

N62661.AR.002590
NS NEWPORT
5090.3a

LETTER AND COMMENTS FROM U S EPA REGION I REGARDING DRAFT FEASIBILITY
STUDY FOR SITE 17 GOULD ISLAND NS NEWPORT RI
11/10/2011
U S EPA REGION I



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, REGION I

5 Post Office Square, Suite 100
Boston, MA 02109-3912

November 10, 2011

Ms. Maritza Montegross
NAVFAC MIDLANT (Code OPNEEV)
Environmental Restoration
Building Z-144, Room 109
9742 Maryland Avenue
Norfolk, VA 23511-3095

Re: Draft Feasibility Study for Site 17, Gould Island

Dear Ms. Montegross:

Thank you for the opportunity to review the Draft Feasibility Study for Site 17, Gould Island, at the Naval Education and Training Center Superfund Site in, Newport, Rhode Island, dated September 2011. The Feasibility Study was conducted to develop and evaluate a range of remedial alternatives to address contamination found on shore and in the subtidal sediment that results in excess risk to human and ecological receptors. Detailed comments are provided in Attachment A. EPA will be providing additional comments on the Applicable or Relevant and Appropriate Requirements at a later date and respectfully requests and extension for this component of our review until December 16, 2011.

The Navy prepared Preliminary Remediation Goals for sediment using a NOEC/LOEC approach based on the paired toxicity testing and chemistry results. This approach is consistent with the approach used at other CERCLA sites. EPA evaluated other PRG development methods, including use of an ERM-quotient method, to develop alternative PRGs. None of the methods tried is ideal because the data include samples that were toxic, but with toxicity not attributable to any particular measured parameter. Similarly, the data include some samples with high chemical concentrations that did not exhibit toxicity. EPA also examined grain size and total organic carbon as possible confounding factors but found no strong association among these parameters and toxicity. EPA therefore acknowledges that the methods used by the Navy are technically defensible. EPA supports the recommendation by NOAA to use a value other than the NOEC as the "non-toxic" value for purposes of calculating a PRG. The LOEC for HMW PAHs is quite high using the current approach, and it is unclear what factors may inhibit or enhance toxicity with respect to PAHs.

The ERM-Q PRG is significantly exceeded in the vicinity of the dock along the eastern shoreline and at the nearby outfall. This area is also a surface drainage discharge area for the site. This area needs to be assessed further.

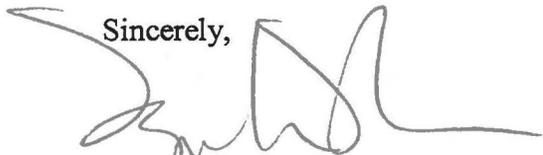
The FS stated that soil is not a medium of concern since risks from exposure to contaminated soil are acceptable. Therefore, soil PRGs were not developed. However, the FS also stated that onshore soil-debris containing elevated concentrations of contaminants as well as standing water within the debris must be addressed. A volume of 144 cubic yards of this material was estimated to be present

exceeding the PRGs and will be targeted for hot spot cleanup but the FS did not identify those PRG levels. Section 2.2.2 and Table 2-5 listed the soil COCs with EPA Regional Screening Levels, RIDEM Direct Exposure Criteria, and maximum detected concentrations from the risk assessment. It was unclear why the maximum detected concentrations used in the HHRA were selected for defining the area and volume of the hot spot removal. Federal and state screening levels and ARARs should be considered for the cleanup.

In general, a lot more detail is needed to explain the reported results in this modeling study. Specific comments to this affect are provided in Attachment A. EPA strongly recommends that the sediment stability performed in this study be performed again after the recommended changes are made. Further, a plan for performing the stability analysis should be submitted to EPA for approval before the stability analysis is repeated. EPA disagrees with the principal conclusions that: 1) the sediments in Stillwater Basin and the adjacent open water are stable and there is little potential for erosion and exposure of buried contaminants or for transport of contaminated sediment within the site; and 2) that active remediation is not recommended at the site.

I look forward to working with you and the Rhode Island Department of Environmental Management toward the cleanup of the Gould Island. Please do not hesitate to contact me at (617) 918-1385 should you have any questions or wish to arrange a meeting.

Sincerely,



Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Pam Crump, RIDEM, Providence, RI
Deb Moore, NETC, Newport, RI
Chau Vu, USEPA, Boston, MA
Ken Finkelstein, NOAA, Boston, MA
Steven Parker, Tetra Tech-NUS, Wilmington, MA

ATTACHMENT A

<u>Page</u>	<u>Comment</u>
Title Page	Please include "Operable Unit 6" in the title.
p. ES-1, ¶1	a) Please replace the second sentence in the first paragraph that refers to the NUSC Disposal Area rather than the Former Building 32 at Gould Island. b) Please correct the last sentence on the page by deleting "sediments within the" because the sediments do not reduce water energies.
p. ES-1, ¶2	Please state that the Gould Island OU is located in Jamestown, RI. Identify when the southern end of the island was transferred from Navy control.
p. ES-1, ¶3	Please limit the discussion to Building 32 and the contamination associated with it.
p. ES-2, ¶2	Please specify when the transformers were in use and when they leaked the PCBs.
p. ES-2, ¶5	Please state whether there is potable groundwater on the island. Provide sodium concentrations if relevant.
p. ES-3, ¶1	The presence of eelgrass is not a legitimate reason to exclude areas of contaminated sediment exceeding PRGs as part of the OU. The presence of eelgrass may influence which remedial action might be taken, but not whether remedial measures need to be evaluated to address the PRG exceedances.
p. ES-3, ¶3	Consistent with the NCP at 40 CFR 300.430(e)(2)(i), remedial action objectives need to include remediation goals. Remediation goals shall establish acceptable exposure levels that are protective of human health and the environment. Please note that if recreational use is present (or may be present in the future) the human health PRGs need to be based on residential risk standards.
p. ES-3, bullet 2	PCB cleanup levels to prevent human exposure from shellfish consumption need to be based on TSCA risk-based standards.
p. ES-3, ¶4	Please describe how migration of soil contamination to groundwater or to the bay via erosion will be prevented.
p. ES-3, ¶5	Sediments exceeding PRGs along the Northeast shoreline should be estimated for cost purposes.
p. ES-4, ¶1	If waste exceeding residential PRGs is left in place for OS-2 and OS-3, long-term monitoring will also be required. For OS-2, LUCs need to include

