event per year and a bathymetric survey every five years may be sufficient for long-term monitoring. For costing purposes, please include estimates for additional sampling/bathymetric surveys that may be necessary due to a significant storm event. Also, the frequency of monitoring and surveys should be evaluated further in the remedial design phase.

37. p. 4-13, Section 4.1.5, Alternative 5, Target Dredging and Backfill; table.

As currently presented, the concentration of benzo(a)pyrene, based on a surface-weighted average, does not meet the PRG identified in this FS. Given that the baseline PRGs (BPRGs) were multiplied by a factor of 10 to obtain the RPRGs, a remedy in which an exceedance of an RPRG would remain is not a protective remedy. Please modify this alternative to include additional dredging to ensure that the remaining SWACs do not exceed PRGs.

38. p. 4-13, Section 4.1.5, Alternative 5, Target Dredging and Backfill; 3rd paragraph.

Rather than backfill, confirmatory sampling could be conducted following dredging which may indicate that the sediment at deeper intervals does not exceed PRGs. This data could then be used to calculate site-wide SWACs and VWACs. The use of backfill to cover existing contamination would be considered a cap which would require LUCs, LTM and 5-year reviews.

39. p. 4-20, Section 4.3.2, Alternative 2, Enhanced Natural Recovery through Thin Layer Cover; whole section.

Please see comment #17. A “natural depositional processes” does not appear to be occurring at this site.

40. p. 4-27, Section 4.3.4, Alternative 4, Combination Dredge/Backfill; 1st paragraph.

Please revise this paragraph based on comment #32 above.

41. p. 4-28, Section 4.3.4, Alternative 4, Combination Dredge/Backfill; 3rd paragraph.

Please revise this section to include LUCs for the backfilled (capped) open port areas. See comment #33 above.

42. p. 4-28, Section 4.3.4, Alternative 4, Combination Dredge/Backfill; 6th paragraph.

Please revise this section to include long-term monitoring and 5-year reviews of the backfilled (capped) open port areas. See comment #35 above.

43. p. 4-31, Section 4.3.4, Alternative 4, Combination Dredge/Backfill, Cost.

Please update the cost estimates for Alternative 4 to include LUCs, long-term monitoring, and 5-year reviews for the backfilled (capped) open port areas, in addition to the area under Pier 2.

44. p. 4-32, Section 4.3.5, Alternative 5, Target Dredging and Backfill; 1st paragraph.

Please see comment #37 above. The SWAC for benzo(a)pyrene does not meet the PRG identified in this FS. Please modify this alternative to include additional dredging to lower the SWAC to below the PRG for benzo(a)pyrene.

45. p. 4-32, Section 4.3.5, Alternative 5, Target Dredging and Backfill; 4th & 5th paragraphs.

Please see comment #10 above.

46. p. 4-34, Section 4.3.5, Alternative 5, Target Dredging and Backfill, Implementability.

RIDEM understands that dredging down to 4 feet beneath Pier 2 is projected to be difficult and may not be implementable, although the silty sediment under the pier may not be as difficult to dredge as presented in this FS. However, given the potential concerns with dredging under the pier, if this alternative is chosen as the preferred alternative in the Proposed Plan/ROD, a stipulation should be included to cap the sediment under Pier 2 as outlined in Alternative 4 if it is determined during the remedial design phase that dredging under the pier is not possible. Also, please state that when Pier 2 is ultimately reconstructed or demolished, the contaminated sediment will then be dredged from this area as it becomes accessible.

47. p. 4-35, Section 4.3.5, Alternative 5, Target Dredging and Backfill, Cost.

Please update the cost estimates based on comments #37 and #44 above.

48. p. 4-35, Section 4.4, Comparative Analysis of Remedial Alternatives, Overall Protection of Human Health and the Environment; 1st paragraph.

Please revise this paragraph to state that LUCs restricting ship traffic, fishing vessels, etc. will be required for the open port areas under Alternative 4. As currently proposed in this FS, risk to human and ecological receptors will remain at depth, requiring long-term monitoring and maintenance for the entire site.

49. p. 4-36, Section 4.4, Comparative Analysis of Remedial Alternatives, Overall Protection of Human Health and the Environment; 3rd paragraph.

Please see comment #17. A "natural depositional processes" does not appear to be occurring at this site.

50. p. 4-36, Section 4.4, Comparative Analysis of Remedial Alternatives, Compliance with ARARs.

Please see comment #17. A "natural depositional processes" does not appear to be occurring at this site.

51. p. 4-37, Section 4.4, Comparative Analysis of Remedial Alternatives, Long-Term Effectiveness and Permanence; 1st paragraph.

Please see comment #32. The area underneath Pier 2 should not be included in the VWAC calculation for Alternative 4 since it will be addressed separately with a cap.

52. p. 4-37, Section 4.4, Comparative Analysis of Remedial Alternatives, Long-Term Effectiveness and Permanence; 1st paragraph, last sentence.

Please see comment #10 above.

53. p. 4-38, Section 4.4, Comparative Analysis of Remedial Alternatives, Short-term Effectiveness; last sentence.