engineering controls to prevent migration of contamination, prevent direct human exposure, and restrict activities in the area. Specify whether OU-3 includes backfilling with clean material to prevent direct exposure to remaining contaminated soil that will not be excavated

p. ES-4, ¶2

SD2 will need to meet EPA guidance for Monitored Natural Recovery alternatives, including source control and meeting sediment PRGs within a reasonable period of time. The LUCs to prevent shellfish harvesting would be temporary until sediment PRGs are achieved. Five-Year Reviews would only be required until cleanup levels are achieved.

Does SD-3 involve installing a subaqueous cover over the NE Shoreline area? For SD-4 will the proposed MNR for the NE Shoreline area meet EPA guidance? Specify what LUCs would be required and whether they are just for the NE Shoreline Area until sediment cleanup standards are met. Five-Year Reviews would only be required until cleanup levels are achieved.

p. ES-4, ¶3

State that a Responsiveness Summary will be developed to address public comments and incorporated into the ROD.

p. 1-3, §1.3

Please state that the Gould Island OU is located in Jamestown, RI. Specify when the southern end of the island was transferred from Navy control.

p. 1-4, ¶2

What is the acreage under Navy, versus State control?

p. 1-5, §1.3.2

Please describe the removals in greater detail. Were the removals conducted under CERCLA? If a CERCLA removal was the cleanup level to industrial or residential standards? Were the PCBs in the groundwater addressed?

p. 1-7, §1.4.1

The discussion of groundwater needs to address groundwater on Gould Island, not the base in general.

p. 1-8, §1.4.2

This section should discuss whether the groundwater on the Site is potable (non-saline) groundwater.

p. 1-8, §1.5

Is the State land a designated wildlife refuge?

p. 1-15, §1.8

Was subsurface soil sampled below the Building 32 slab foundation (or just in the sumps and trenches)?

p. 1-15, ¶3

The following sentence is unclear: "Additionally, these soils are not expected to impact the adjacent marine sediments in the Stillwater Basin: the adjacent sediments already contain PCBs and PAHs above the concentrations measured in the soil." Any remedial measure for sediments would need to take into account whether remediated areas would become re-contaminated from on-shore sources.

p. 1-15, §1.8.2

If there are exceedances of MCLs in groundwater at the Site (it is unclear whether this section is just discussing groundwater under Building 32 or

throughout the Navy property on Gould Island), then groundwater remedial alternatives need to be evaluated in the FS.

Section 1.3.2 discusses PCBs in groundwater in the area of Building 54 that should be discussed in this section also.

- p. 1-18, ¶1 Regarding the third sentence, in stating PAH levels in groundwater are “low,” what are the levels compared to?
- p. 1-19, §1.10 Risk from exposure to contaminated groundwater needs to be addressed as there are some exceedances of MCLs.
- p. 1-20, ¶2 Should the fourth sentence refer to mussels or clams?
- p. 1-21, §1.10.4 Please identify COCs for groundwater (at least for contaminants exceeding MCLs) and for residential exposure levels in soils.
- p. 1-22, ¶2 The groundwater analysis needs to be revised based on future potential use of potable groundwater. All groundwater that is not saline needs to meet MCLs unless the groundwater use has been reclassified by EPA’s Drinking Water Program (which has not occurred at Gould Island). Future residential or recreational development of the property (or the adjacent State property) is not restricted and therefore low rate drinking water wells could be developed under future development scenarios.
- Regarding vapor issues, if the groundwater has sufficient contamination to pose a current vapor risk to construction workers, then future reuse could be at risk from vapor.
- p. 1-25, §1.11.4 A PRG for PCBs may need to be calculated based on risk-based TSCA PCB standards.
- p. 2-3, §2.1.4.1 Chemical-specific ARARs need to be identified for groundwater (*i.e.*, MCLs, MCLGs, federal risk-based standards, or more stringent state MCLs or MCLGs).
- For soil compliance with RI Remediation Regulations Soil Leachability criteria need to be assessed for potable groundwater.
- For sediment and shellfish federal risk-based standards for PCBs may be developed under TSCA.
- p. 2-6, ¶1 Residential PRGs also need to be developed to determine the extent of LUCs that may be required at the Site. They also need to be developed to address potential recreational activity at the site.
- p. 2-6, §2.2.1 Regarding groundwater, unless the groundwater is saline, groundwater is a media of concern if there are contaminant exceedances of federal drinking

water, federal risk-based standards, or more stringent state standards. Vapor needs to be evaluated if concentrations would pose a risk to future development (for instance if a remedy would require LUCs to prevent development that would cause exposure to vapor).

- p. 2-8, §2.2.2 Human Health PRGs also have to be based on unrestricted residential exposure levels.
- p. 2-10, ¶3 The text discusses that PCBs in sediment pose a human health risk, but PCBs in sediment are not discussed in the Human Health subsection starting on page 2-8.
- p. 2-10, §2.3 RAOs need to be developed for groundwater and for future residential (including recreational) use at the Site. An RAO is needed to address preventing erosion or other migration of soil contaminants to sediments.
- p. 2-12, §2.3 The volume of contaminated material exceeding residential risk standards needs to be calculated, as well as the volume of contaminated groundwater. The area of eelgrass beds that exceed sediment PRGs need to be included in the volume estimate.
- §2.4 Although soil debris from the sump could be considered for hot spot removal, it seems that the maximum soil PAH concentrations will be used as cleanup levels. Please clarify the rationale for using these concentrations instead of federal/state screening levels and ARARs (*see also* general comments).
- p. 3-1, §3.0 This section needs to address groundwater and soil exceeding residential risk standards. Treatment GRAs need to be included to address the water in the sumps/trenches and dewatering liquid removed from sediment dewatering and stabilization of sediments using polymers.
- p. 3-6, §3.2 In the first sentence of the third paragraph of the section add “and EPA guidance” at the end of the sentence. In the third sentence replace “; however, the manner in which the LUCs are to be enforced will be addressed in the ROD” with “if the Navy does not meet its obligations under the FFA to enforce the ROD restrictions.”
- Describe the LUC RD process.
- p. 3-7, bullets 1 & 2 LUCs are needed to prevent recreational and residential use. Since the State-owned part of the island is open for public access for part of the year (between Aug. 16 and March 31), it is unclear how effective or implementable LUCs would be in preventing public access either from the State property or by water.
- p. 3-7, Conclusion Regarding the second sentence, any allowed recreational use as open space must meet residential risk cleanup levels. LUCs will not address any risk from movement of contamination through erosion or flooding.

- p. 3-9, ¶1 If excavation does not remove all contaminated material down to unrestricted use levels then the backfill will all serve as a containment cover and long-term O&M, LUCs and long-term monitoring will be required. Confirmatory sampling would be needed to assess whether contamination has migrated from the trenches and sumps through cracks or other faults in the foundation into subsurface soils.
- p. 3-9, §3.3.5 The text needs to state whether *in situ* treatment will be considered. In the last sentence “There GRAs” should be changed to “The GRAs for the two treatment alternatives.” Discuss treatment of water removed from the sumps/trenches.
- p. 3-11, bullet 1 Regarding the last sentence, no onsite treatment before offsite disposal is proposed.
- p. 3-11, bullet 2 Does the waste need to be manifested to transport it by barge across the Bay? What facilities are needed to off-load the barge (the off-loading facility standards and decontamination standards for the barge need to be incorporated into any remedial alternative that involves off-site disposal)? Regarding the fourth sentence, clarify that no onsite treatment of the material is proposed (either on the island or on base after it is off-loaded from the barge).
- p. 3-13, §3.4.2 The last sentence of the first bullet is not correct. Enhanced natural recovery would have a detrimental impact on the environment. Please revise this sentence to acknowledge that.
- p. 3-13, bullet 1 Evaluate whether MNR would be effective in the eelgrass areas. The MNR alternative must state how long it will take to reach sediment cleanup standards.
- p. 3-13, bullet 2 Remove the last sentence, since there still are sources of contamination on site. Coastal flooding events could cause migration of on-site contamination to off-shore sediments. Does the groundwater pose a migration pathway? Does subsurface soil under the foundations exceed leachability standards? Please clarify whether the previous removal action removed all PCBs in all media to unrestricted exposure levels.
- p. 3-13, Conclusion Remove the first sentence.
- p. 3-13, IC/LUCs Describe the issues with restricting state-owned subtidal/intertidal property under either the circumstances that the Navy retains ownership of the island or it is transferred (can an ELUR be put on State-owned submerged lands?). Under the current ownership, will state shellfishing regulations be used to establish a shellfishing ban. If not will the ban be contingent on the Navy patrolling the area and preventing access (both to prevent contact risks and shellfishing)? If a cap is proposed what measures are proposed to protect the

cap? In the event of a transfer would the Navy coordinate with the Coast Guard to establish anchorage restrictions over any capped areas? Under capping alternatives LUCs would be permanent; under MNR they would be temporary until sediment cleanup levels are achieved.

p. 3-14, Cover System It is unclear whether a one foot cap would be effective as a cover system.

p. 3-15, bullet 2 There may be implementability issues with habitat mitigation requirements from cap installation (changes in bottom depth change aquatic habitats – i.e. subtidal to intertidal).

p. 3-15, last ¶ It is unclear whether the consolidation would occur in the water or along the shore. There are different issues involved with each, including whether subtidal areas might be converted to intertidal areas or intertidal areas converted to upland.

p. 3-16, bullet 1 In the last sentence insert “long-term O & M and” before “continual monitoring.”

p. 3-16, bullet 2 There may be implementability issues with habitat mitigation requirements due to creation of the consolidation cell (dependent on where the cell is located).

p. 3-16, Conclusion The reasons for not choosing the alternative would not apply as much if the containment cell were constructed along the shore).

p. 3-16, §3.4.4 Removal needs to be evaluated for the Northeast Shoreline as well as the Stillwater Basin.

p. 3-16, §3.4.3 The conclusion that consolidation and covering is not a viable alternative is not consistent with the retention of SD-3 and SD-4 that have the same impacts that consolidation and covering was dismissed with. One viable rationale to dismiss consolidation and covering would be the potential impact on vessel use in the area of consolidation and covering should the Navy decide that the area would be used significantly in the future, which seems unlikely.

p. 3-21, §3.4.4 Please edit the discussion of hydraulic dredging to acknowledge that the presence of larger debris could impact the effectiveness and efficiency of hydraulic dredging.

p. 3-22, §3.4.5 Disposal needs to be evaluated for the Northeast Shoreline as well as the Stillwater Basin.