Please revise this sentence to state that Alternative 2 (thin-layer cover) would also provide short-term effectiveness comparable to that of Alternative 3.

54. p. 4-38, Section 4.4, Comparative Analysis of Remedial Alternatives, Implementability; bullets.

The problems that the Navy may encounter in dredging under the pier are clearly outlined in this section, while the difficulties in capping under the pier are not discussed. Due to slope created from the shallower sediment under the pier compared to the deeper adjacent sediment, and silty nature of the sediment, capping under the pier will also be challenging and should be discussed in this section and reflected in the cost estimates for Alternative 4.

55. p. 4-39, Section 4.4, Comparative Analysis of Remedial Alternatives; Cost.

Please revise these cost estimates based on previous comments.

56. Table ES-1, Summary of Remedial Alternatives.

The implementability of Alternative 5 (under Pier 2) is listed as "NO". This alternative is presented as in this FS as difficult but potentially achievable. Please change "NO" to "TBD". Also, please revise the cost estimates based on previous comments.

57. Table 3-1, Preliminary Screening of Sediment Technologies and Process Options

1. Under the description of the Thin Layer Cover (p. 2): This table specifies that a 6-inch layer of natural material will be installed. However, Section 4 of this FS specifies a cap thickness of 6-12". Please revise the cap thickness depth in this table to be consistent with the text.
2. Under the description of Hydraulic Dredging (p. 3, 3rd sentence): Please revise the end of the sentence to state that "*the use of hydraulic pumps will dramatically reduce re-suspension compared to other forms of dredging.*"
3. Under the screening comments for landfilling off-site/off-site disposal (p. 3): Please remove the reference to "island".
4. Under the screening comments for the use of CAD cells (p. 3): This table indicates that this technology is retained for further evaluation; however, p. 3-19 of this FS states that CAD was eliminated from the evaluation.
5. Under the process option for ex-situ, off-site treatment (p. 4): Please remove the extra word "physical" from the description.

58. Table 4-16, Summary of Detailed Analyses of Sediment Remedial Alternatives.

Please revise this entire table based on the previous comments.

For the Short-Term Effectiveness section:

- Risk to Community: Alternative SD4 would likely have significant truck traffic similar to that of Alternative SD5. Please change the risk from minor to moderate.
- Risk to Workers: For Alternative SD5, there is a moderate to high risk to divers working under Pier 2. Please revise the table to reflect this.
- Environmental Impacts: Please note typographical error ("temporary") in this row. Also, Alternatives SD4 and SD5 would likely have impacts to aquatic organisms due to sediment disturbance and resuspension.

59. Tables.

Please include an additional table in this FS with the length and width of each cell, and the total cubic yards for 1 ft, 2 ft, and 4 ft depths as appropriate.

Comments on the April 29, 2013 memo regarding RIDEM's suggested Alternatives 6 and 7:

RIDEM requested that the Navy evaluate two additional alternatives (6 & 7) which include dredging without the use of backfill. Alternative 6 includes capping under the pier (similar to Alternative 4) and Alternative 7 includes dredging under the pier (similar to Alternative 5).

General Comments:

1. An average over-dredge depth of 9 inches is assumed, consistent with the Apex estimate at the end of Appendix E of the Draft FS used as a source of costing information. However, it is not clear if the detailed cost estimates in the Draft FS included this assumption. Please provide in the FS detailed information on how the overdredge volumes were calculated for each cell for Alternatives 4 and 5.
2. The Apex estimate included the assumption that sidewalls of the excavated areas would slough at an average slope of 1H:5V, a slough angle which seems unrealistically steep and was perhaps a typographical error. A more conservative slough angle of 2H:1V should be assumed. It is not clear what sloughing angle was used in the detailed estimates in the Draft FS, if any, or for Alternatives 6 & 7. Please update the FS to include a detailed discussion of the sloughing angles assumed, and include this information in the response to comments for Alternatives 6 & 7.
3. Although many grid squares designated for removal are adjacent to each other, this review conservatively assumes that sloughing occurs on all four sides of each grid square. Please indicate if this assumption was also used for Alternatives 4 and 5. Please revise the calculations of overdredge volume to remove sloughing on the sides where adjacent cells are already addressed, as this should significantly lower the cost estimates.
4. After review of the cost estimates for these alternatives, the diver-assisted dredging unit rate used in both this additional alternatives assessment and in the Draft FS appears to be inflated. TetraTech has used a rate of \$1,250/CY, whereas the costing basis provided by Apex in the Draft FS would appear to support a unit rate of approximately \$130/CY. The basis for the higher unit rate is not clear. If instead, the unit rate suggested by Apex is used, the total capital cost for Alternatives 5 and 7 would be reduced by approximately \$13M and \$26M, respectively.
5. It appears that, based on the information provided for Alternatives 6 & 7, the total volumes estimated for these two alternatives (including over-dredging and sloughing) are overstated, if the over-dredging and sloughing assumptions are made consistent with those used in the Draft FS. As requested in these comments, please provide the detailed overdredge and sloughing calculations used in this analysis, and revise the assumptions based on the comments above.