Would the contaminated sediment need to be manifested to transport it by barge across the Bay? What facilities are needed on the Base side to off-load the barge (the off-loading facility standards and decontamination standards for the barge need to be incorporated into any remedial alternative that

involves off-site disposal)?

- p. 3-23, §3.5 It appears that remedial alternatives need to be developed for groundwater based on exceedances of MCL and potential PCB left in groundwater after the removal action. It is unclear whether soil remedial alternatives may be required either because potential soil contamination under the building slab foundation was not fully assessed or because soil within the Site exceeds residential/state recreational risk levels.
- p. 3-26, Onshore If waste exceeding residential PRGs is left in place for OS-2 and OS-3, long-term monitoring will also be required. For OS-2, LUCs should include engineering controls to prevent migration of contamination, prevent direct human exposure, and restrict activities in the area. Specify whether OU-3 includes backfilling with clean material to prevent direct exposure to remaining contaminated soil that will not be excavated.
- p. 3-26, Offshore The Monitored Natural Recovery alternatives need to include source control measures and meet sediment PRGs within a reasonable period of time. The LUCs to prevent shellfish harvesting would be temporary until sediment PRGs are achieved. Five-Year Reviews would only be required until cleanup levels are achieved.
- Does SD-3 involve installing a subaqueous cover over the NE Shoreline area? For SD-4 will the proposed MNR for the NE Shoreline area meet EPA guidance? Specify what LUCs would be required and whether they are just for the NE Shoreline Area until sediment cleanup standards are met. Five-Year Reviews would only be required until cleanup levels are achieved.
- p. 4-2, §4.1.3 Alternative OS3 needs to describe the collection, treatment and disposal of the contaminated water in the sumps/trenches. Please explain how the Navy will manage any water that may be present in the sumps and trenches for Alternative OS-3.
- p. 4-2, Offsite Disp. Will the waste be manifested to transport it by barge across the Bay? What facilities are needed on the Base side to off-load the barge (the off-loading facility standards and decontamination standards for the barge need to be incorporated into any remedial alternative that involves off-site disposal – assuming the waste is off-loaded at the Base)? If the off-loading is not conducted at the Base then the off-loading facility standards and barge decontamination standards should not be included as components of the remedy.
- p. 4-2, LUCs An unlimited use risk-based level needs to be calculated in order to determine the boundary of where LUCs would be required. It is unclear whether sufficient sampling has been done to characterize the soil under the building slab foundation for purposes of identifying required LUCs. If contamination about unlimited use risk-based level is left on site then long-term monitoring will also be required. It is unclear whether, post removal of the soil-debris,

whether LUCs will be protective against trespasser use of the property (assuming contamination is left in place at the surface that would pose a risk), since enforcement of LUCs may be difficult because of public use of the rest of the island and the island's distance from the Base.

- p. 4-3, §4.1.3 Please provide better rationale for the need for LUCs. Briefly describe where contamination is present at levels that require LUCs and over what portion of the Site LUCs need to be applied.
- p. 4-5, §4.2.2 There is no environmental risk associated with OS-2 so delete the reference to protection of the environment.
- p. 4-5, Cost Table A Five-Year Review cost should be included (\$27,500 every 5 years).
- p. 4-5, §4.2.2 It is unclear why this alternative is carried forward for analysis since it fails to meet the Protectiveness and ARARs criteria.
- p. 4-5, last ¶ Change the first sentence to: "Alternative OS2 would not be protective of human health and the environment because LUCs alone would not be effective in preventing residential/recreational exposure to Site contaminants nor migration of contaminants during coastal storm events." [The building foundation is below the 100-year coastal storm elevation]. LUCs are not effective in preventing ecological exposure.
- p. 4-6, §4.2.2 The discussion under Long-Term Effectiveness and Permanence states that risks to the environment would remain. Section 2.2.1 states that no unacceptable risks were identified for ecological receptors exposed to soil at the site. Please correct.
- p. 4-6, CompARARs The alternative does not meet location-specific ARARs (coastal resource/floodplain standards).
- p. 4-6, ¶4 See previous comments about the potential ineffectiveness of LUCs.
- p. 4-7, §4.2.3 See previous comments about this alternative. It is not possible to fully assess the NCP criteria since it is not known whether residential/ recreational risks will be adequately addressed (it is uncertain the extent of LUCs required and whether they would be effective). Water removed from the sumps/trenches will require treatment before discharge (or may need treatment before disposed at a POTW or other waste facility). If the off-loading of contaminated material takes place on base, then the off-loading operations and the decontamination of the barge need to be included as components of the alternative.
- p. 4-7, §4.2.3 The last paragraph states that Five-Year Reviews would not be required for OS-3. That is not correct and is inconsistent with the need for LUCs. If unrestricted use of the site is not allowed then Five-Year Reviews will be required. Please correct.

- p. 4-9, §4.3 The discussion under Compliance with ARARs highlights the need for additional remedial alternatives for on-site soil/debris because with only one viable alternative, the FS is not complete. Please add at least one more viable alternative, such as pouring a concrete cap over the sumps and trenches.
- p. 4-9, §4.3 This comparison section cannot be evaluated because: 1) there is incomplete information on OS3 and 2) OS2 is neither protective nor meets ARARs. Additional alternatives that meet the NCP criteria need to be considered (in addition to addressing the incomplete information concerning OS3).
- p. 4-10, §4.3 a) Under Short-Term Effectiveness, the statement that OS-1 would be effective in the short-term is not correct because OS-1 would do nothing to prevent exposure to the materials causing risk. Please correct.
- b) Under Costs, there must be a difference in the monitoring costs for OS-2 and OS-3. Additional sampling throughout the life of the alternative would be needed for OS-2 to check the concentrations of contaminants in the sumps and trenches and to check for migration of contamination from the sumps and trenches. Please edit the costs and the text to reflect this.
- p. 5-1, §5.0 See previous comments about the sediment alternatives. In particular, the SD2 Monitored Natural Recovery alternative needs to include source control measures and meet sediment PRGs within a reasonable time. The LUCs to prevent shellfish harvesting and Five-Year Reviews would only be required until sediment PRGs are achieved.
- Does SD-3 involve installing a subaqueous cover over the NE Shoreline area? For SD-4 will the proposed MNR for the NE Shoreline area meet CULS within a reasonable time period? Specify what LUCs would be required and whether they are just for the NE Shoreline Area until sediment cleanup standards are met. Five-Year Reviews would only be required until cleanup levels are achieved.
- p. 5-1, §5.1 The remedial alternatives for sediment need to address the Northeast shoreline and eelgrass areas (include the sediment volume estimates for these areas).
- p. 5-2, §5.1.2 This remedy should only be carried forward if it will achieve sediment cleanup standards through MNR. The period that the alternative will take to meet cleanup standards through MNR needs to be revealed.
- Describe the issues with restricting state-owned subtidal/intertidal property under either the circumstances that the Navy retains ownership of the island or it is transferred (can an ELUR be put on State-owned submerged lands?). Under the current ownership, will state marine fisheries regulations be used to establish a fishing and shellfishing ban? In the event of a transfer would the Navy coordinate with the Coast Guard to establish anchorage restrictions over the areas? Assuming MNR standards can be achieved, the LUCs would

be temporary until sediment cleanup levels are achieved.

- p. 5-2, §5.1.2 As written Alternative SD-2 does not satisfy the remedial action objectives (RAOs), because it is not protective of the environment, so it should not be retained for detailed analysis.
- p. 5-3, §5.1.3
- a) Please edit the description of alternative SD-3 to include pre- and post-remediation bathymetric surveys to confirm the proper placement of the cover system.
 - b) In order to establish a restricted zone within the Narragansett Bay, coordination would be needed with the appropriate federal and/or Rhode Island agencies. Please clarify that requirement in the FS.
- p. 5-3, §5.1.3 A one foot cover may not be protective in preventing ecological exposure to burrowing marine life, the areas not covered (Northeast shoreline/eel-grass areas) need to achieve sediment cleanup standards. Describe any issues with establishing and enforcing LUC in State subtidal/intertidal property.
- p. 5-4, §5.1.4 See previous comments about SD4, particularly that the location of the sediment dewatering and transfer areas need to be identified and if they are on the main Base, those areas need to be incorporated into the alternative. Will there be confirmatory sampling to ensure all contaminated sediment above cleanup levels is removed? Any backfill needs to serve as a protective cover, along with long-term O&M, monitoring, and Five-Year Reviews. Will absorbent polymer be added when the dewatered sediment is in the barge or in the truck? Barging of sediment may need to be manifested. How will liquid that is released in the barge be addressed?
- Furthermore, the areas not dredged need to achieve sediment cleanup standards through MNR guidance standards, and the alternative needs to identify issues with establishing and enforcing LUC in State subtidal/intertidal property.
- p. 5-6, Cost Table Add Five-Year Review costs (\$25,300/5 years).
- p. 5-7, §5.2.2 This alternative should only be carried forward with the NCP analysis if it will achieve sediment cleanup standards through MNR. The time to meet cleanup standards through MNR needs to be revealed.
- In the second paragraph the text needs to clearly state whether the alternative meets the criteria (“moderate protection” is not enough).
- In the fourth paragraph, the alternative does not meet ARARs if MNR cannot achieve sediment cleanup standards within a reasonable period of time. The alternative does not meet TSCA risk-based standards unless MNR can be achieved throughout the Site.
- Under the discussion of this alternative, delete the references that claim to

reduce the risk to the environment because LUCs will not provide any significant benefit that would reduce risks to the environment.

p. 5-8, ¶3

Identify when the alternative would meet ecological RAOs through MNR throughout the Stillwater Area and Northeast Shore.

p. 5-8, ¶4

See previous questions about LUC implementability issues in State-owned subtidal and intertidal areas.

p. 5-9, §5.2.3

See previous comments about SD3, particularly that a one foot cover is not protective in preventing ecological exposure to burrowing marine life, the areas not covered (Northeast shoreline/eelgrass areas) need to achieve sediment cleanup standards through MNR, and the alternative needs to identify issues with establishing and enforcing LUC in State subtidal/intertidal property.

In the third paragraph, the alternative does not meet ARARs if the cap is not protective nor if MNR cannot achieve sediment cleanup standards in the Northeast Shoreline/Eelgrass Areas within a reasonable time period. The alternative does not meet TSCA risk-based standards unless a protective cover is used in the Stillwater Area and MNR can achieve sediment cleanup standards throughout the rest of the Site.