(continued on next page)

The following is a comparison of Alternatives 4 & 6:

| Scenario | Benzo(a)pyrene (ug/kg) | Total HMW PAHs (ug/kg) | Total PCBs (ug/kg) | Lead (mg/kg) |
|--------------------|------------------------|------------------------|--------------------|--------------|
| PRG | 539 | 13,903 | 1,060 | 168 |
| Alternative 4 VWAC | 788 | 13,663 | 381 | 164 |
| Alternative 6 VWAC | 526 | 13,181 | 203 | 168 |

| | Alternative 4 | Alternative 6 |
|---|---------------------|---------------|
| Dredge Volume | not specified in FS | 14,005 cy |
| Predicted Volume after overdredge and sloughing | 14,016 cy | 27,000 cy |

| | Alternative 4 | Alternative 6 |
|--------------------------|---------------|---------------|
| Capital Cost | \$11.9M | \$16.7M |
| Long-Term cost | \$1.0M | \$0.9M |
| Total Present Worth Cost | \$12.9M | \$17.6M |

RIDEM's Comments on the April 29, 2013 memo for Alternative 6:

1. *"...the cells beneath Pier 2 that exceed COC PRGs will not be included in the VWAC calculation."*

The Navy agreed with RIDEM's request to not include the cells beneath Pier 2 in the VWAC calculations for Alternative 6. However, the cells beneath Pier 2 are included in the VWAC calculations for Alternative 4 in the FS; therefore, this does not allow adequate comparison of Alternatives 4 and 6. Please revise the FS to remove the cells from under Pier 2 from the VWAC calculations.

2. *"...it was determined that without dredging cell AA05 (beneath Pier 1) it is not possible to reach a VWAC for benzo(a)pyrene, so this cell will also be capped under this alternative..."*

Please note that the VWAC for benzo(a)pyrene for Alternative 4 does not meet the PRG. As explained in RIDEM's comments on the Draft FS, the Navy will need to revise Alternative 4 to lower the VWAC for benzo(a)pyrene below the PRG. As indicated in this memo, it appears that Alternative 4 will need to include capping of cell AA05 under Pier 1 as part of the remedy. Please revise the FS accordingly.

3. In addition to the VWACs, please also provide the SWACs for Alternative 6.
4. The memo indicates that the following cells will be dredged or capped in Alternative 6:

Dredge to 1 foot: J30, K05, K13, L24, L28, Y30
Dredge to 2 feet: AE24, BC30, BD26, BE30, J24, W24, Y25, Y26, Y28
Dredge to 4 feet: AC30, N24
CAP (engineered barrier): G25, G29, AA05

RIDEM requested that the Navy provide a table in the FS with the length and width of each cell, and the total cubic yards for 1 ft, 2 ft, and 4 ft depths as appropriate. Please also provide this information in the response to comments.

- The in-place volume for this Alternative is 14,005 cy, without including overdredge or sloughing. Please provide the in-place volume for Alternative 4 (or this can be determined from the information provided for the comment above).

The following is a comparison of Alternatives 5 & 7:

| Scenario | Benzo(a)pyrene (ug/kg) | Total HMW PAHs (ug/kg) | Total PCBs (ug/kg) | Lead (mg/kg) |
|--------------------|------------------------|------------------------|--------------------|--------------|
| PRG | 539 | 13,903 | 1,060 | 168 |
| Alternative 5 VWAC | 527 | 9,075 | 381 | 150 |
| Alternative 7 VWAC | 526 | 13,181 | 341 | 163 |

| | Alternative 5 | Alternative 7 |
|---|---------------------|---------------|
| Dredge Volume – open water | not specified in FS | 13,674 cy |
| Dredge Volume – under Pier 2 | not specified in FS | 7,540 cy |
| Dredge Volume – under Pier 1 | 0 | 4,791 cy |
| Predicted Volume after overdredge and sloughing | 24,335 cy | 44,000 cy |

| | Alternative 5 | Alternative 7 |
|--------------------------|---------------|---------------|
| Capital Cost | \$31M | \$51M |
| Long-Term cost | \$0 | \$0 |
| Total Present Worth Cost | \$31M | \$51M |

RIDEM's Comments on the April 29, 2013 memo for Alternative 7:

- In addition to the VWACs, please also provide the SWACs for Alternative 7.
- The memo indicates that the following cells will be dredged or capped in Alternative 7:

Dredge to 1 foot: AE24, G29, J24, J30, K05, K13, L28, Y30
Dredge to 2 feet: BC30, BD26, BE30, L24, W24, Y25, Y26, Y28
Dredge to 4 feet: AA05, G25

RIDEM requested that the Navy provide a table in the FS with the length and width of each cell, and the total cubic yards for 1 ft, 2 ft, and 4 ft depths as appropriate. Please also provide this information in the response to comments.

- The dredge volume, without including overdredge and sloughing, was provided for each area in this Alternative. Please provide this information for Alternative 5 for comparison purposes (or this can be determined from the information provided for the comment above).