In the last sentence, change *increased* to *indicated*.

p. 5-10, §5.2.3

Please edit the sentence at the top of the page to clarify that LUCs would only prevent disturbance of the sediment *by fishermen*.

p. 5-10, ¶2

Remove all of the text after the first sentence since it has no bearing on whether the alternative complies with the criterion (the only relevant issue is whether there is treatment).

p. 5-10, ¶4

The alternative would not achieve RAOs until sediment cleanup levels were met through MNR in the Northeast Shoreline area.

p. 5-10, ¶5

See previous comments about LUC implementability issues in State-owned subtidal and intertidal areas.

p. 5-11, §5.2.4

See previous comments about SD4, particularly that the location of the sediment dewatering and transfer areas need to be identified and if they are on the main Base, those areas need to be incorporated into the alternative. Will there be confirmatory sampling to ensure all contaminated sediment above cleanup levels is removed? If the site is backfilled, the backfill needs to serve as a protective cover, cover standards need to be met, along with long-term O&M, monitoring, and Five-Year Reviews. Barging of sediment may need to be manifested. How will liquid that is released in the barge be addressed? See previous comments regarding whether MNR will be effective in achieving sediment cleanup level in the Northeast Shore Area and that the alternative needs to identify issues with establishing and enforcing

LUC in State subtidal/intertidal property.

In the second paragraph, the alternative will only meet RAOs in the Northeast Shore Area if CULs can be demonstrated to be met via MNR in a reasonable time period.

In the third paragraph ARARs will only be fully met if CULs can be demonstrated to be met via MNR in a reasonable time period in the Northeast Shore Area.

For the discussion of this alternative, delete the references that claim to reduce the risk to the environment via LUCs because LUCs will not provide any significant benefit that would reduce risks to the environment.

- p. 5-12, ¶2 This alternative will provide limited treatment of dewatering water released from the sediment, also stabilization of contaminated sediments before shipment off-site (assuming the stabilization occurs either on the barge before departing Gould Island, or at the Base if the barge is off-loaded there). Replace the last sentence with: "There will be no treatment of the sediments in the Northeast Shore Area."
- p. 5-12, ¶4 RAOs will not be achieved unless sediment cleanup standards in the Northeast Shore Area can be met through MNR in a reasonable time period.
- p. 5-12, ¶5 Identify whether the dewatering will occur on Gould Island or at the Base.
- p. 5-12, Implement. This section needs to discuss LUC issues in State waters, as well as whether confirmatory sampling will ensure that all contaminated sediment exceed cleanup standards is removed in the Stillwater Area or that the backfill will serve a cap/cover over deeper contaminated sediments (which would then require long-term O&M and Monitoring).
- p. 5-13, ¶2 Under CERCLA , the State and other resource agencies may be consulted regarding fisheries timing issues, but EPA retains decision authority.
- p. 5-13, §5.3 This comparison section cannot be evaluated because there is incomplete information on whether the MNR components of the sediment alternatives are protective and meet ARARs. In addition, previous comments (above) for each alternative regarding the NCP criteria analysis need to be addressed before a comparison of alternative can be made.
- p. 5-13, §5.2.4 The O&M/LTM costs for Alternative SD-4 should be significantly less than the O&M/LTM costs for SD-3. Please revise the FS to reflect that.
- p. 5-14, §5.3 a) The last sentence in the first paragraph states that the marine benthic ecosystem would be expected to recover faster with SD-3 than with SD-4. It is not apparent that this is true or that a significant time difference would exist if it is true. Please supplement the discussion with information supporting this contention.

b) Regarding the discussion in the second paragraph and throughout this section, please acknowledge that Alternative SD-2 is not protective of the environment and that it is significantly less protective and effective than SD-3 or SD-4. Also, SD-2 does not satisfy the ARARs. Because SD-2 does not achieve the project RAOs it should not even be carried into detailed analysis.

p. 5-15, §5.3

Under Short-Term Effectiveness, the statement that SD-1 would be effective in the short-term is not correct because SD-1 would do nothing to prevent exposure to the contaminants causing risk. Similarly, SD-2 does nothing to prevent the exposure of ecological receptors to the contaminants so it cannot be effective in the short-term either. Please correct.

Table 1-1

In Page 1 - It is unclear whether the removal action removed all PCBs that could pose an actionable ecological risk. Since no evaluation was done of potential risk to human residential/recreational receptors, it is unknown whether there is actionable risk. The line for petroleum should be removed (and anywhere it occurs in Table 1-1). There is not a section concerning the risks posed by the soil/debris in the sumps and trenches.

In page 2, clarify whether the subsurface soil includes under the foundation slab.

In page 3, it does not appear that groundwater was evaluated based on drinking water standards (in section 1.8.2 it states there are exceedances of MCLs). It is unclear whether the water in the sumps/trenches is groundwater that migrates in and out of the sumps/trenches through openings in the foundation or if it is trapped stormwater.

Page 4 – Specify whether sediment contaminant levels pose a human health risk at unrestricted/residential risk levels. Does the sediment Table address both the Stillwater and Northeast Shore Areas?

Table 1-2

Include an assessment for drinking water. Subsurface soil/dust risk is not discussed in the FS text. It is unclear where “Shallow Groundwater – Test Pits” are at the Site. Is this the water in the sumps/trenches? Is this water groundwater or is it stormwater that has flowed into the sumps/trenches?

Table 2-7

The human health PRG for total Aroclor should be 1000ug/kg or 1ppm, not 1500 ug/kg. This is EPA policy cleanup number for PCBs (OSWER Directive No. 9355.4-01, August 1990.).

Table 2-7

Please add total Aroclor values for SD304B and SD304E. Table A-3.5 indicates these values are 3,600 for SD304B and 3,300 for SD304E.

Figure 2-8

The exceedances of PRGs shown are not consistent with the exceedances shown on Figures 2-3 through 2-7. Other locations also had PRG exceedances, such as SD-401, SD-407, and SD-317, and should be colored green. Please correct.

Appendix A – Historical Information

- Appendix A-2 Figure H-3 should include PCBs in the underground release from the transformers.
- Appendix A-4 No Attachment A was included.

Appendix B – Preliminary Remediation Goals

- Table B-1.2 Please correct footnotes 8, 9, 10, and 11 since they do not match with the values in the table. Also correct the ingestion rate units to g/day, not g/meal.

Appendix C - Sediment Transport Model

- Figure 2 Recognizing that none of the originally planned locations for core collection were successful, there is some concern that all the cores evaluated were generally collected from a clustered area and may not be representative of sediment throughout the site vicinity or in other parts of the Stillwater Basin within and outside the area potentially designated for remediation. EPA notes that page 9 of the Flume Test Report states: *Cohesive sediment erosion is sensitive to slight changes in bed density, deposit mineralogy, gas content, organic content, biological activity, debris and a host of other factors.* Please explain why these particular alternative locations were appropriate other than the fact that sediment could be collected there. Also discuss how this affects the analyses in the FS that rely upon the flume tests.
- p. 11, Figure 8 Is the minimum wave period measureable by the ADCP two seconds? Is this correct?
- p. 18, §2.4.4 Regarding the first sentence, if sediment transport modeling is performed in the future, then suspended sediment data should be collected for use in calibrating and validating the model. Composition of the collected sediment samples must be determined to know what percentage of the sediment was organic matter.
- p. 23, Table 2 How were the critical erosion velocities in this table determined? Define the maximum stresses provided. Were maximum stresses used in this analysis?
- p. 23, §2.6 Please change “The mass erosion rate of sediment” to “The resuspension rate in units of mass of eroded sediment per unit bed area per second.”
- p. 24, Table 3 Provide the units of the parameters listed in this table.
- p. 25, §3.3.1 Depending on its magnitude, a storm surge might result in increased near-bottom velocities. This sentence should be modified.
- p. 27, §4.1.1 Explain why the model domain shown in Figure 19 was used for STWAVE.

- p. 31, §5.1 Were the principal tidal components from the Newport tide gage adjusted for phase and amplitude application along the offshore grid boundary? What is the significance of the model's performance at the tide gage nearest Gould Island? These results are not surprising since the model was driven by tidal constituents determined from this tide gage.
- p. 33, §5.2.2 Please explain why the Narragansett Bay model did not have sufficient resolution to determine the northern boundary condition for the Gould Island model. The resolution of the Narragansett Bay model looks fine in that portion of the grid. Why wasn't this checked during the development of the Narragansett Bay model? EPA disagrees with the procedure used to determine the northern boundary condition ('optimization approach along with further adjustment of the south boundary conditions'), as well as the use of the current measurements at ADCP 3 to adjust this boundary condition that eliminated a data set that *should* have been used for model validation. The sensitivity analyses performed does not compensate for the incorrect procedure used to setup, calibrate, and validate the Gould Island hydrodynamic model.
- p. 35, §5.2.3.1 Explain what is shown in Table 8 and in Figure 23, and what conclusions were reached from the analyses depicted.
- p. 36, Figure 22 Plot the modeled results using another color so that the differences between measured and modeled results can be more easily seen.
- p. 37, Table 8 Why was water depth instead of water surface elevation used in the analysis shown in this table?
- p. 37, §5.2.3.2 Was the 'difficulty in achieving a high level of agreement between observed and predicted current phases' owing to the constructed northern boundary conditions?
- Explain in detail how the 'calibration adjustment of the open boundary conditions' was performed.
- Explain in detail how 'the observational data was assimilated into the model', and why this procedure was performed.
- p. 38 a) The last sentence in the partial paragraph at the top of the page states: *To compensate for this under-prediction extra care will be necessary in evaluating sediment stability in the vicinity of location 5*. Please clarify how the Navy exercised extra care for location 5. Also, because no testing was done in the southwestern corner of the Stillwater Basin, presumably even more care must be exercised for this area as compared to location 5. Please clarify how the Navy can confidently make predictions about the sediment in the southwestern corner of the Stillwater Basin without the location-specific sediment stability data.

b) Page 39, Figure 25: This figure indicates the maximum bed stress is based on a bed roughness of 0.01. Figure 24 suggests that at least two other bed roughness factors were evaluated. Please clarify the basis for the bed roughness factors evaluated and indicate to what extent the debris present in the Stillwater Basin, that would impact the bed roughness factor, was considered in the modeling. How well was the Navy able to characterize the debris present at the site to derive a suitable bed roughness factor?

c) Page 45: Please delete the last sentence in the second paragraph that reads: "Active remediation is not recommended for the site." The Feasibility Study does not recommend alternatives and it is not the place of the Tier 2 modeling to make recommendations for remediation but only to evaluate the stability of the site sediment.

p. 38, §5.2.3.2

Location 5 is an area of high COC concentrations. A spatially variable bed roughness should be used to improve the model's performance in this area.

p. 38, Figure 24

Why were depth-averaged velocities used in the analyses seen in this figure instead of the measured velocities in the lowest ADCP bin? This should have been done for comparison of velocities calculated using the 4-layer hydrodynamic model.

p. 38, §5.2.3.3

Why were the 'maximum bed stresses used in analysis of sediment bed stability' determined during a neap tide, when the tidal currents will be the smallest? This procedure needs to be changed.

The equations that were used to calculate the bed shear stresses under currents only and under wave and currents should be included in the report.

Were the bed shear stresses shown in Figure 26 calculated using wave results from a STWAVE simulation for the same time period as that simulated using EFDC? The bed shear stresses 'with wave-current boundary layer' shown in Figure 26 in Stillwater Basin do not appear to be correct. Since the equation used to calculate the bed shear stress in EFDC with the wave-current boundary layer option is not included in the report, it not possible to review why those bed shear stresses are not higher.

Explain what is meant by momentum addition at ADCP locations 4 and 5. Because of the identified problems with the presented analysis, EPA does not agree with the statement that "it is reasonable to assume that maximum stresses within Stillwater Basin will be less than 0.2 Pa."

p. 41, §5.3, 8th line

Since a site-specific test of cohesive sediment erodibility was performed at this site, this statement is confusing.

p. 42, §5.3, ¶1

In the last sentence, it is stated that the maximum total bed stress, rather than the grain stress or skin friction, was used to perform a conservative comparison. The total bed stress would be equal to the grain stress unless

there were bed forms at this site. Were bed forms present in the area where the comparison was performed? If so, were they accounted for in performing the model calibration, specifically in adjusting the value of z_0 used?

p. 42, Figure 28

Explain how the Shields Diagram shown in this figure was modified.

Appendix D – Cost Estimates for On-shore Alternatives

Appendix D

a) For OS-1, because unrestricted site use would not be allowed, Five-Year Reviews are required for OS-1. Please edit the costs accordingly.

b) For OS-3, please clarify why 50 tons of trees need to be cut and disposed to implement this alternative. There are few if any trees around former Building 32 although there may be some small trees or shrubs growing in the sumps and trenches. If vegetation needs to be removed from the sumps and trenches, why would it need to be disposed off site?

c) Also for OS-3, why would the sumps and trenches need to be backfilled and seeded?

d) Please clarify the current status of the sumps and trenches. Have they previously been backfilled or are they open pits?

e) For the detailed capital cost for OS-3:

1. Line Item 1.2: presumably this item refers to development of the LUC RD (as it did for OS-2); therefore, please change the title accordingly.

2. Line Item 1.3: why would a groundwater monitoring plan be required for OS-3 when it is not required for OS-2?

3. Line Item 3.4: Why would survey support be required?

4. Line Item 3.7: If utility clearance is actually required in sumps and trenches, the estimate grossly exaggerates the cost.

5. Line Item 4: Please clarify why the decontamination costs are so high and why a decontamination pad is required? When would equipment decontamination be needed other than when leaving the site?

6. Line Item 5: No access ways apparently need to be created based on the existing site conditions. Therefore, the site preparation costs appear to be grossly overestimated.

7. Line Item 6.4: Why are verification samples required? The alternative will remove all contaminated materials.

8. Line Item 7: Why is restoration (backfill and seeding) of the sumps and trenches required?

9. The cost for off-site disposal of the 50 tons of vegetation identified earlier in this appendix for this alternative is missing. Assuming this is not

necessary, please delete the requirement from the description of the alternative.

Appendix E – Cost Estimates for Off-shore Alternatives

Appendix E

a) For SD-1 (p. 1 of 9), because unrestricted site use would not be allowed, Five-Year Reviews are required for SD-1. Please edit the costs accordingly.

b) For SD-2, a much more comprehensive sampling program is expected for this alternative.

c) The description of SD-3 in this appendix (p. 4 of 9) is not consistent with the description in Section 5.1.3 of the FS. Section 5.1.3 includes and additional six inches of armor material and it does not include the geotextile. Please correct the description and the costs for SD-3.

d) The annual costs for SD-3 (p. 5 of 9) include only four sediment samples. Many more sediment (and biota) samples than that will be required to monitor the vicinity of the cover system but also the other areas of sediment where the cleanup goals have been exceeded but no remedial action is taken.

e) For SD-4 (p. 7 of 9) please clarify what the load platform structure is. This feature is not discussed and not apparently necessary based on the description of this alternative in Section 5.1.4. Please reconcile. EPA assumes the barge containing the geotube would be transported off site for off loading and disposal.

f) For the detailed capital cost for SD-2: Line Item 1.2: Please clarify what permits are required for this alternative given that CERCLA work is generally exempt from preparing permits.

g) For the detailed capital cost for SD-3:

1. Line Item 1.2: Please clarify what permits are required for this alternative that require 300 hours of effort given that CERCLA work is generally exempt from securing permits.

2. Line Item 4: It is not clear why a decontamination pad would be needed or why extensive decontamination services would be required. Debris recovered would likely be loaded onto a barge rather than off loaded to land and reloaded again onto a barge for disposal. Please clarify the need for the extensive decontamination services included.

h) For the detailed capital cost for SD-4:

1. Line Item 1.2: Please clarify what permits are required for this alternative that require 300 hours of effort given that CERCLA work is generally exempt from securing permits.

2. Line Item 4: It is not clear why a decontamination pad would be needed

or why extensive decontamination services would be required. Debris recovered would likely be loaded onto a barge rather than off loaded to land and reloaded again onto a barge for disposal. Please clarify the need for the extensive decontamination services included.

3. Line Items 5.4 and 5.5: Please clarify in the description of the alternative why a loading platform is needed.